Independent Examination of the Cranbrook Local Plan

Stage 2 Questions from the Examiner

Submission on behalf of East Devon New Community partners

Viability Matters Question AQ1 to AQ12

30th September 2020

The following is the response on behalf of the East Devon New Communities partnership (EDNCp) to the questions posed by the Inspector, the Stage 2 Questions, issued on 7th August 2020. The response set out below addresses specifically the recently issued stage 2 questions.

In accordance with the guidance provided, and the advice of the programme officer, EDNCP have not resubmitted or repeated previous submissions, as these remain a consideration for the Inspector. Specifically, those submissions comprised the EDNCp's Matter 15 Viability Statement, including Schedule of Appendices [Appendix A-Appendix I]. Only in respect of the revised land use budget provided by EDDC has the position set out in Statement 15 moved on significantly.

As set out in our closing comments of Stage 1 of the EIP – we have grave concerns over the approach EDDC and Three Dragons have taken to viability matters and our fundamental concerns over the viability approach and inputs to remain. This is further supported by a high level overview of the principle viability issues by Nigel Jones BSc FRICS who is an industry recognised expert in viability assessments, attached at appendix 1

Viability questions AQ1 to AQ12.

AQ1. To what extent is the revised viability assessment policy compliant in respect of the National Planning Policy Framework (NPPF) and Planning Policy Guidance.

The NPPF sets out the general policy background for development and deliverability of Local Plans, with the PPG setting out in more detail the procedures that should be adopted to assess deliverability by assessing viability. In our opinion the viability assessments do not comply with these for the following reasons:

NPPF

Para 11 states that *"For Plan Making… … a) plans should be… … sufficiently flexible to adapt to rapid change."*

The financial modelling provided by Three Dragons in evidence to support the DPD does not provide any flexibility for deliverability of the proposed developments and is thus contrary to Para 11.

Para 34 relates to Development Contributions but ends with *"Such policies should not undermine the deliverability of the Plan".* The methodology and conclusions provided by Three Dragons attempts to prove the affordability of contributions and plan policies. We believe the viability assessment has been shown to be flawed, and remains flawed, for the reasons previously explained in submissions to the Examination and further qualified in the answer provided to these questions and as further explained at appendix 2. It is, therefore, in our view, contrary to paragraph 34 of the NPPF as it does not provide any assurance that the policies would not undermine the plan.

Government have also provided advice and guidance on viability testing as it applies to Local Plan development through a specific Planning Policy Guidance (PPG) on viability and plan making. The viability assessment provided by Three Dragons in support of the deliverability of the DPD is not compliant with this guidance on the following points:

Paragraph 002 Ref ID 10-002-20190509

This clearly defines the role of the viability assessment. It states *"It should not compromise sustainable development but should be used to ensure that policies are realistic, and the cumulative cost of all relevant policies will not undermine deliverability of the plan"*

In our opinion the viability assessment is being used and adapted to defend the policies, not test the policies as this guidance requires. This is evidenced by the use of low value thresholds for almost all financial inputs and the marginality of the concluding viability.

The paragraph goes on to say. *"Policy requirements, particularly for affordable housing, should be set at a level that takes account of affordable housing and infrastructure needs and allows for the planned types of sites and development to be deliverable, without the need for further viability assessment at the decision making stage."*

The assessments provided by Three Dragons do not support plan delivery as they have not been undertaken to inform policy, but to attempt to prove policy is affordable. The integrity of the assessments makes it inevitable that challenges to viability will be needed at application stage, defeating the object of the test at Plan stage and contrary to NPPF and PPG.

Throughout the PPG there is an emphasis on cooperation between councils, landowners, and developers to inform the viability and to make the viability assessment realistic. This has not been undertaken sufficiently (relying on a single workshop as evidence) and consequently several developers and landowners are having to defend their position through this EiP. This would further indicate that the viability assessment is defending policy and not promoting a flexible plan and thus ensuring delivery.

PPG also advises on standardised inputs into the viability process.

Paragraph: 013 Reference ID: 10-013-20190509

In terms of land value, it is explicitly stated that this should reflect *"the basis of existing land value plus a premium for the landowner. The premium for the landowner should reflect the minimum return at which it is considered a reasonable landowner would be willing to sell their land."*

It is accepted that the supporting viability achieves this by applying a £300,000 per hectare Bechmark Land Value, but this should also be applied to the SANGS land to ensure the landowner sells. We refer again to this in more detail at appendix 2.

PPG goes on to say, "*The premium should provide a reasonable incentive, in comparison with other options available, for the landowner to sell land for development while allowing a sufficient contribution to fully comply with policy requirements."* The lack of sufficient uplift premium for the SANGS land would simply encourage the landowner to hold on to the land and not release it for these enabling works, required by plan policy. Without this land, development cannot be brought forward.

Paragraph: 014 Reference ID: 10-014-20190509

This paragraph continues its advice on benchmark land value. It states: *"This evidence* [of land values] *should be based on developments which are fully compliant with emerging or up to date plan policies, including affordable housing requirements at the relevant levels set out in the plan.* Three Dragons treatment of the SANGS land ignores this advice and assumes the SANGS land, rather than complying with policy, is not subject to any policy and has no premium value. This is an incorrect interpretation. 77ha of land is specifically identified for SANGS, the developer cannot use land outside of this identified SANGS land area and consequently the land becomes enabling land, no different to land required for roads, green infrastructure, drainage and public open space etc. This must also be the same premium to ensure the landowner has an incentive to sell, and the development can proceed unhindered. It is exactly this approach that the Council sets out in paragraphs 3.3 to 3.12 of the Council's response to the Plan Examination – Matters Raised by the Inspector (PSD25), with the sole exception for SANGs. There is no basis for any different approach to the treatment of SANGs to that applied by EDDC to all other non-residential land uses.

Paragraph: 018 Reference ID: 10-018-20190509

PPG suggests that for plan making, an assumption of 15-20% of gross development value may be considered a suitable return for developers. *"Plan makers are encouraged to apply alternate figures where there is evidence to support."* So, the upper limit of 20% is not the maximum.

The complexity and size the developments of this nature provides for greater risks for the developer and as such must require the higher levels of return reflecting such risks especially on a scheme that costs and revenues that will change over time.

Three Dragons assumes that the 17.5% is an acceptable level of return that adequately reflects the risks associated with a development of this size, complexity and where only a high-level master plan has determined revenues and costs. The 17.5% is the mid-point that PPG suggests, indicating Three Dragons view that the development is of only intermediate risk. Such an assessment of risk is not accepted, and it would indicate insufficient understanding of the risks involved, perhaps reflecting the fact that Three Dragons are not involved directly in the development land market.

The developer's margin must reflect the appropriate and proportionate risks. If the site was smaller, less capital intensive and with a full and high value market established, a lower rate may be justified.

Equally a small site in a town centre with little or no infrastructure requirements would, perhaps, be at the lower end of the scale.

PPG encourages the assessor to consider what a suitable return would be to provide a robust assessment. It is not considered that such a judgment call has been made and an arbitrary 17.5% has been applied with no justifiable reasoning.

PPG also states, *"A lower figure may be more appropriate in consideration of delivery of affordable housing… … where … … an end sale at a known value reduces risk."* This relates to the developers profit from the affordable homes where a lower rate (precedent suggests 6%) is used against the gross development value, not build costs as suggested by Three Dragons.

The Three Dragons assessment is, therefore, not compliant with PPG in terms of developer's profit for either the market or affordable homes. The wholly inconsistent nature of the Council's approach and last minute introduction of a suggested 17.5% rate of return (for Cranbrook expansion areas alone, and no other area in East Devon, and in no other plan approved in East Devon) is set out vividly in paragraphs 20- 38 and following of EDNCp's Matter 15 Statement dated January 2020 and in the associated appendices (e.g. Appendix E – The Manor Shinfield appeal decision, and Appendix I – Appeal Decisions regarding Developer Return).

AQ2. The viability results are set out in table 4.1 of the updated viability study entitled Cranbrook expansion viability results indicate a gross development value. To what extent are these figures now accepted as a robust assessment of costs.

The costs set out in Table 4.1 of the Three Dragons Update Viability Report are not accepted as a robust assessment of likely costs. All matters are challenged as to their suitability as follows:

Land	This does not correctly reflect the value of SANGS land which should reflect sufficient premium to entice the landowner to sale with the assumption that the landowner would be aware that their land enables the greater development.
Market Housing Build	Three Dragons use Lower Quartile costs of BCIS which we believe is insufficient for a robust plan making assessment and they only apply only a 2% contingency. For lower quartile, a much higher contingency should be used. This has not changed from the previous submission except that they now reflect Q1 2020. It should also be noted that the current review of building regs L and F coupled with Future Hones Standards will increase costs per unit considerably. This is estimated at around £5,000 per unit (say £70psm) to £13,000 per unit (say £185psm). Central Government in their "Future Homes Standard" 2019 consultation on changes to Part L and Part F for new dwellings reference potential costs at £4,847 per unit. This estimated cost is referenced in the Impact Assessment undertaken by the Ministry of Homes & Local Government on the standard at paragraph 2.3 (b) for option 2 (and table 5), which they state is their preferred option at paragraph 2.5. Reference should also be made to the comments at paragraph 4.12. This document is attached as appendix 3.
Affordable Housing Build	

	With this background, Lower Quartile with a 2% contingency does not adequately provide for the true likely costs of development across the expansion area.
S106/278 costs	These are very high compared to those of earlier Cranbrook developments. These have not changed from the previous viability submission, except that they are said to now reflect Q1 2020 cost base. They do not include any buffer. They are also significantly higher than other comparable schemes as shown in the comparable table provided by Brookbanks attached at appendix 4.
Sales and Marketing costs	Too low in terms of rate used. This has not changed since the previous submission.
Finance	Three Dragons have now accepted the costs of financing the land should be included. Surprisingly, their finance costs have subsequently reduced from £39m to £26m. This level is simply not sufficient for a site of this size and with significant upfront costs. A cost in the order of £50m is more realistic. It seems illogical for £39m to be defended in the previous model but now, with the extra cost of land, the finance cost decreases rather than increases. The valuer should use experience and judgement to question such a reduction and whether the model is providing a suitable figure. At the very least it would be expected that a justification of this reduction would be forthcoming in the updated report.
Return on Market Housing	The basis of this is 17.5% of GDV is not accepted for the reasons stated in previous submissions. The Three Dragon explanation for this at Q5 to the Examiners questions to the council is not accepted and we refer the Examiner to appendix 2 (as well as our previous submissions to the EiP) for our reasoning.
Return on affordable housing	The basis of this is 6% of build cost, which is not accepted for the reasons stated in previous submissions. The explanation for this is not accepted. We would also draw the Inspector's attention to PPG, which also refers to a "lower rate applied" to the gross development value for affordable homes. It does not refer to a percentage of costs.
Return on employment Land and gypsy & Traveller sites.	We accept that Three Dragons have now reflected marketing and profit on these sites as a cost.

These matters were raised in the previous submissions to the Inspector and for all matters we continue to have significant concerns that inappropriate levels of costs have been adopted.

The Inspector will be aware of the Harman Report, which is an advisory document for planning practitioners relating to viability testing at Local Plans. This is a cross industry, local Government and central Government advice note.

The Harman Report during its discussion on land values states that *"… planning authorities should consider incorporating an appropriate "viability cushion" in the testing in order to ensure that the sites upon which the Local Plan relies in the first five years will, on balance of probability, come forward as required.".*

The matters of having an appropriate buffer is addressed in some detail in the CIL Review and Cranbrook DPD Viability Study, January 2019 – the central element of evidence presented by EDDC

relating to viability of the DPD. The report notes that "Whilst there is no method prescribed to setting the CIL rate, guidance suggests that the rate should not be at the margin of viability. Therefore, the CIL rate should not generally be set the same as the total headroom available and a buffer should be incorporated. The buffers used in other CIL studies have varied, but generally fall around 30-50%" (Para 5.1.3). Throughout the CIL study a 50% buffer is adopted by EDDC and the Inspector supported the CIL scheme on that basis.

In relation to the Cranbrook expansion areas – no less critical for the delivery of development plan requirement for the District - in pushing all valuation inputs to their minimum levels (including land value) Three Dragons have not provided a suitable cushion (or indeed virtually no cushion) but instead have shown, using insufficient input data, the plan to be marginally viable, at best. This will not ensure sites will come forward, or at least will not come forward without further viability issues having to be challenged, as discouraged by PPG.

Just one example of a potentially severe impact on development costs is the commitment to introduce a new Future Homes standard where the current consultation proposes new standards resulting in substantial additional development costs in all future dwellings – precisely the sort of unforeseen matter that an appropriate buffer is often capable of accommodating. Three Dragons approach appears to be that all future costs are wholly predictable.

AQ3. For Council

AQ4. To what extent does the new viability information provide sufficient confidence that development, of the level set out in the Cranbrook Plan, is deliverable.

There is no confidence that the new viability has addressed the significant level of concern expressed in previous submissions. The changes made by Three Dragons are of limited significance to allow any confidence at all, for example the inclusion of finance costs on land has somehow reduced such costs by £13m, with no explanation.

The sensitivity analysis undertaken by Three Dragons shows that the headroom of £25.9m (table 4.1) is quickly extinguished by just a 5% increase in build costs. Just one of the many issues raised at this EiP would have a similar or larger impact on the viability, let alone if all were to be considered. The sensitivity analysis shows there is little or no room for error in any assessment or for any changes in costs. PPG is clear that the viability assessment, at Local Plan level, should be ensuring deliverability, not used to defend the council's position to provide a "just about" case of viability especially when minimal cost inputs are used.

The change in the building regulations currently going through Government and expected to be introduced later this year, will, at a minimum of £5,000 per unit, put an extra £20m onto build costs (excluding finance) in this assessment.

We are also concerned in the conclusion at 4.1, Three Dragons state *"While the net residual value is able to cover some changes in costs and values, more significant negative changes in either costs or*

values alone would need to see an adjustment to developer return". This is unacceptable position for the viability seeking to show a sound plan. Developer's return is already significantly below the risk rates associated with such a development and assessment at Plan making stage. No developer would look to invest if that return were diminished further.

The second paragraph at 4.2.2 then suggests that the current development at Cranbrook benefited from significant public sector investment albeit some repayable. They suggest EDDC will continue to seek third party funding which "will strengthen the viability". The plan cannot be made sound on the *hope* of other funding that might come forward. The Plan is either deliverable or not. On the present basis, it is not.

AQ5. Please explain any areas of fundamental concern with the approach to viability set out in the Councils paper of July 2020 and point to the evidence you rely on to support those concerns?

The fundamental approach in terms of viability modelling is not in question. Our models are also similar in that they use what is known as a residual valuation technique. We refer to this in more depth in our submission at appendix 2.

Of greater concern is the basis upon which the methodology is used. Setting aside our comments on the input values that we have previously provided to the Examination; Three Dragons seem to be looking to defend policy rather than test policy. PPG suggests viability is a process where policy impacts are tested. The previous reiteration of the viability report stated that 17.5% developers' return was required to provide a viable assessment, now at 4.4.2 of the update, they suggest this should be reduced further if costs change. This is not testing the viability, it is testing the appetite of developers who will need to invest significant sums of money (at apparently low finance costs) but with the prospect of not achieving an acceptable return for their efforts and risks. There seems little effort on the part of the council to ensure a fair balance in risk and benefit.

PPG (para 10-010-20180724) states:

"In plan making and decision making viability helps to strike a balance between the aspirations of developers, landowners, in terms of returns against risk, and the aims of the planning system to secure maximum benefits in the public interest through the granting of planning permission."

The keys words are "strike a balance". The Three Dragon's assessment seeks to provide an unbalanced delivery in the favour of the "planning system" putting delivery at risk.

AQ6. Are the requirements and costs in the revised Infrastructure Delivery Plan (IDP) justified taking into account the evidence available.

We have not sought to consider in any further detail the specific level of costs provided in the IDP, over and above the submissions set out to date. The total cost of £118,191,145 equating to just under £30,000 per unit is very substantial indeed. This represents both s106 contributions and some infrastructure but excluding build and plot costs. There has been little change made to this figure

except to increase in line with an index to Q1 2020 and increased costs associated with overhead power lines. We would welcome a full review of the s106 requirements with EDDC in due course and refer again to appendix 2. The previous submissions on behalf of EDNCp remain valid.

AQ7. Would the cumulative level of contributions to be borne by the expansion area threaten/compromise the delivery of any expansion areas? If so, how would they compromise them?

The impact of the IDP is only one area that compromises the deliverability of this Plan.

Nevertheless, alone, the infrastructure costs and items are entirely unaffordable in each expansion area – on any viable basis.

EDNCp's earlier submissions set out the broadly three fold increase in infrastructure/section 106 costs between the existing phase of Cranbrook's development (3500 dwellings) (Appendix 2 to Appendix A to Matter 15 Statement). The comparison (appendix 4 to this submission) has been prepared by Brookbank's Consulting Limited who are project managers for the first phase of development and indeed whose business extends to a similar role in a number of other major strategic developments across the country. EDNCp have included Paul Boileau, Principal of Brookbanks Consulting Limited, as part of its team for viability issues for the remaining sessions of the examination – to further elaborate as required on the evidence before the examination as to the excessive scale of costs and contributions sought by EDDC.

Consequently, if the DPD was to be found sound, then it is inevitable that the impact on each expansion area will have to be tested further as applications are submitted.

This is of course contrary to the aspirations of PPG and Plan Making viability, but as the testing of the DPD policies has been undertaken without sufficient headroom (surplus), applicants will need to assess viability and will be required to challenge the viability of the policies again. NPPF and PPG look to have plans that, once adopted, should be able to have compliant applications submitted. If this is not clearly possible then this is an indication the plan, as it stands, is not deliverable and unsound. The IDP should have been considered carefully prior to this EiP, but this was not undertaken in a robust and collaborative way. It should not be the responsibility of the Inspector to make decisions on infrastructure requirements and costs.

AQ8. For Council.

AQ9. Is the sensitivity testing effective, if so why not?

The testing is effective. It shows that small variances in costs, 5% is used for base build, creates an unviable development. It also concludes that any more significant cost increases require a further erosion of developers profit to the level at the lowest end advised by PPG. Three Dragons, therefore,

also consider that the viability is at risk to small increases in costs. We refer to our response at AQ2 on providing sufficient headroom or "viability cushion" as Harman promotes.

AQ10. The council sets out its position on equalisation at paragraphs 12.1 to 12.5 of their response to my earlier questions. Representors have previously argued that equalisation should not apply to all entries. On what basis, legal or otherwise, should equalisation not apply to the abnormal costs listed?

EDNCp accept that should the DPD be retained equalisation of costs across many of the items is appropriate where there is reliance upon infrastructure elsewhere and shared benefit. On site development costs within any expansion area should not form part of any equalisation. This comment is subject to the response to AQ11.

AQ11. If items were to be removed from the equalisation equation what are they and what impact would they have on the viability of the different expansion areas.

Items that should not be included in any equalisation are those that simply benefit one specific area or development. One such cost is the undergrounding of the HV power lines that cross only 2 of the 4 expansion areas.

Undergrounding of these lines is not a benefit across the whole expansion area. The benefit is solely in respect of the values for the units surrounding the pylons and release of land under the lines. Consequently, only the developers and owners of those areas benefit financially, yet, as it stands, all developers are required to contribute with zero return on that investment. It is a site specific cost.

The viability of these areas would become further strained by the inclusion of area specific costs, other areas would improve slightly. Again, if the viability testing undertaken by Three Dragons informed rather than defended the policy status of the DPD, and thus provide a greater flexibility, such small amounts of variance would not have to be questioned as to impacts on viability.

AQ12. It is considered that the revised level per plot contribution to Section 106 costs in unreasonable; at what level of contribution per plot would development in the Cranbrook Expansion Area be viable? What evidence supports your response.

The current s106 contribution in the DPD is £71,670,000 or £17,917 per plot. This must be considered alongside the infrastructure costs of £80,690,000 or £20,172 per plot, utilities of £40,720,000 or £10,180 (including £5,000 per plot for CHP but excluding an estimated £3,000 per plot for trenching works), the S278 works of £11,780,000 or £3,000 per plot and the landscaping costs at £14,040,000 or £3,500 per plot.

This equates to over £50,000 per plot, excluding the housing build and plot costs.

Simply addressing the s106 issue will not provide sufficient relief on viability to secure viability. It is the view of EDNCp that the whole IDP cost basis and infrastructure/s106 requirements needs to be reviewed with the council to achieve an agreed level of facilities (and cost expectation) and enabling infrastructure, but at the same time ensuring it provides a deliverable "place making" development. It is unfortunate that such discussions have not been possible, and the Inspector is being asked to make such decisions.

In sensitivity testing the overall IDP costs would need to be reduced by some £150,000,000 to show a marginally viable development, which is still not providing the headroom such assessments need to establish. It is this significant difference that needs to be understood, it is not simply a matter of a few tweaks and minor adjustments, but a significant change in expectations and delivery mechanisms.

As described in other previous statements on wider Cranbrook DPD issues, the DPD is a last minute legacy of the East Devon Local Plan. The Local Plan was adopted in January 2016. Still the DPD is not close to adoption. The DPD process has now been in progress for 4 plus years. The DPD was submitted for examination well over a year ago. EDNCP consider that it is contrary to all parties' interest for the uncertainty to be further prolonged – even into individual application discussions (for the reasons set out above). We believe that the Inspector should give very serious consideration – and may have no alternative – to bringing the examination to an end and finding it unsound.

While the process has so far been deeply disappointing, not least since allocation are already set out in the EDLP (2016), development has to date been able to continue at Cranbrook. That is now coming to an end and a seamless continuation of the trajectory embracing the expansion areas requires new consents in the expansion areas to be confirmed by EDDC. The DPD continues, (and will do so for some time), appears to continue to constrain the Council's willingness to grant new consents in the expansion areas. This will very likely result in a break in continuity of development at Cranbrook

Of considerable relevance EDDC has recently commenced the process of preparing an update of the East Devon Local Plan. A programme has recently been endorsed by the Council – with the Update providing a ready vehicle for any necessary matters relating to the expansion of the town that are not already addressed in the existing East Devon Local Plan.

Declaration in accordance with RICS Financial Viability in Planning: Conduct and Reporting (1st Edition), May 2019

I confirm that I am not instructed under any contingent or other success-based fee arrangement. I have prepared this advice impartially, objectively and without interference and I will continue to comply with my duty in that respect. I confirm that I have no conflict of interest in providing this advice. This advice has been provided in full knowledge that it may be made publicly available.

Appendices attached:

Appendix 1: Covering Supporting Note from Nigel Jones BSc FRICS

Appendix 2: General Viability Assessment Comments

Appendix 2: Future Homes Standard Impact Assessment 2019

Appendix 3: Note from Brookbanks on s106 contribution levels

Appendix 1 to the Stage to Questions Submission

Covering Supporting Note from Nigel Jones BSc FRICS

CONFIDENTIAL VIABILITY ADVICE

IN RESPECT

OF

THE CRANBROOK DPD EXAMINATION

PREPARED

ON

BEHALF OF

EAST DEVON NEW COMMUNITY PARTNERS

BY

N L JONES BSC FRICS ACIARB

Chesters Harcourt

First Floor, Motivo House, Bluebell Road, Yeovil, Somerset, BA20 2FG

30th September 2020

1.0 INTRODUCTION

1.1 This overview of the theory behind some of the essential components of a viability review is provided to assist the Examiner in explaining why the Council's viability consultant's **("Three Dragons")** report on the viability of the Cranbrook new settlement remains flawed and is in support of the more detailed comments made on behalf of East Devon New Community Partners **("EDNCP")** by Andrew Short **("Mr Short")** of Whiteleaf Consulting.

1.2 I make these comments as a specialist in development land and viability matters. In that respect, I confirm that I was one of the founding working group members appointed by the RICS in drafting the RICS Financial Viability in Planning Guidance Note (2012), was appointed as an External Advisor to the Planning Inspectorate on Local Plan viability matters when the panel was operational, which included work on the Barking and Dagenham Local Plan and the Norfolk Plan. I am a member of the RICS President's panel of Arbitrators and Independent Experts in dispute resolution matters on development land which includes S 106 disputes over viability primarily in review cases. I was also the expert valuer on behalf of the University of Reading in the leading viability case at the Manor, Shinfield which primarily dealt with viability methodology.

1.3 In providing these comments, I have considered the Three Dragons Updated viability assessment and also reviewed the answers provided by Mr Short to the Examiner's specific viability questions. Having done so, I believe that there are four fundamental issues which the Three Dragons report does not correctly address. These are commented upon below.

2.0 ISSUES OF PRINCIPLE

A. Headroom issues

2.1 For a viability report to be sufficiently robust and provide a degree of certainty to plan makers that any development is viable, there must be sufficient headroom over and above what is considered to be a viable scheme so as to allow for changes in the inputs to be varied as time and circumstances dictate. If a scheme, at the specific point of time at which the viability report is prepared, only shows marginal viability, this does not give any room for changes to occur and as a result potential challenges to viability subsequently.

2.2 Any viability assessment is prepared on the basis of a residual valuation of the land value which needs to be at a sufficient level to ensure that the landowner will bring the site forward for development. As the Examiner will have noted in the reports submitted to date by Three Dragons and others, there are a significant number of inputs into the calculation. Even minor changes to any of them can significantly alter the end result, and therefore there must be sufficient headroom in the calculations to allow for such changes over the development of the site. The larger the scheme, then realistically the greater the headroom required as the potential for changes to more of the inputs and their magnitude increases.

2.3 As Mr Short points out in his report, the Three Dragons report shows only a headroom of 2.5% of cost and 2.3% of revenue which is so small as to mean that even on their calculations the scheme is highly marginal. A headroom contingency of at least 20% - 30% would be the minimum that I would consider realistic. Indeed, in the EDDC CIL review 2019, as highlighted by Mr Short, the headroom utilised was 50%. This alone evidences why the very marginal basis of the Three Dragons report is flawed.

B. Finance rate issues

2.4 In the original Three Dragons assessment they made the fundamental mistake of not accounting for interest on the cost of purchasing the land at the outset. Having expended monies on acquiring land the correct valuation approach is to calculate the cost of holding that land over the development period. In development economics holding land at a cost is the same as buying any raw material and thus the interest on the monies expended in so doing has to be accounted for. For any site this can be a significant cost and one which any valuer

dealing with such matters would ensure is included in an appraisal. The omission by Three Dragons from their initial report throws into question whether as non valuers they fully understand the process. Notwithstanding that, the updated appraisal has recognised that error and now states that the cost of financing the land acquisition is now accepted as a cost of the scheme. Quite remarkably however, instead of the cost of finance going up to reflect the cost of the additional "raw material" required in the project, the Three Dragons overall finance cost has gone down significantly. That, as a matter of pure mathematics, cannot be correct and again shows that the Three Dragons model is flawed.

C. Developer's Profit

2.5 An essential part of the appraisal is the inclusion of a developer's profit at an appropriate level to reflect the risks to a developer in progressing any scheme. In very simple and obvious terms, the larger the project the greater the risk purely because such schemes necessarily take longer to complete, and there are more things which could to potentially change from the assumptions used at the outset in preparing the viability assessment . As Mr Short points out in his detailed report, the PPG at para 018 refers to a range of 15% -20% of the Gross Development Value of any scheme as being appropriate. For such a large scheme the correct level should be as a minimum the 20% figure and indeed most developers would require a higher level to attract bank or similar funding. It is therefore inconceivable that a lower rate should be considered for such a large scheme as the subject one and therefore the Three Dragons use of 17.5% is wholly inappropriate.

D. Benchmark Land Value ("BLV") and the value of SANGS land

2.6 In this instance, the issue of the appropriate BLV to be used to assess viability against is not in dispute and therefore I do not need to comment further. Having said that, for some inexplicable reason Three Dragons, whilst accepting the BLV figure as being appropriate for all parts of the scheme on a gross acreage basis, then use a much lower figure for the SANGS land. That is incorrect valuation practice as where specific land is identified within an overall development as being required for SANGS, that is no different to any other part of the scheme e.g. open space, playing pitches, schools etc which on their own produce no value but are an essential part of the overall scheme. Three Dragons suggest that because such land in this case is of less inherent agricultural value it should be valued at a lower figure. That is entirely nonsensical. Its value relates to what it offers to the overall development and not its base existing use. If that argument had credence, all the constituent elements of the scheme would

have to be differentiated in value terms from each other which is patently incorrect as all parts of any scheme should be valued on a gross equalised basis.

2.7 I am aware however, that parts of the specific SANG land required for this scheme have been taken up under option agreements at figures substantially less than the agreed BLV for this site and that may be suggested to be evidence of why the SANGS land should be included in the viability assessment at a lower level. From a valuation perspective based on correct valuation methodology, that is incorrect as the viability assessment is a theoretical appraisal and individual negotiations should be ignored. This point has been raised in many viability inquiries in planning appeals where developers have sought to use the price they have paid for land to be a justification for the basis of their viability appraisal. That has been rejected on many occasions and indeed the PPG makes this explicitly clear in para 014 where it states:

" … under no circumstances will the price paid for land be a relevant justification for failing to accord with relevant policies in the plan".

Whilst no doubt the statement is likely to be referring in the main to an over payment, nevertheless just because land has been bought in at figures below its Market Value, it should not be used as a justification for incorrectly defining site viability.

5.0 Declaration in accordance with RICS Financial Viability in Planning: Conduct and Reporting (1st Edition), May 2019

5.1 I confirm that I am not instructed under any contingent or other success-based fee arrangement. I have prepared this advice impartially, objectively and without interference and I will continue to comply with my duty in that respect. I confirm that I have no conflict of interest in providing this advice.

5.2 This advice has been provided in full knowledge that it may be made publicly available.

Signed.....

Nigel L Jones BSc FRICS ACIArb

Date: 30th September 2020

Appendix 2 to the Stage to Questions Submission

General Viability Assessment Comments

Appendix 1 to stage 2 Questions on viability

Independent Examination of the Cranbrook Local Plan

Stage 2

Submission on behalf of East Devon New Community partners

30th September 2020

The following is additional information provided as an appendix to the Stage 2 Questions submitted on behalf of the East Devon New Communities partnership (EDNCp) to Stage 2 EiP on Viability. At appendix 1 is a "Summary of Viability Impacts" that should also be read in conjunction with the following.

Introduction

In Feb 2019, the Government issued the revised National Planning Policy Framework (NPPF) along with revised Planning Policy Guidance (PPG) on Viability.

The Government's intention on viability through the NPPF and associated PPG is to ensure that Local Authorities, when producing Development Plans, make sure any identified development areas are, at the date of the Plan, viable and deliverable within their policy framework and should therefore come forward within the Plan period.

The NPPF (para.2) states *"The National Planning Policy Framework must be taken into account in preparing the development plan, and is a material consideration in planning decisions."*

The NPPF has 3 objectives:

a) Economic: *"…ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity…"*
b) Social: *"…to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations…"*
c) Environmental: *"…making effective use of land…"*

The NPPF caveats these objectives by stating that *"Planning Policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area."* (para.9).

The aim is to ensure that when sites are promoted for inclusion into a Plan, the relevant delivery policies are taken into account by the promoter and/or landowner and that the viability of the development is included in the identification of the site(s).

The PPG makes it explicitly clear that it expects assessments of viability to be largely confined to the local plan stage. Paragraph 002 of the PPG begins, *"The role of viability assessment is primarily at the plan making stage."* It goes on to say, *"It is the responsibility of plan maker in collaboration with the local community, developers and other stakeholders to create realistic deliverable policies."*

The reason for the EiP delay and continued discussion and disagreement reflect this aspect. There is no point in developers and landowners accepting policies that are clearly jeopardising the delivery of the plan's aspirations. It would normally be the case that such discussions are outside any EiP sessions and that the council had considered such concerns properly in assessing their policies and expectations, instead of providing appraisals that do not follow procedural precedent and that provide such marginal conclusions that risk having a viability assessment required on every application submitted arguing against both the affordable allocation and/or s106 and infrastructure requirements.

The NPPF/PPG makes the general assumption that if a promoted site is within the Development Plan, then it will have been assessed and fully tested against policy and as such should be viable, 'at policy level of contributions'. That is, the cost of policy has been accepted by both the landowner and developer at plan-making stage. It also assumes that monies paid to the landowner(s) will reflect sufficiently the costs of delivering the site, whether those costs be on/off site works, affordable housing requirements or other S106/CIL contributions. Further it assumes that developer profit is sufficient to ensure delivery.

The NPPF does recognise that, over time, matters may well change. It, therefore, also states at Paragraph 57, *"It is up to the applicant to demonstrate whether particular circumstances justify the need for a viability assessment at the application stage. The weight to be given to a viability assessment is a matter for the decision maker, having regard to all the circumstance in the case, including whether the plan and the viability evidence underpinning it is up to date, and any change in site circumstances since the plan was brought into force*

Any site identified in the Plan, therefore, will be deemed by the decision maker to be policy compliant and viable unless it can be shown that circumstances at application stage have changed to render the original plan based viability assessment as out of date.t no longer so. Consequently, in this case, the applications currently with council and those that are likely to be submitted soon, might be assumed viable by the council, but will not be so. In such circumstances the applications are likely to be remain undetermined as no s106 agreement by the developer or appealed if refused or in some way delayed until a more viable policy context is developed.

Viability

It is important to be quite clear what the 'plan-making' viability assessment is meant to achieve. It should also be understood that in undertaking the viability assessment that the following base assumptions are borne in mind:

- The individual circumstances of the applicant are irrelevant
- It cannot be assumed the promoter is the developer or indeed the owner and that the site will be developed entirely by a national large volume builder, a regional SME or indeed a local builder.
- In Plan making, the development is assessed as one development, albeit built it could be built in phases. It does not reflect multiple applications.

- As with all valuations, the practitioner should always "stand back and look" at the result to sense check the outcomes.
- Viability assessments, especially at the high level of a Local Plan, are hypothetical in nature. Standardisation of inputs allow development of the model within certain set parameters. This is important to ensure that modelling is consistent and comparative.

The Harman Report states *"Done well, it* [viability] *should lead to better plans, with more certainty for developers, more investment and a greater likelihood od delivering sustainable development on time for communities. In particular, a plan level test of the policies should help avoid re-opening every plan policy for negotiations as every site comes forward for a planning decision."*

The process of viability assessment is a relatively simple concept. It is a comparison between likely revenues with likely costs to see if the remaining (or residual) value is higher or lower than the minimum value required to buy the land – the Benchmark Land Value (BLV). If it is higher then there is enough residual value to purchase the land and is viable, if it is lower then there is insufficient funds to purchase the land and thus it is unviable.

In plan making the margin above the benchmark land value is also important because minor changes in the various inputs especially for large schemes being developed over long periods of time will make significant differences to the appraisal outcome.

Plan making is, by its nature, based on high level design and expected costs and revenues. The plan maker, and the viability assessor, have to allow, therefore, for flexibility or "Headroom" in the assessment. Without such headroom in cases where the scheme is only marginally viable any assessment on that basis would not be sufficiently robust. If this is the case it should be the advice that the plan is NOT supported by the viability assessment and a further review of the policies and assumed inputs should be made.

The issue of Headroom is discussed further below.

How the Viability Assessment is developed.

It is thought useful to take the Examiner through the development of a viability assessment step by step to illustrate our concerns on the Three Dragons assessment.

The valuer first must establish how the revenue is to be derived to develop the Gross Development Value (GDV). There are two aspects to this.

First the Accommodation Mix. The valuer makes assumptions as to house types and sizes normally advised by similar developments or by plan policy.

Secondly the value of the units should be determined. This uses market research to assess the levels of value in the locality for new residential developments. This is normally undertaken using Land Registry records and EPC records to obtain the gross internal areas (GIA) of the dwellings. Care should be made here on the following points:

- Is the evidence based on similar sized units? This is important as the Three Dragons viability assessment utilises NDSS sized dwellings and applies to their accommodation mix the £per sq meter (£psm) rate derived from the Land Registry values. If the units from the reference group

are smaller, then applying the rate direct to a larger unit (without adjustment) provides an unrealistic higher revenue per unit. People buy dwellings on bed numbers rather than a square foot basis, so this additional revenue is not justified.

- Is the Land Registry value the full story? Land Registry reported figures reflect what a person buys a house for. The industry will entice buyers to their developments by use of "hidden" extras such as payment of legal fees, carpets, white goods etc. These are costs that are not reflected in the viability cost base and so should be deducted from the reported Land Registry values. Such incentives are especially relevant when you have large new town or strategic extensions with a number of competing developers all trying to ensure that the purchaser buys houses from their site. Such incentives can be up to 5% of the purchase price and should be deducted from the sales values.
- EPC records. These are a useful data base for the description and GIA of a dwelling. They can, however, be wrong. Care should be taken in the use of these and any outlying results ignored.
- Recent evidence: When undertaking a review of market sales, the older the evidence the less relevant it is. The housing market does not follow an easy growth pattern, so where evidence is plentiful, such as Cranbrook, it is preferable to limit the evidence to, say, 1 year. Using older evidence and using indices should be avoided as it may provide a false refection of current activity.

In terms of the revenue for the affordable homes element it is accepted that the house builder will receive income from the sale of these to a Registered Provider (RP). This revenue is normally determined using "quotes" or previous evidence from the RP's or, though knowledge of such transactions, on a percentage of market value.

Once the GDV is established for the market and affordable housing other associated revenues can also be added such as any commercial land. Care must be taken to reflect the fact this is likely to be sold to an industrial developer for onward development and sale, so their profit requirements need to be considered on the values used.

Bringing these values together provides the Gross Development Value (GDV) of the relevant site.

The next part of the equation is the cost aspect. What costs need to be deducted from the GDV to achieve the resultant value that is compared with the benchmark land value.

Infrastructure costs: Not all details will be known or be able to be fully costed, but the assessment should show what is expected to be required and an anticipated cost; such things as new road junctions, access ways, utility connections etc. It is accepted practice where such high-level assessments are made an appropriate contingency is included to cover any inaccuracies or unforeseen requirements.

Along with the cost estimate it is essential to the whole assessment that the timing of such costs is also determined. For example, access roads into the site will be upfront costs enabling the development, but costs associated in landscaping for example will be incurred as the site is developed.

The importance of this issue is discussed below in relation to comments on cash flow below.

Abnormal Site Costs: These relate to site specific issues such as retaining walls, nonstandard foundations. These costs are generally realised as units are developed and so should be assessed with the dwelling build within the cash flow.

Dwelling Build Out Costs: PPG suggests using BCIS base build costs and this is a common practice. The reason for this is that house builders treat elements of the build differently in their own costs management and it is difficult to use actual costs and be confident that such costs are neither double counted or missed altogether.

BCIS is a service provided by the Royal Institution of Chartered Surveyors (RICS). It is derived from information supplied to them by residential developers that is analysed, and a country wide estimate is made on a £psm rate for various types of housing (single storey, two storey, terraced, detached etc.). An example of such costs is provided in the Three Dragons appendices.

Provided with the UK wide cost estimate is a location allowance for each council boundary (County or District/Borough) which is applied to reflect regional differences in costs.

The UK wide costs are provided on a number of bases using quartile averages. The most commonly used for viability assessments are the Lower Quartile and the Median figures. It is often argued when discussing viability that large "volume" house builders are able to achieve savings on costs through national contracts and reductions on volume and as such the Lower Quartile should be used when assessing sites with their involvement. This is not a sound practice for a number of reasons, namely:

- At Plan making level it cannot be assumed a certain house builder would be involved for any or all of the development.
- At Plan making level it is not the role of the assessment to squeeze all costs to ensure that the policies it is assessing are defendable. A considered approach should be made and reflected in the base build costs. This may be either adopting the median costs base with no contingency, the lower quartile with a significant contingency of 5-10% (not 2% used by Three Dragons) or a value mid-way between Lower Quartile and Median to reflect that some of the site, for place making purposes and to help the local economy, will be built out by small or SME builders without the national spending power.

S106 and other policy obligations: NPPF and PPG expects that the landowner, promoter, council and other stakeholders will develop the site brief together. Consequently, the costs associated with policy obligations should be known (and are normally agreed), these need to be incorporated into the viability assessment.

Policy obligations can be by way of contributions (ie direct financial costs) or by way of design obligations, such as open space accommodation, house densities etc. (indirect costs). These need to be known and assessed within the viability assessment along with an understanding of their likely cash flow implications.

Developers Margin: Once all the direct costs are determined, then the margin attributable to the developer should be considered as the costs will have an impact on the level of risk that needs to be attributed. If the costs are underestimated, it is the developer's margin that will have to pick up such errors.

No development would be undertaken without a return on the money invested. This is an essential element of the house building market and something the Government relies upon to provide most of the social housing in the UK. If the margin is not sufficient the ability of the housebuilder to gain finance to deliver the project is put at risk and the opportunity becomes undeliverable.

PPG has several suggestions on standardised inputs and the level of developer margin is one. PPG does need to be considered carefully in its wording on this. It suggests, at paragraph: 018 Reference ID: 10-018-20190509, that for plan making, an assumption of 15-20% of GDV may be considered a suitable return for developers. "Plan makers are encouraged to apply alternate figures where there is evidence to support." So, the upper limit of 20% is not the maximum that can be used.

Current margins for developers are considerably higher than 20% and they would struggle to get finance at such rates due to the risk associated with that level of margin. In viability assessments, the risk is normally considered on a case by case basis. Whilst current margin rates are higher, the risk associated at Plan making stage on a 4,000 unit development would normally be considered over a long period of time and a rate of 20% would, therefore, be appropriate. If the site was considering a development of units in the low hundreds and there is little upfront infrastructure and a sustained long term market had been established, the rate may be lower as would be relevant for small development in the middle of a town centre.

The risk rate must be considered prudently as without an appropriate return no developer would consider building the allocations.

To illustrate this the following questions need to be considered:

- How robust are the unit numbers to be achieved?
- How well established is the market the housing is serving?
- Is the level of revenue per unit reasonable or low compared to the regional average?
- Are the infrastructure costs based on established design or high level?
- Are the site abnormals fully understood or just high level?
- Did previous developments rely on Government Grants to be delivered?
- How fast will the sales rate be and is this achievable?
- What competition is there likely to be in the area?

In addition, the assessment should also look at the treatment of the base build costs, contingency on costs, timing of costs etc.. If for example the Lower Quartile was adopted, then additional risk is already inherent in the model and this would also need to be reflected in a higher developers' risk.

In terms of the developer's margin the Inspector is referred submissions by David Lock Associates in January 2020 under matter 15, paragraphs 20-24. This refers to the council's own basis of developer's margin at the CIL and East Devon viability in 2013, both of which use 20% developer's margin. Attention is also drawn, as it was then, to the evidence (appendices E to I) provided with the Matter 15 response. In our view nothing has changed to warrant a decrease.

Standardised inputs:

A number of other costs are also incorporated in any model. These are:

Description	Comment
Professional Fees	On all build costs, whether infrastructure, abnormals or house build, there will need to be an allowance to reflect matters such

	as design, planning, CDM, project management, ecological surveys and alike. This is represented by a percentage increase on the costs.
Marketing Costs	Marketing costs include literature, advertising, setting up and running show homes and are represented by a percentage applied to the GDV.
Agents Fees	Agents fees for selling the dwelling houses and negotiating the land purchase need to be reflected. These are based on a percentage rate applied to the GDV for the house sales and the land value in relation to the land purchase.
Legal transaction Fees	Legal costs relating to both house sales and the land purchase need to be reflected as a percentage of the GDV and land value respectively. Additionally, the transaction fees for the sale of affordable housing to the RP's needs to be included.
Interest (to finance the project)	Development can only take place with investment, such investment can be significant and beyond the ability of funding solely through cash flow, especially when upfront costs are significant. Therefore, the cost of financing also needs to be reflected and is assessed via a cash flow analysis. Interest must be paid on the acquisition of the land and the cost of development as the project goes through. At the outset such a cost could be significant until such time the sales of houses bring revenue into the cash flow to offset costs.

Cash Flow: The cash flow created by a development is an important aspect of the viability. Poor cash flow increases finance costs, which can make some housing developments unviable. This is normally associated with developments that require significant upfront infrastructure costs.

Benchmark Values: This is the last aspect of viability. GDV can be assessed and the costs estimated. The remaining "residual" can now been compared with a land value in order to see if there is sufficient incentive for the land owner to release the land for development.

PPG states clearly that the price paid for land should not be used. This is because the developer could have paid too much or too little for the land which would impact on the viability the assessment is seeking to understand.

The practitioner is instead directed towards using "Existing Use Value Plus" (EUV+). Normal practice for low value land such as agricultural land, is to adopt values between 10-15 times agricultural values or between £250k to £350k per gross hectare. Agricultural values do not vary much over the UK and are considered to be in the region of £10 to £12,000 per acre.

Three Dragons have followed this (albeit with a lower agricultural value) and adopted £300k per gross hectare. This figure is not being challenged. The per hectare BLV is applied to all land required to bring the development forward. This includes all land for housing, roads, schools, retail, commercial and open space or landscaping. It would also include land required to be purchased for other mitigation such as SANGS, where the specific location of such land is stipulated in the plan.

The gross land value is then used as the BLV. This is the minimum value at which it is considered that a willing seller would release their land for the development.

This BLV is compared to the residual land value and if there is surplus, the development is said to be viable. If there is a deficit, the development is said to be unviable. At or near in either case and the development is said to be marginal, and consideration should be made to ensure deliverability is not so sensitive to small variations in assumption inputs that would create an unviable assessment. Sensitivity testing helps to inform how delicate the viability is to small market fluctuations or to assumptions adopted that may be creating a false viability result.

The main issues at the EiP

With the above in mind, there are certain aspects of the viability appraisal supporting the DPD that can be highlighted. Please note that this is not a complete list as many aspects have already been illustrated in the previous submissions to the EiP, and very little has changed in the reassessment provided by Three Dragons. What has changed, and this is welcomed, are:

- Gross and Net land areas now provide sufficient land for the development
- Finance costs now including land cost, although the inclusion of these additional costs appears to have resulted in a lower overall finance cost.

Our statements previously made on all other aspects remains. The following concentrates on major larger influences on the viability outcome.

<u>SANGS and BLV</u>

Three Dragons value SANGS land at £25,000 per hectare, stating that this is 27% above agricultural value. This compares to the £300,000 per hectare for all other land. They defend this by illustrating the constraints of the land in question whether this is topography, ridge exposure or it being close to other protected areas. This, they say, means the land could not be developed and consequently should only be valued at agricultural land value (or slightly above).

As stated above, it is accepted that the benchmark land value is fairly assessed at £300k per gross hectare. This must be the true gross area, however, rather than excluding the SANGS land. As the Examiner will appreciate, the SANGS land is required to mitigate impacts on other sensitive open spaces and country parks etc. For the Cranbrook Extension area, the location of the SANGS land is specified in the plan in both area and location. In this respect it is as much required to enable development as land used for roads, schools, and a like. If the land were not able to be purchased, the SANGS land would need to be provided in areas currently identified for residential development thus reducing the unit numbers and reducing visibility.

The location of the SANGS land is not negotiable and, therefore, specific land must be purchased. Consequently, it equally falls under the definition within PPG of BLV in that it should be assessed at a level that the landowner is willing to sell, based on an uplift from existing use value (EUV), in this case agricultural value.

In any viability assessment the landowner is assumed to be willing, but equally they are informed. They will know that in selling the land for SANGS that it enables residential development. They do not have to sell the land and they (or their agent) will want to ensure the land is sold at a fair price. The fair price of enabling land used for other purposes (including public open space) is at the full benchmark residential value. The seller(s) will want to achieve this as they understand without their land the development reduces in size and value.

All enabling land would achieve the benchmark land value. Three Dragons are mistaken if they think this could be purchased for anything other than the full £300k per gross hectare given the circumstances of the Plan.

The Three Dragons reasoning for adopting a lower figure is that this land is unsuitable for residential development. This is a fundamental misunderstanding of the viability assessment. It is irrelevant whether the land, by itself, would be developed. The provision of SANGS must be provided within the confines of the Cranbrook Plan area and there is no opportunity to seek to provide SANGS land outside the development. As such it is a matter of valuation principle that this land becomes "enabling" land as without it the developable area would need to decrease to provide SANGS land on land that would otherwise be residential development land. This would then have a knock-on impact on the viability as it would reduce the amount of housing that could be supplied.

The owner of SANGS land would be aware of this and it would become a ransom situation. Without it less housing or, at worst, no housing would be able to be provided (due to viability issues). The owner (and we have to assume it could be a separate owner to that of the housing land) would want to have the same value as that providing direct housing. It is no different to land that provides access roads, schools and alike which have no inherent sale value. They have to be located within or adjacent to the development, they allow development and so they achieve development values.

The new averaged £222k per ha benchmark land value is not accepted and we remain of the view that it should be £300k per full gross hectare.

Finance Costs

There are two critical issues in relation to this matter. First, Three Dragons have now accepted that finance costs for the land purchase should be reflected in the assessment. In their previous assessment this was a serious omission as the cost of holding the land after purchase will be significant especially for a large site, and any valuer experienced in such assessments is unlikely to have made such a mistake. The second point is the issue of timing in the finance model and the consequential impact this has. It is logical and normal practice that the land payment is at the start of the development until the land is acquired, the development cannot begin. In now including finance for the land payment in the Three Dragons model they have suggested 50% upfront and 50% at a mid-point for land purchase timings in the cash flow. Having now included a finance cost in the Three Dragons model we are at a loss to understand how Three Dragoons have then reduced their finance costs in their model from the original £39m to just £26m. This cannot be correct as having not previously included a finance cost for the land, simple logic would suggest that the Three Dragons finance costs must rise. Their new model, which incredibly includes a significantly reduced finance cost must show that either the new model is incorrect or that the previous model was incorrect. This undermines the credibility of Three Dragons in carrying out these assessments as such a fundamental inconsistency needs to be explained.

For all valuation methodologies the valuer is taught that the last stage of valuation is to "stand back and look" to see if the outcome looks sensible and reasonable. This is important as it enables the valuer to consider if the outcome is right or that if something does not look realistic, to investigate why.

If the model, having increased the basis upon which the finance costs have been assessed, indicates the actual cost of finance has decreased, then by standing back, the valuer would conclude that there must be a fundamental issue either within the model itself, or how the cost inputs have been ascribed into the model.

Cash flows form an important part in any viability as they develop the finance costs across the development. An otherwise viable model can become unviable simply due to the cash flow and the associated finance costs alone. If the cost timings are not reflected appropriately the interest costs associated with the development can be out of line with the development being promoted.

In this case the reported £26m in the Three Dragons model would not seem logical to any valuer and would need investigating and checking against similar assessments and valuations undertaken. This would indicate that typically, a site of this size and with this level of costs would be expected to have a finance cost of around £50m. As a valuation rule of thumb, interest should equate to some 5% of total costs, not 1.2% as the Three Dragons modelling suggests. If the interest is correctly calculated it will wipe out entirely the viability as shown as shown by the Three Dragons model conclusions.

Revenues

Three Dragons have revised their assessment on market revenues for all houses and state this is now taken up to Jan 2020. We agree with their suggestion as to valuation timings as any later than this would necessitate consideration of the impacts of Covid-19 may influence. Perhaps this is another example of where the viability needs to have inherent flexibility to ensure such market fluctuations can be sustained.

Three Dragons state their analysis includes sales in the Cranbrook area from 2015 to which an index has been applied. It would seem a weakness in such analysis to go so far back and we would suggest that 2019 is more relevant. Indexes are useful if there is limited evidence, but this is not the case.

We also agree with using Land Registry data, however, this needs to be considered carefully. It is normal practice to reduce Land Registry Values by between 2.5% and 5% to reflect incentives provided to buy the house (this does not include discounts), such as white goods, carpets, landscaping and alike. If such a percentage deduction is carried out by Three Dragoons their £284psf reduces at 2.5% to £275psf and at 5% to £268psf, which reflects better our understanding of the market values.

We note that EPC records are used to obtain GIA data. Without any other record this is a reasonable choice, but extremities should be ignored as GIA data from this source can be found to be incorrect.

Head Room

Viability at this high level has to have some degree of flexibility to ensure small differences in cost or revenues do not place the development into difficult financial positions early in the plan's tenure. This must be part of the soundness assessment.

Three Dragons state themselves at 4.2.2 of their "Cranbrook Viability Study update " that the £25.9m surplus from their model, which is the headroom to allow for variances in the inputs over time *"whilst the sum is significant in absolute terms and could cover some changes in costs or values, it is a small proportion of both costs and total values".* This represents just 2.3% on revenue and 2.5% of costs which is on a scheme of this size is such a small margin of error that throws the credibility of their assessment into question. The fact these two figures are so close immediately indicates the level of headroom is not acceptable. This does not give the flexibility as required by PPG.

As previously indicated, if the interest charges are calculated correctly the Three Dragons model show the assessment to be unviable. Without any other issues identified the review of the building regs, with an estimated minimum additional cost of £20m (plus finance costs), is in itself almost all the headroom the assessment has provided.

The testing by Three Dragons of the viability also illustrates the small margins of error needed to show a resulting "unviable" assessment. One test even requires the developer's profit reduced further to 15% to remain viable when costs are increased. Such a level of return would not see the allocation come forward and the Plan would simply fail to attract the applications required for the delivery of the housing anticipated.

Attached Appendices:

Appendix 1: Summary of Viability Impacts

Appendix 1

Summary of Viability Impacts

Appendix 4
Summary Of Viability Inputs

In connection with Stage 2 - Viability

CRANBROOK LOCAL PLAN

INTRODUCTION

The following summary is provided to help guide the Inspector through the various inputs relating to Viability Assessments and to help define the various issues and help to provide some guide as to both their relevance and impact on the resultant viability assessment.

The Inspector previously asked the parties to provide a Statement of Common Ground (SOCG) to assist the Inspector in the key issues relating to viability. The aim of that document was to identify the outstanding matters and where possible, seek a consensus to the inputs. We are conscious this may have simply provided the Inspector with a list of issues that the parties could not agree on, rather than provide any clarity in information. In providing this submission to help, as a guide, we have provided our assessment of the impact of each item identified in respect of the viability.

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
1	Evidence date. A viability assessment can only reflect a point in time. However, it is important that revenues and cost inputs are assessed as at the date chosen for the assessment.	The choice of Q1 2020 is accepted as a reasonable point in time for the viability as it is pre any impact of Covid 19. The use of viability assessments at a plan making level is meant to support policy framework that allows for development to be viable throughout the plan period. Despite the "point in time" date for which it relates, it should encourage the setting of policies that allow for compliance from application submitted under the Development Framework.	Yes	Revenues and costs purport to be as at Q1 2020	
2	Gross Land Area	The Gross Area for the Western Extension has been amended by EDDC and now includes sufficient land area.	Yes	277.7 ha	
3	Net Area Land Area	The net area represents the actual areas required for the residential built development (in this case including the mixed-use area)	Yes	109.3 ha	
4	House Build Costs	The Royal Institution of Chartered Surveyors provides the surveying and building trade with a number of costs and indices relating to the cost of building residential properties. These are derived from information provided by builders in developing residential sites. In general terms the information is provided by small and SME builders. It is normal practice for viability assessments to utilise these costs rather than use direct costs from house builders. This is because house builders account for costs in different ways and it is difficult to evidence, correctly and in comparison, actual costs. The use of BCIS based costs allows for appraisal to be consistent. It should be noted that such costs are also used in commercial option negotiations and are recommended in the PPG on viability. Notwithstanding this, BCIS provide a range of values for different house types and through a statistical analysis approach. Attached to this document is an example. Highlighted, in yellow, are the three main cost basis, Lower Quartile, Median and Upper Quartile. The Lower Quartile being the lower end of the cost base. It is commonly assumed the Lower Quartile values would represent the costs of the national volume house builders. Three Dragons have assumed the build costs throughout the development to be based on the Lower Quartile costs. For plan making this is very specific and assumes all the development would benefit from significant costs savings due to scale of operation. This is	No	Lower Quartile	An average of Lower Quartile and Median

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
		contrary to Policy CB16 which requires 12 principles of design and the requirement to develop design codes for the development areas. Such requirements require will increase build costs and this must be reflected in the viability assessment. Consequently our position is to assume a conservative position between median and Lower Quartile. The difference between the Lower Quartile and Median in the illustration provided is, for "General Estate Housing" £1,088/sqm and £1,233/sqm respectively, a difference of 13%.			
		Impact on Viability Model	£32,700,000 underestimate of costs in respect of house build		
5	Allowances for Flat Communal Areas	BCIS costs for flatted development exclude the areas used as common areas such as corridors, reception areas and stair wells. It is good practice, therefore, to adjust for such areas to ensure all costs associated with a flatted development area included. The difficulty with undertaking this exercise, at master planning stage, is not knowing the specific type of flat to be developed. Three Dragons have taken the lower allowance normally adopted for such adjustments, which does not allow for any design features or wide stars/lifts etc. We would consider a larger more flexible allowance, at this stage of the design, to be more realistic.	No	10%	15%
		Impact on Viability Model	£255,000 underestimate of costs in respect of flats build costs		
6	House build cost contingencies	Contingencies are added to help counter any unforeseen increases in costs due to design issues. This is standard practice in developing a robust costs base for any assessment. It is logical that the lower the cost base the higher the risk it is of being incorrect, especially when considered over time and when the actual design of the houses are unknown through a general master planning exercise – as is the case at plan making stage. Three Dragons have added a highly conservative contingency on to a already conservation lower quartile base. This is unreasonable and a higher contingency should be provided for the Lower Quartile cost base reflecting its relativity to likely build costs.	No	2% added to BCIS Lower Quartile	5% added to Lower Quartile only
		Impact on Viability Model	£8,900,000 underestimate of costs in respect of house build		
7	House Build Cost allowances	The BCIS costs exclude certain aspects of a house build known as plot costs and externals. These include such matters as fences, drives for the plot costs; the road and services immediately in front of the plot for the externals. These need to be added to the base house costs to catch all development associated directly with a single dwelling. Typically, this is undertaken by adjusting the base build costs. If enough design detail is known, such costs can be derived from a Quantity Surveyor. Generally, however, at a high	No	£36.91m added to housing costs equating to an 8% increase to house build costs.	13.5%

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
		level assessment where detail is derived only from a master plan (design detail not known) an allowance is made of between 10 and 15%, and added onto the base build costs. Estimating actual costs at this stage is difficult as it assumes a high level of knowledge of the master plan development, which is not known at this stage of the allocation's development.			
		Impact on Viability Model	Possibly equating to an underestimate of around £45m in base build costs, although some additional costs for externals are said to be reflected in the infrastructure assessment used in the Three Dragons Viability.		
8	Additional design cost allowance to house build	The BCIS base cost is derived from historical development costs provided by the small and SME builders. It cannot, therefore, immediately reflect new revisions to building regulations or practices. One such matter currently going through the process of adoption by central government are changes to building regulations L and F relating "Future Homes Standards" with the commitment to ensure that by 2025 new build homes will be "future proofed with low carbon heating and world levels of efficiency". To achieve this changes to Part L (conservation of fuel and power) and regulation F (ventilation) are proposed. To reflect true costs of Cranbrook house builds, these need to be added to the build costs. It is estimated the costs amount to £5,000 per house (central government estimate £4,847 per unit was stated within the consultation document) potentially rising to £10 to £15,000 per house after 2025 as zero carbon on construction and performance are introduced. Such significant price changes must be reflected in costs within the assessment. The cost plan refers to an allowance for "Carbon Reduction Over Building Regulation" within their allowances at just £6.352,000, some way off the minimum costs predicted by Central Government in their consultation on the changes.	No	£6,352,000	At least £20,000,000 for regulation changes prior to 2025. Post 2025 this could be an additional £40m cost burden.
		Impact on Viability Model	£13,600,000 underestimate in house build costs on immediate rise in costs following review of L and F building regulations: rising further in 2025 - plus associated finance costs		
9	Infrastructure build contingencies	As with the house costs, contingencies are adopted on all other costs to reflect matters that are either underestimated or to cover unknowns at the time of assessment. On master planning such contingencies need to be generous as significant site investigation and design work has yet to be undertaken. The lower the confidence in knowledge of the site, the higher the contingency needs to be. WWA in advising the viability of such costs, have used a range of contingencies up to a maximum of 10%. This is quite a low contingency for a master plan exercise where they state themselves that topographical, geotechnical and engineering design has not been undertaken.	No	10%	At least a minimum of 15% across all aspects

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
		As a minimum we would expect contingency levels at 15% to allow for design and cost variations as detailed plans are developed. One such change is illustrated by the costs for the CHP, estimated as £5,000 per plot in the councils cost assessments. This does not include the circa £3,000 per plot for trenching the pipework, which has to be added so this is at least a minimum of £8,000 for connecting into the CHP system. Total additional cost per house would be in the order of £12m. Attention is also drawn to the exclusion list provided by WWA as part of their cost plan. All such exclusions need to be covered by a realistic contingency.			
		Impact on Viability Model	£14,390,000 underestimate of infrastructure costs		
10	Developer's margin on Market Housing	In all viability assessments the expected return for investment risk is allowed for as a cost to the development. Our position, as previously submitted and developed again in our submissions to stage 2 of this Examination, is that the size, uncertainty (if only in design) and complexity of the development would require a return of not less than 20%. The reasons for this have previously been provided. The level of return is important to such a development not simply to reflect the risk of development, but if the return in not sufficient a developer will find it difficult to get finance as the subsequent forward risk that the site may fail will be too great.	No	17.5% on revenue	20% on revenue
		Impact on Viability Model	£25,400,000 underestimate of developer's margin		
11	Developers Margin of Affordable Housing	It is accepted that a developer would also expect to see some return on providing the affordable housing. The risk for the developer is, however, significantly reduced as there is, normally, a registered provider of social housing available to purchase the homes, albeit at a reduced rate. PPG refers to this and suggests a lower return, based on the gross development value of the affordable homes, is used to determine this figure. That, through precedent and generally accepted practice, is normally 6% of the GDV. Three Dragons have instead applied the 6% to the house build costs of the affordable housing. Even if this was a correct methodology, that 6% of costs should be also applied to the infrastructure costs associated with delivering the affordable homes, not just the house build cost as they seem to have adopted. In any event, applying 6% to the affordable homes reflect industry standard assessment procedures and follows the logic that it represents a return on sales the same as adopted by us and Three Dragons on the margin for the market homes. There is no reason to adopt a different basis of margin from one form of sale to another.	No	6% on costs	6% on revenue

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
		Impact on Viability Model	£1,600,000 underestimate of developer's margin		
12	Professional Fees	Professional Fees relate to design, planning, surveys, cost controls, health and safety, project management and alike, matters that are provided as a service rather than a physical build. Such fees occur in all aspects of a development, the base house cost and infrastructure and this is agreed in principle between the parties. In terms of infrastructure differing rates can apply to differing stages or areas of development. In order to illustrate the impact of fee level adopted the amounts stated illustrate those applied to the base house build costs. These reflect design, planning, health and safety, project management and similar costs associated with the house builds.	No	6.25%	7.5%
		Impact on Viability Model	£8,700,000 underestimate of professional fees in respect of the house build		
13	Promotion Costs	Significant costs for the developer are promotion costs. That is planning, master design and costs associated with such matters as Examination in Public. These can be significant and would be expected to be reflected in a viability assessment.	No	Not Reflected	c£2,000,000
		Impact on Viability Model	£4,200,000 underestimated costs (upfront holding costs subject to finance from day one for a significant period before any revenue is created)		
14	Finance Rate	Development is generally funded with external finance, which comes at a cost. Although interest rates are currently low, this reflects risk in the general economy. This normally has the adverse impact on development loan costs, as there is more inherent risk in development through the ability to sell the homes developed at the price required at the rates required. Finance is therefore an important aspect of any appraisal. It is calculated on a cumulative basis (normally assessed monthly) over the development period with costs being offset as and when sales revenue is achieved. Cash flow timings are also crucial in determining the finance costs. Upfront infrastructure and land holding costs (site purchase and promotion) influence the amount of borrowing required prior to sales revenue. The rate used is also important and must reflect the caution applied in the market, especially for a large expansion area such as Cranbrook where site information and design detail is at such a high level. We would consider a conservative investment rate of 7% more likely than the aggressive rate of 6% for such high level assessments.	No	6%	7%
		Impact on Viability Model	£8,500,000 underestimate of finance costs		

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
15	Housing Sales Price	The Gross Development Value reflects the potential revenue of a development and is derived, in a development such as Cranbrook, predominantly from the sales of market homes. Evidence used to assess the likely house prices is generally developed from recent sales evidence, normally over the previous year if such local evidence is available, as at Cranbrook. It is reasonable to obtain this evidence from Land Registry Records. Such records, however, do not reflect "hidden" extras provided by the developer to entice buyers to their product. This is especially true where you have several builders providing a similar product in the same location. These incentives may include such items as carpets, specialist flooring, white good, landscaping etc. Such costs are not reflected in other areas of the viability appraisal and need to be deducted from the Land Registry figure to obtain a true gross sales value. Incentives can be as high as 5% of the sales price reported. It is unclear if such a deduction is made from the Land Registry data but as no comment is made, it is assumed not. Market assessment should, where possible, avoid historic sales records over 1 year and avoid the need to index to todays prices. This is inherently generalist and can have the impact of imposing a wider areas housing price increase/decrease to a specific development. Three Dragons have taken 5 years and used indexing to ascertain their market values, which in our view is unnecessary in developing the sales process.. Our estimated price is derived from a local property analyst using data over a single year up to December 2019 reflecting sales achieved in Cranbrook. Their conclusions are attached to this document.	No	£3,064/sqm (£284/sqft) Average house price: £310,359	£2,935/sqm (£276psqft) Average house price: £297,325
		Impact on Viability Model	£31,000,000 over valued revenue for house sales		
16	Affordable House Price	The affordable house price represents what a local Registered Provider of social housing would be prepared to pay for the social housing bearing in mind the likely rents and ownership structures that they can offer.	No	£1,991/sqm (£185/sqft)	£1,892.01 (175/sqft)
		Impact on Viability Model	£2,000.000 over valued revenue from affordable homes sales		
17	Sales and Marketing costs	Significant monies can be spent to market the properties. This include brochures, advertising, training staff, setting up and manning a sales home(s) as well as agents fees. It is standard practice to use a percentage of the market derived development revenue to reflect such costs.	No	3%	3.75%
		Impact on Viability	£600,000 underestimate of costs associated with sales		

No.	Description	Comment	Agreed	Three Dragons Position	WCL Position
18	Benchmark Land Value	The residual value methodology adopted by both Three Dragons and ourselves, requires the residual value from income less costs (including developers margin) to be compared to a land value a land value considered the minimum a willing seller would release the land for to enable development. If that value is too low, it has to be assumed the seller would not release the land for development. Development land should be considered all that land required to bring the development forward and includes land for residential development, commercial development, public open space, roads, sports facilities, schools, health care and paths etc. There should not be a subset of the land required that attracts a lower value as the value of the land is the same across the development. The land value is also important as it attracts interest from the date of purchase, and it is normal practice in development appraisals to assume the whole site is bought from day one.	No	£300,000/ha except SANGS land at £25,000/ha	£300,000/ha on all land
		Impact on Viability Model	£10,700,000 underestimate of interest from reduced value used for SANGS land required to enable development. This also impacts on the benchmarking land value. If SANGS is valued at a lower level of £25k/ha then the viability would show a falsely positive assessment by the amount underpaid equalling some £26.1m. This aspect alone would be more than enough to put the Three Dragons assessment into an unviable position.		

Commentary

Calculating an average sales price:
We have collated the past five years worth of sales data across Cranbrook drawing an average sales price and average £/sqft achieved within this period – please see table 1 below.

Jan – Dec 2016	
Average Sold Price:	Average £/sqft achieved
£247,272.92	£260.87
Jan – Dec 2017	
Average Sold Price:	Average £/sqft achieved
£257,420.07	£292.71
Jan- Dec 2018	
Average Sold Price:	Average £/sqft achieved
£242,259.92	£276.48
Jan – Dec 2019	
Average Sold Price:	Average £/sqft achieved
£244,264.41	£276.92
Jan – Sept 2020	
Average Sold Price:	Average £/sqft achieved
£228,749.90	£268.60

The table above demonstrates a consistent average asking price year on year with no significant growth/decline, suggesting a stable and persistent marketplace within Cranbrook. A slight increase was noted in 2017, we believe this is due to the level of new homes that were

Commentary

introduced to the market within this period.

When comparing the new build market with the current second hand market within Cranbrook, we can see sold prices are starting to decrease when compared with Land Registry data. We believe this is due to previous incentives offered by house builders in the form of gifted deposits to sustain asking prices.

We have also taken into account the ability to purchase a new build home with the use of the current Help to Buy scheme, up to the value of £600,000 for both first time buyers and home movers. We believe this will have encouraged consistent asking prices with a lower need for financial incentives with the Help to Buy scheme offering financial assistance to increase the budgets of new build purchasers.

We anticipate the conclusion of the current Help to Buy scheme in April 2021 will impact on the number of first time buyers purchasing larger homes over the price point of £349,000. With this in mind along with the conclusion of the Stamp Duty Holiday, we forecast a small decline in property sales over the price point of £349,000. We also anticipate house builders will revise house type mix and pricing in line with these changes to generate consistent sales rates.

Looking at the data supplied above, we believe the past five years sales revenues coupled with the upcoming changes and market research are all relevant in the appraisal of sales revenues at Cranbrook. It would be advisable to factor in a 5-10% deal margin to allow for financial incentives in preparation for the upcoming changes in Help to Buy, Stamp Duty Holiday and economic events.

NDSS and Non-NDSS homes:
There is currently a lack of data surrounding the financial impact NDSS and Non-NDSS house types have on sales revenues. We would expect to see homes of a smaller footprint i.e. meeting NDSS to secure lower values than larger units exceeding NDSS.

BCIS®

RICS®

The results contained on the page are as published on 01-Jan-2020

£/m2 study

Description: Rate per m2 gross internal floor area for the building Cost including prelims.

Last updated: 21-Dec-2019 00:39

› Rebased to Devon (101; sample 212)

Maximum age of results: Default period

Building function (Maximum age of projects)	£/m² gross internal floor area						Sample
	Mean	Lowest	Lower quartiles	Median	Upper quartiles	Highest	
New build							
810. Housing, mixed developments (15)	1,294	663	1,128	1,257	1,423	2,961	1269
810.1 Estate housing							
Generally (15)	1,288	618	1,099	1,245	1,412	4,475	1698
Single storey (15)	1,442	818	1,229	1,391	1,615	4,475	282
2-storey (15)	1,247	618	1,088	1,220	1,361	2,668	1299
3-storey (15)	1,304	815	1,065	1,259	1,458	2,614	112
4-storey or above (15)	2,712	1,343	2,195	2,384	3,574	4,063	5
810.11 Estate housing detached (15)	1,630	959	1,211	1,431	1,694	4,475	21
810.12 Estate housing semi detached							
Generally (15)	1,281	737	1,103	1,249	1,412	2,356	408
Single storey (15)	1,431	896	1,230	1,412	1,598	2,356	82
2-storey (15)	1,246	737	1,098	1,222	1,367	2,151	310
3-storey (15)	1,198	925	964	1,164	1,283	1,867	16
810.13 Estate housing terraced							
Generally (15)	1,327	811	1,103	1,257	1,471	4,063	336
Single storey (15)	1,489	997	1,252	1,421	1,723	2,116	36
2-storey (15)	1,284	811	1,093	1,245	1,424	2,668	247
3-storey (15)	1,321	815	1,051	1,258	1,465	2,614	51
4-storey or above (10)	3,819	3,574	-	-	-	4,063	2
816. Flats (apartments)							
Generally (15)	1,512	766	1,260	1,434	1,705	5,142	953
1-2 storey (15)	1,447	896	1,229	1,385	1,604	2,647	228
3-5 storey (15)	1,488	766	1,252	1,423	1,693	3,216	631
6 storey or above (15)	1,845	1,125	1,509	1,718	1,988	5,142	91

Appendix 3 to the Stage to Questions Submission

Future Homes Standard Impact Assessment 2019

Ministry of Housing,
Communities &
Local Government

The Future Homes Standard

2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings: Impact Assessment

Title: Future Homes Standard Consultation IA **IA No:** **RPC Reference No:** **Lead department or agency:** MHCLG	**Impact Assessment (IA)** **Date:** 1/10/2019 **Stage:** Development/Options **Source of intervention:** Domestic **Type of measure:** Secondary Legislation **Contact for enquiries:** FutureHomesStandardConsultation@communities.gov.uk

Summary: Intervention and Options

RPC Opinion: N/A

Cost of Preferred (or more likely) Option (in 2019 prices)			
Total Net Present Social Benefit £585m	**Business Net Present Cost** £6,452m	**Net cost to business per year** £750m	**Business Impact Target Status** Qualifying provision

What is the problem under consideration? Why is government intervention necessary?

Homes, both new and existing, account for 20% of greenhouse gas emissions in the UK.[1] Reducing carbon emissions from new homes is essential to meeting the Government's net zero emissions target. The performance-based targets set through the Building Regulations are an important means of reducing the carbon emissions of new buildings, where the market would not meet these of its own accord. Market failures include the cost of climate change not being fully reflected in energy prices, lack of information about energy efficiency opportunities and limited incentives to make improvements. Constructing energy efficient buildings now reduces the need to retrofit these in future to meet our climate change targets.

What are the policy objectives and the intended effects?

To reduce carbon emissions of new buildings through changes to Part L of the Building Regulations, and to instigate the changes in specifications, skills and supply chains needed to stimulate innovation and learning in the sector, as the basis for introducing a world-leading performance standard incorporating low-carbon heat in new homes by 2025. To provide adequate ventilation provisions through changes to Part F of the Building Regulations to align with more airtight construction encouraged by Part L.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Policy Option 0: Do nothing. Keep existing Part L 2013 standards, and Part F 2010 standards. This is the baseline option and does not result in any costs and benefit impact.
Policy Option 1: Central case. New homes target that delivers circa 20% improvement on 2013 standards, aggregated across the build-mix, based on overall performance based carbon and primary energy targets, with mandatory energy efficiency requirements. Improvements to the ventilation and airtightness standards.
Policy Option 2: High case. New homes target that delivers circa 30% improvement on 2013 standards, aggregated across the build-mix, based on overall performance based carbon and primary energy targets, with mandatory energy efficiency requirements. Improvements to the ventilation and airtightness standards. Policy Option 2 is our preferred option.

Does implementation go beyond minimum EU requirements?		Yes		
Is this measure likely to impact on international trade and investment?				
Are any of these organisations in scope?	**Micro** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)		**Traded:** -12	**Non-traded:** -24	

[1] UK housing: Fit for the future?, Committee on Climate Change (2019) https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/

Summary: Analysis & Evidence

Policy Option 1

Description: New homes target that delivers circa 20% improvement on 2013 standards

FULL ECONOMIC ASSESSMENT

Price Base	PV Base	Time Period	Net Benefit (Present Value (PV)) (£m)		
2019	**2020**	70	**Low:** £1,440 million	**High:** £2,160 million	**Best Estimate:** £1,800 million

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate	£3.2 million			**£5,577 million**

Description and scale of key monetised costs by 'main affected groups'

The increased costs (present value) for new homes are £5,574m plus transition costs of £3.2m. The initial capital costs will be borne by developers, but these costs may ultimately be passed to landowners. The costs would fall with moderate efficiency gain through learning over time. Maintenance and replacement costs will be borne by building owner/occupier.

Other key non-monetised costs by 'main affected groups'

These changes are unlikely to have a substantial impact on the demand for new homes, so this has not been monetised.

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate	£0			**£3,778 million**

Description and scale of key monetised benefits by 'main affected groups'

Energy savings: £1,414m. Non-financial benefits including carbon savings and air quality savings: £2,364m

Other key non-monetised benefits by 'main affected groups'

The savings to consumers will be greater than shown because of reduced payments for VAT which will be a cost to the exchequer. No allowance is made for fuel security benefits, employment opportunities from developing energy saving or low carbon/primary energy products or spill-over benefits of innovation.

Key assumptions/sensitivities/risks **Discount rate**

The analysis has taken a common set of assumptions on fuel prices, traded and non-traded carbon values, emissions factors and air quality damage costs from 2019 Green Book Supplementary guidance. The low and high estimates are +/- 20% of the best estimate.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs:	**Benefits:**	**Net:** £533m Cost	

Summary: Analysis & Evidence

Policy Option 2

Description: New homes target that delivers circa 30% improvement on 2013 standards

FULL ECONOMIC ASSESSMENT

Price Base	PV Base	Time Period	Net Benefit (Present Value (PV)) (£m)		
2019	**2020**	**70**	**Low:** £468 million	**High:** £702 million	**Best Estimate:** £585 million

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	**Optional**		Optional	**Optional**
High	**Optional**		Optional	**Optional**
Best Estimate	**£3.2 million**			£10,457 million

Description and scale of key monetised costs by 'main affected groups'

The increased costs (present value) for new homes are £10,454m plus transition costs of £3.2m. The initial capital costs will be borne by developers, but these costs may ultimately be passed to landowners. The costs would fall with moderate efficiency gain through learning over time. Maintenance and replacement costs will be borne by building owner/occupier.

Other key non-monetised costs by 'main affected groups'

These changes are unlikely to have a substantial impact on the demand for new homes, so this has not been monetised.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	**Optional**		**Optional**	**Optional**
High	**Optional**		**Optional**	**Optional**
Best Estimate	**£0**			**£11,042 million**

Description and scale of key monetised benefits by 'main affected groups'

Energy savings: £7,738m. Non-financial benefits including carbon savings and air quality savings: £3,304m

Other key non-monetised benefits by 'main affected groups'

The savings to consumers will be greater than shown because of reduced payments for VAT which will be a cost to the exchequer. No allowance is made for fuel security benefits, employment opportunities from developing energy saving or low carbon/primary energy products or spill-over benefits of innovation.

Key assumptions/sensitivities/risks **Discount rate**

The analysis has taken a common set of assumptions on fuel prices, traded and non-traded carbon values, emissions factors and air quality damage costs from 2019 Green Book Supplementary guidance. The low and high estimates are +/- 20% of the best estimate.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs:	**Benefits:**	**Net:** £750m Cost	

Evidence Base (for summary sheets)

Background and scope of the proposal

1.1. This impact assessment informs the consultation *The Future Homes Standard: 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings*. It considers two options to uplift the current Part L energy efficiency standards in 2020 for new homes. It also considers the wider impacts of Part L for new homes, including changes to Part F (Ventilation), airtightness, improving as built performance and changes to transitional arrangements in 2020.

Future work (outside scope of the impact assessment)

1.2. This impact assessment only details the impacts of changes to new dwellings. A further consultation and impact assessment will be published in the coming months which will include changes to Part L and Part F for existing homes, Part L and F for new and existing non-domestic buildings and overheating in new homes.

1.3. This impact assessment does not consider the costs and benefits of the Future Homes Standard. Before the Future Homes Standard is introduced in 2025, the Government will consult on the full technical details and produce an associated impact assessment.

Rationale for intervention

1.4. Reducing carbon emissions from the building stock is essential for the UK to meet its Climate Change Act targets.[2] Building Regulations should be used to achieve this only where it can be shown that the market would not make these changes of its own accord, or that other measures (regulatory or otherwise) are not already driving this change.

1.5. A number of market failures exist:

- Climate change creates a huge externality: polluters (builders and building occupiers) do not incur the true cost of their emissions. Even if an appropriately high and sustained carbon price were applied, the mix of other market failures can act as a barrier to action.
- Building buyers/tenants/mortgage providers do not have information on long term energy price rises, and most do not value better performing buildings at point of construction, sale or rent. In particular for most businesses, as opposed to households, energy costs are at present too small a percentage of their operating costs to make energy efficiency a material consideration in the choice of building they occupy.
- Even where consumers, householders in particular, do have the information to act to take advantage of energy efficiency savings many fail to do so for a variety of reasons.
- High fabric standards for buildings reduce the influence of such behaviour, as the occupants' actions have little impact on building performance.
- Conversely, a failure to set standards at point of build can lock a building into higher energy consumption, giving those consumers who do want to act limited scope to make savings.
- Split incentives mean that developers have little reason to build better performing buildings, as they do not enjoy the benefits of lower energy bills or income from energy generated by renewable technologies installed in the building.
- Occupants have limited incentive to refurbish their buildings to higher energy standards, as the payback periods through lower fuel bills alone can be unattractive,

and there is limited evidence that higher performance results in a price premium when they come to sell or rent the building on.

- Lack of capital, lack of information and fear of hassle can act as barriers to households and businesses acting to renovate and improve existing buildings even if these would be cost effective in the medium or long term.

1.6. Building regulations and standards are widely recognised as an appropriate point of intervention to overcome these market failures in construction. Action at the point of build has the advantage of 'locking in' low carbon technologies and energy efficient design, reducing overall energy demand of the building.

[2] http://www.legislation.gov.uk/ukdsi/2019/9780111187654/contents

POLICY OBJECTIVES

2.1. The consultation document provides full details of the policy objectives. A summary of these policy objectives is provided here.

Uplift to the energy efficiency requirements for 2020

2.2. The key consideration of the consultation and this impact assessment is what level of uplift should be made to the energy efficiency requirements of Part L of the Building Regulations for new homes in 2020.

2.3. As set out in Chapter 3 of the consultation, there are two options to uplift the energy efficiency requirements for 2020 proposed:

a. **Option 1 - 'Future Homes Fabric'.** This would be a 20% reduction[3] in CO_2 from new dwellings, compared to the current standards. This performance standard is based on the energy and carbon performance of a home with:
   i. Very high fabric standards to minimise heat loss from windows, walls, floors and roofs (typically with triple glazing). This would be the same fabric requirement as we currently anticipate for the Future Homes Standard
   ii. A gas boiler
   iii. A waste water heat recovery system.

This would add £2560 to the build-cost of a new home and would save households £60 a year on energy bills.

b. **Option 2 - 'Fabric plus technology'**. This would be a 31% reduction[3] in CO_2 from new dwellings, compared to the current standards. This option is likely to encourage the use of low-carbon heating and/or renewables. The performance standard is based on the energy and carbon performance of a home with:
   i. An increase in fabric standards (but not as high an increase as in Option 1, likely to have double rather than triple glazing)
   ii. A gas boiler
   iii. A waste water heat recovery system
   iv. Photovoltaic (solar) panels

This would add £4850 to the build-cost of a new home and would save households £260 a year on energy bills.

2.4. In practice, we expect that some developers would choose less costly ways of meeting the standard, such as putting in low-carbon heating now. This would cost less than the full specification at £3130. It would give a carbon saving of only 22% for flats due to the standard including solar panels and flats having a smaller roof area per home. The additional cost per flat is also less at £2260.

2.5. Our preferred option is option 2.

2.6. The specifications for Part L 2020 options 1 and 2 are provided in Table 4 of the next chapter. For further detail to create the notional buildings see the consultation version of the Standard Assessment Procedure 10.1, called cSAP. This will be available shortly here: https://www.isap.org.uk/.

[3] Based on a semi-detached home. As an aggregate across the build-mix, over a 60-year lifespan, this would be an estimated 20% CO_2 saving for option 1, and 30% CO_2 saving for option 2.

2.7. We expect the majority of the benefits and costs will come from the changes to the minimum energy efficiency standards. This forms the main basis of the cost-benefit analysis.

Performance metrics to assess the energy performance of new homes

2.8. The consultation proposes four performance metrics for new buildings to be assessed against, these are:

- Primary energy target
- CO_2 emission target
- Householder affordability rating
- Minimum standards for fabric and fixed building services

2.9. The rationale and policy intent for moving to the four performance metrics is set out in Chapter 3 of the consultation document.

Removing the fuel factors - phasing out high carbon fossil fuels

2.10. As set out in Chapter 3 of the consultation, the intention is to remove fuel factors, so that any new building will need to meet primary energy and CO_2 emissions equivalent to that of option 1 or 2 above. This means that if oil, liquefied petroleum gas (LPG) or solid mineral fuel are to be used in new buildings, considerable mitigating measures would need to be installed to reach parity with a new gas-heated building.

2.11. Grid electricity now has a lower carbon emission factor than gas, as outlined in the tables in Appendix C. Therefore, grid electricity no longer needs a fuel factor to support its use.

2.12. Recognising heat networks as an important part of our energy future, we are proposing to introduce 'technology factors'. These would be applied to calculations for the target emission and primary energy rates for new dwellings where the design incorporates heat networks.

Future-proofing

2.13. The full proposals for future-proofing policy are set out in Chapter 3 of the consultation document.

2.14. Our preferred approach to future-proofing is for developers to install larger emitters with lower flow temperatures. This has the benefits of increasing the efficiency of condensing boilers, giving an immediate energy saving to the consumer. It would also mean low cost and disruption to householders when low-carbon heat is installed in the future because they will not need to have new radiators installed.

2.15. We have provided two uplift options for the Part L primary energy and emission targets. Option 1, 'Future Homes Fabric', delivers the future-proofing element of improved fabric. Option 2, 'Fabric plus technology', will likely deliver some low-carbon heat now.

Statutory guidance

2.16. Chapter 3 of the consultation document explains the rationale and policy intent for our proposed restructure the statutory guidance for Part L and Part F. Draft guidance is presented alongside this consultation and impact assessment.

Energy Performance of Buildings Directive

2.17. The Building Regulations Part L is principally for domestic policy aims in reducing the energy impact of buildings. It is also used to transpose EU legislation, namely the Energy Performance of Buildings Directive (EU) 2018/844 (also known as EPBD).[4] The EPBD has recently been amended and member states are required to transpose these amendments by March 2020. Subject to the terms of the UK's exit from the EU, Part L may be used to transpose some of the requirements of the revised EPBD.

2.18. The EPBD affects new domestic buildings. We set out proposals in the consultation to align with the Directive requirements for new dwellings, in the following areas:

- Primary energy (see performance metrics section outlined earlier in this impact assessment).
- Self-regulating devices
- Information about building automation and control systems

Part F

2.19. The full proposals for ventilation policy are set out in Chapter 4 of the consultation document. Changes to Part F are proposed principally to simplify and clarify the guidance. This will make it easier for installers to understand and comply with the requirements and for building control to check. Changes are also proposed to reflect the latest understanding of how ventilation systems operate. These changes are summarised as follows:

- We propose to provide guidance for different ventilation strategies to reflect how these strategies relate to the air tightness of the dwelling, and when specialist advice should be sought. For natural ventilation systems we propose to only provide guidance for less airtight homes. For continuous mechanical extract, we propose to only provide guidance for more airtight homes. We have also simplified the way that background ventilator sizes are determined in the Approved Document.
- For balanced supply and extract systems, we propose to increase the minimum background ventilation rate to accommodate a likely occupancy level for bedrooms.

2.20. We propose that the minimum whole dwelling ventilation rates are amended. Further detail is provided in the draft Approved Document which accompanies this consultation package.

2.21. For continuous mechanical extract systems, we propose that the minimum level of background ventilators is increased from 2500 mm^2 to 5000 mm^2 per habitable room to make sure that air can be drawn through the background ventilators, accounting for the expected pressure differentials.

Airtightness

2.22. The full proposals for airtightness testing policy are set out in Chapter 5 of the consultation document. We are proposing to:

- limit carbon savings associated with air-permeability levels below 3m^3/m^2h in naturally ventilated dwellings.
- better account for the uncertainty of airtightness tests
- require all new homes to be airtightness tested
- introduce the Pulse test as an approved airtightness testing methodology
- approve a new airtightness testing methodology

[4] Directive (EU) 2018/844 amending Directive 2010/31//EU on the Energy Performance of Buildings, OJEU, 2018.

Performance gap

2.23. The full proposals to reduce the performance gap are set out in Chapter 6 of the consultation document. We are proposing to:

- improve build quality by introducing guidance as part of the minimum standard of Part L
- improve the accuracy of as-built energy calculations by providing clearer information about the as-built specifications of new buildings to energy assessors
- improve information provided to Building Control Bodies and householders including a new style compliance report and photographic evidence
- improve information to householders by providing a Home User Guide

Transitional arrangements

2.24. Transitional arrangements are used to smooth the transition to new standards in the implementation of building regulations; these arrangements allow some building works to be built to previous standards for a specified period.

2.25. We propose that transitional arrangements should only apply to individual buildings on which work has started within a reasonable period. Where work has not commenced on a specific building covered by the building notice, initial notice, or full plans within a reasonable period, that building should not benefit from the transitional provisions and so it would need to comply with the latest set of energy efficiency standards. The rationale and policy intent for this proposed change to transitional arrangements is set out in Chapter 7 of the consultation document.

ESTIMATION OF COSTS AND BENEFITS

Summary of impacts

3.1. A summary of the impacts considered under this Impact Assessment is provided below in Table 1, relative to the counterfactual (Option 0). All figures are Net Present Values (NPV) over 10 years of policy and a subsequent 60 year life of the buildings. The figures represent the aggregate impact across the building mix.

3.2. Overall, the additional costs and benefits are dominated by the uplift from the Part L 2013 performance targets – with the separate improvements to the ventilation and air tightness standards having a comparatively minor impact. Both the costs and benefits are greater for Option 2 which principally originates from the installation of on-site renewables and results in both greater upfront capital costs (and incurs replacement costs during the building life) as well as greater energy savings from the generated energy. Option 2 is estimated to result in an overall net benefit of £585 million compared to a net cost of £1,800 million for Option 1. The equivalent annual net cost to business of the preferred Option 2 is £750m in 2019 prices.

Table 1: Summary of costs and benefits		
	Option 1	**Option 2**
Transition costs	(3.2)	(3.2)
Energy savings (£m)	1,414	7,738
Incremental costs (£m)	(5,574)	(10,454)
Total financial benefit/(cost) (£m)	**(4,164)**	**(2,719)**
Carbon savings - non-traded (£M)	2,186	1,686
Carbon savings - traded (£M)	(2)	736
Total carbon savings (£m)	2,185	2,422
Air quality savings (£m)	179	882
Total carbon and air quality savings	2,364	3,304
Net benefit/(cost) (£m)	(1,800)	585

Amount of gas saved (GWh)	168,447	93,932
Amount of electricity saved (GWh)	(476)	245,241
Amount of CO_2 saved - non-traded (MtCO2(e))	31	24
Amount of CO_2 saved - traded (MtCO2(e))	(0)	12
Cost effectiveness – non-traded (£/tCO2)	129	46
Cost effectiveness – traded (£/tCO2)	(74,016)	13

Present value net benefit/(cost) business (£m)	(4,592)	(6,452)
Equivalent annual net benefit/(cost) to business (£m) [Annualised over 10 years]	(533)	(750)

Overview

3.3. The proposed policy changes will affect all new dwellings in England. The impact of the policy will be felt both at the point of new construction and over the life of the building during which energy savings will be achieved. As such, the policy will have an impact on manufacturers of construction products, the construction industry and the building owners and occupants. Given the long lives of the buildings affected there is considerable uncertainty about future values. So it is assumed that there is a ±20% uncertainty on the

central estimate and further sensitivity analysis of key assumptions is intended to be undertaken for the final Impact Assessment.

3.4. In order to estimate the overall costs and benefits of the proposed policy options we have modelled the changes in building costs, energy use and related CO_2 emissions using the building standards proposed for Part L and Part F compared with a baseline of costs and energy use implied by Part L 2013 and Part F 2010 standards which are now in place.

3.5. Not all of the policies above have been captured in the cost-benefit analysis.

3.6. The policies included in the cost-benefit analysis and the narrative below are:

- The uplift to the energy performance requirements for 2020 - Costs and Benefits – Improved Part L standards for new homes
- Performance gap - see Improved Compliance and Performance and Administrative burdens
- Statutory guidance - see Improved Compliance and Performance
- Calculation methods - Transition costs
- Futureproofing - Costs and Benefits - Improved Part L standards for new homes
- Airtightness - Modifications to Airtightness
- Self-regulating devices - Mandating Self-Regulating Devices (SRDs)
- Removing fuel factors - Rural impacts
- Transitional arrangements - Transitional arrangements

3.7. The policies not included and why are:

- Performance metrics to assess the energy performance of new homes, including primary energy, CO2 and householder affordability – we expect there to be minimal familiarisation impacts of changing the performance metrics. Trained Energy Assessors calculate these metrics using a piece of software, the Standard Assessment Procedure (SAP). The new performance metrics are all already calculated by the Energy Assessors using SAP, they will simply have to report different metrics.
- Uplift to minimum standards for fabric – these are backstop values to ensure good quality building fabric, the main standards are the performance metrics.
- Uplift to minimum building services efficiencies – these are backstop values to ensure efficient building services, the main standards are the performance metrics.
- Consideration of high efficiency alternative systems – this is a reduction in guidance, no assessment is required.
- Approved construction details – costs have currently not been monetised and will be considered further in the final Impact Assessment.
- Technology factors – this is to prevent the new uplift in standards and change in calculation methods from preventing the installation of heat networks. There is little change from the current standards.
- Information about Building Automation and Control Systems (BACS) – would only affect homes with BACS, which would be very few new homes.

3.8. The figures in the following analysis are based on central estimates.

Assumptions applicable to all analysis

3.9. This impact assessment is based on the Green Book and the accompanying supplementary guidance on the valuation of energy use.[5] This IA considers updated fuel prices, traded and non-traded carbon values and emission factors.

3.10. Energy savings are valued at the variable rate in macroeconomic calculations in accordance with the supplementary Green Book guidance. This is appropriate for social analysis and assumes that the retail energy savings enjoyed by the consumer occupying an energy efficient building does not fully reflect the social benefit.

3.11. A discount rate of 3.5 per cent has been used for the first 30 years of the building's life and 3 per cent for subsequent years. This is in line with guidance in HM Treasury's Green Book - Appraisal and Evaluation in Central Government.

3.12. Unless otherwise stated, prices and estimates shown below are in 2020 base year, 2019 prices.

3.13. The appraisal time period for estimating the impact of the policy is 10 years which is consistent with that used in the 2013 Part L Impact Assessment and in other Impact Assessments associated with the construction industry.

3.14. It is important to ensure there is a full appraisal of the 'lock in' impact of higher fabric standards. An example of this is the impact of higher wall standards, which will impact over a long period of time, potentially the entire lifetime of the building. For building fabric insulation (external walls, floors, roofs) we have assumed an asset life of 60 years, except for external windows which we have assigned an asset life of 30 years. This is comparable with indicative values provided in Annex E of BS EN 15459 Energy performance of buildings - Economic evaluation procedure for energy systems in buildings. For gas heating and ventilation equipment we have assumed asset lives of 15 and 20 years respectively, with hot water stores also having a lifespan of 20 years. This is comparable with indicative values provided in CIBSE Guide M – Maintenance engineering and management. The asset lives of waste water heat recovery systems were taken to be 20 years for horizontal systems and 60 years for vertical systems.

3.15. Only the elements of lifecycle cost that differentiated from the baseline cost were considered. For example, general repair and decoration costs were excluded from the analysis as these would be common to all homes irrespective of the energy performance options presented in this document.

3.16. Replacement costs were assigned to specific components within a specification and avoided replacements of components that would be expected to have a longer lifespan. For example, boiler replacements did not include replacement of a hot water tank or to the gas or water supplies. Replacement costs included an additional allowance for the costs of working in an existing property and for disposal of the end of life components; replacement is only costed if the boiler is more expensive than the counterfactual.

3.17. Consequently, we have estimated the ongoing costs associated with maintenance and replacement along with the benefits from energy, air quality and carbon savings over a 60 year period for each building, which provides a sufficiently long period to capture the benefits of fabric 'lock in'. For instance in the new homes' analysis, an external window is assumed to have a lifetime of 30 years. So a replacement after 30 years is assumed. This is important as Option 1 assumes more expensive triple glazing whereas Option 2 assumes double glazing, and this cost difference needs to be accounted for when the asset is replaced. Again, this is consistent with the 2013 Part L Impact Assessment. Given the

[5] Valuation of energy use and greenhouse gas emissions for appraisal (April 2019)

10 year of policy being assumed, the total period for the IA is therefore 70 years so that the full 60 year impact of a building constructed in year 10 is assessed. Learning rates have been applied to account for reductions in costs for less mature technologies.

3.18. For the purposes of this analysis, we have used net completion projection as a proxy for annual rate of new buildings in our modelling. This has been broken down between detached, semi-detached/end-terraced, mid-terraced houses and four storey apartment blocks. For more details, please see Appendix A.

3.19. In addition, Table 2 shows the phasing assumptions that have been made about the numbers of new homes which will be built to the new 2020 standards in the first few years of the policy, to reflect the time lag between planning and building of new homes.

Table 2: Phase-in assumptions

	2020	2021	2022	2023	2024 onwards
Phase in (% dwellings captured by Part L and F 2020)	20%	50%	75%	95%	100%

Source: MHCLG

3.20. The assessment of costs and benefits has been undertaken based on the 4 building types outlined in paragraph 3.18: detached, semi-detached, mid-terrace and a 4-storey block of flats (made up of 16 1-bed single aspect and 16 2-bed corner flats). To enable consistent target setting and comparison, we have used the same dwelling types employed in the Part L 2013 review, but with some updates to reflect the Nationally Described Space Standards – as implemented for MHCLG's cost optimal analysis published in 2019.[6] The dwelling types are summarised in Table 3 below.

Table 3: Dwelling types

Dwelling type	Small 1 Bed Single Aspect Apartment	Large 2 Bed Corner Apartment	Mid Terrace House	End Terrace/ Semi-detached House	Detached House
Total Floor Area (m^2)	50	70	84	84	117
	Total for apartment block: 1922				

3.21. The modelling assumes that all new domestic buildings are presently constructed to current Part L and F standards. Some local authorities require construction to a higher standard which will reduce the impact of the policy change. Moreover, some new domestic buildings, where development started before the last Part L uplift, are constructed to old standards. These considerations will be examined further in the final Impact Assessment.

Costs and Benefits: Improved Part L standards for new homes

3.22. For the uplift of Part L standards for new homes, two options are being proposed: options 1 and 2. The costs and benefits of these proposals have been assessed across the four building types detailed previously.

[6] DCLG, *Technical housing standards – nationally described space standard*, 2015. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/524531/160519_Nationally_Described_Space_Standard____Final_Web_version.pdf; and MHCLG, *Energy Performance of Buildings Directive: Second Cost Optimal Assessment for the United Kingdom (excluding Gibraltar)*, 2019. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770783/2nd_UK_Cost_Optimal_Report.pdf

3.23. Table 4 shows the specifications assessed for each building type - current Part L 2013 and the two consultation options. These are based on the notional (reference) building which is used to set the standard.

Table 4: Specification for each building type			
	Part L 2013	**Part L 2020 Option 1**	**Part L 2020 Option 2**
External Wall U-value (W/m²K)	0.18	0.15	0.18
Corridor Wall U-value (W/m²K)	0.18	0.18	0.18
Party Wall U-value (W/m²K)	0	0	0
Roof U-value (W/m²K)	0.13	0.11	0.11
Floor U-value (W/m²K)	0.13	0.11	0.13
Window U-value (W/m²K)	1.4	0.8	1.2
Window g-value	0.63	0.57	0.63
Door U-value (W/m²K)	1.0	1.0	1.0
y-value (W/m²K)	Based on SAP Appendix R	Based on the 'Option 1' psi values in Table R2 of SAP 10.1.	Based on the 'Option 2' psi values in Table R2 of SAP 10.1.
Ventilation System Type	Intermittent extract fans with trickle vents		
Air permeability ($m^3/h \cdot m^2$ at 50 Pa)	5		
Space Heating Source	Condensing gas boiler (regular for detached, combi for others)		
Domestic Hot Water Source	As for space heating		
Boiler Efficiency	89.5% (SEDBUK)		
Heat Emitters	Standard radiators	Large (low temp) radiators	Large (low temp) radiators
Shower flow rate	8 l/min		
Waste Water Heat Recovery (WWHR)	No	Efficiency of 36% Utilisation of 0.98 Connected to 2 showers where present	
Fixed lighting capacity (lm)	185 x TFA		
Lighting efficacy (lm/W)	80		
PV installation area (percentage of building foundation area)	0%	0%	40%
PV assumptions			SE/SW facing, 45-degree pitch, no/little overshading, 6.5m^2/kWp, connected directly to dwelling.

3.24. The increase in capital cost of achieving the consultation options, compared with the continuation of existing 2013 standards are shown in Table 5. Further breakdown of the costs of the different elements is provided in Appendix B. These results show a significantly higher capital cost for the option 2 which predominantly relates to the inclusion of photovoltaics (PV) in the notional building.

Table 5: Additional Capital Costs		
	Part L 2020 Option 1 (20% uplift)	**Part L 2020 Option 2** (30% uplift)
Detached house	£4,200	£6,520
Semi-detached house	£2,560	£4,850
Mid-Terraced house	£2,200	£4,740
Flats	£2,070	£2,260
Average (based on build mix)	£2,870	£4,620

** Option 1 includes heating distribution system cost savings (equivalent to 25% of heating distribution system costs) due to increased energy efficiency for the higher fabric specifications, at 2020 prices. However, it is expected that it will take time for designers to implement the changes to the heating system design to realise these savings, due to their experience in working on less energy efficient homes i.e. they will need time to adapt from current practice and/or overcome concerns of under-heating homes if a reduced heat distribution system is installed. These savings are assumed to be made from 2021 onwards with the following learning rates applied in the cost benefit assessment: 2021, 20% (of total cost saving realised); 2022, 40%; 2023, 60%; 2024, 80%; 2025 onwards, 100%.*

3.25. The changes in energy use were assessed by using a consultation version of SAP (cSAP). Modified carbon emission and primary energy factors were used to rebase the Part L 2013 standard and used to calculate the proposed 2020 standards. These carbon emission and primary energy factors are in Appendix C.

3.26. The costs and benefits for options 1 and 2 compared with continuation of the existing 2013 standards are shown in Table 6. The results show that the Option 2 has a greater increase in costs but results in a net benefit. This principally arises from the additional costs of the PV and the significant energy savings arising from the electricity generation. Note that analysis suggests that it may well be possible to reduce the upfront capital costs in meeting the Option 2 target through the use of alternative low carbon/primary energy technologies such as the use of a heat pump or a mechanical ventilation system with heat recovery. As an example, further analysis has been undertaken by adopting the same design specification as for Option 2 but with the gas boiler and PV replaced by an air source heat pump (with efficiencies of around 250% for space heating and hot water as modelled in SAP). It shows, for example, the capital cost uplift as being £3130 for the semi-detached house and £2780 for flats which, in comparison with the results in Table 5, is a lower cost for the semi-detached house and is more expensive for flats. This solution is likely to over-comply (i.e. be better than the Part L targets) and there may be further upfront capital cost savings in reducing the building performance to just comply with the Part L targets.

Table 6: Summary of results from cost benefit analysis (improved Part L standards only) – total over the appraisal period		
	Part L 2020 Option 1	**Part L 2020 Option 2**
Transition costs	(3.2)	(3.2)
Energy savings (£M)	1,411	7,735
Incremental costs (£M)	(5,524)	(10,404)

Total financial benefit/(cost) (£M)	**(4,116)**	**(2,672)**
Carbon savings - non-traded (£M)	2,182	1,682
Carbon savings - traded (£M)	(2)	736
Total carbon savings (£m)	2,180	2,418
Air quality savings (£m)	179	881
Net benefit/(cost) (£m)	**(1,757)**	**627**
Amount of gas saved (GWh)	168,114	93,598
Amount of electricity saved (GWh)	(476)	245,241
Amount of CO_2 saved - non-traded (MtCO2(e))	31	24
Amount of CO_2 saved - traded (MtCO2(e))	(0)	12
Cost effectiveness – non-traded (£/tCO2)	127	44
Cost effectiveness – traded (£/tCO2)	(72,266)	9

Source: Currie and Brown

Mandating Self-Regulating Devices (SRDs)

3.27. Approved Document L1A and the associated Domestic Building Services Compliance Guide currently recommend installing SRDs in new homes to meet Part L. The policy change is to make this mandatory.

3.28. It is assumed that all new homes currently install SRDs in practice to meet Part L. As such, it is assumed that there are no significant costs and benefits of this policy change to make such installation mandatory.

Futureproofing

3.29. Included within the section above *Costs and Benefits - Improved Part L standards for new homes* are the costs and benefits of installing larger emitters with lower flow temperatures now. The benefits for the future have not been fully captured. The CBA uses gas boilers as the replacement for gas boilers. It is however likely in the future that heat pumps will be installed as a replacement for gas boilers. The larger emitters will have the benefit to consumers in the future of not requiring replacement, therefore saving consumers money, reducing waste, reducing disruption and therefore making it more likely low carbon heat will be installed.

Cost and Benefits: Modifications to Airtightness

3.30. There are two proposals for change: 100% sample testing and carbon capping. These are included in both policy options 1 and 2.

100% sample testing

3.31. The counterfactual case is based on the current number of homes that have an airtightness test for Part L compliance purposes. This has been determined through the total number of airtightness tests undertaken on new homes,[7] corrected for (reduced by) additional testing based on unpublished data from BSRIA (e.g. due to testing during the construction process or additional testing when a home fails their initial test), divided by the number of new build dwellings.[8] This was analysed over the period from April 2016 to March 2018.

[7] DCLG, Airtightness testing Scheme Statistics: England and Wales, 2016. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/714057/180605_Air_Tightness_Testing__Master_Stats__April_2016_to_March_2018.pdf

[8] MHCLG, Table 213 and 214: permanent dwellings started and completed by tenure England and Wales (quarterly), 2019. Available at: https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building.

This results in an average percentage of new build dwellings tested each year of 86% of all new build.

3.32. The counterfactual case is based on the current number of homes that have an airtightness test for Part L compliance purposes. This has been determined through the total number of airtightness tests undertaken on new homes,[9] corrected for (reduced by) additional testing based on unpublished data from BSRIA (e.g. due to testing during the construction process or additional testing when a home fails their initial test), divided by the number of new build dwellings.[10] This was analysed over the period from April 2016 to March 2018. This results in an average percentage of new build dwellings tested each year of 86% of all new build.

3.33. With 100% sample testing, the number of average new build dwellings to be tested each year in addition to those currently tested is based on the proportion of new build dwellings that are not currently tested, which is 14%. In practice, due to failures and subsequent retesting etc, based on published BSRIA data this increases the number of additional tests undertaken to around 16.6%.

3.34. Based on data by BSRIA, the cost of each test is on average £64.13 for volume housebuilders. Hence, the cost of extending air-permeability testing to 100% of new build UK properties will be therefore the number of homes constructed x 16.6% x £64.13.

3.35. The benefit is expected to be gained by the improvement of the air-permeability of those dwellings that are not currently tested. It is assumed for the purpose of this analysis that 100% testing could improve the air-permeability of the currently un-tested dwellings that would fail the initial test and require additional works to pass. It is assumed that airtightness testing will not impact on those homes that are currently un-tested but would be expected to pass the test first time. The benefit will be the fuel savings and reduced fuel bills that result from that improvement.

3.36. The number of dwellings that will benefit from a reduced air-permeability is therefore the number of homes constructed x 14% (number of homes not currently tested) x 10.08% (unpublished BSRIA estimate of the percentage of homes that currently fail the airtightness test i.e. the airtightness test result is poorer than their design air permeability).

3.37. The energy saving per benefitted dwelling was determined using the consultation version of SAP for the semi-detached house used elsewhere in the new domestic ADL1A modelling (the results from the semi-detached home were assumed on average to be representative of the building stock). Unpublished data from BSRIA shows that the typical design air permeability target is 5m³/m²h and on average failed tests (i.e. their first airtightness test) had an air-permeability that was 1.4m³/m²h poorer than the design air-permeability. Hence, we assumed the benefit from testing is associated with a reduction in air permeability from 6.4m³/m²h to 5m³/m²h. The results from SAP show a reduced energy consumption of 172kWh/year.

3.38. The overall costs and benefits for 100% sample testing, compared with continuation of the existing Part L 2013 standards, are shown in Table 7. This would apply under both option 1 and 2. As can be seen there is a net cost of this policy proposal.

[9] DCLG, Air tightness testing Scheme Statistics: England and Wales, 2016. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/714057/180605_Air_Tightness_Testing__Master_Stats__April_2016_to_March_2018.pdf

[10] MHCLG, Table 213 and 214: permanent dwellings started and completed by tenure England and Wales (quarterly), 2019. Available at: https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building.

Table 7: Summary of results from cost benefit analysis (100% sample testing)	
	100% sample testing
Energy savings (£M) Incremental costs (£M)	2.9 (20.5)
Total financial benefit/(cost) (£M)	**(18)**
Carbon savings - non-traded (£M) Carbon savings - traded (£M)	4.3 -
Total carbon savings (£m)	4.3
Air quality savings (£m)	0.4
Net benefit/(cost) (£m)	**(13)**
Amount of gas saved (GWh)	333.5
Amount of electricity saved (GWh)	-
Amount of CO_2 saved - non-traded (MtCO2(e))	0.1
Amount of CO_2 saved - traded (MtCO2(e))	-
Cost effectiveness – non-traded (£/tCO2)	282
Cost effectiveness – traded (£/tCO2)	-

Carbon capping

3.39. This proposed change involves capping carbon savings associated with an air-permeability below $3m^3/m^2h$ on naturally ventilated dwellings. The purpose of this would be to discourage the construction of overly tight naturally ventilated dwellings that could lead to poor ventilation and indoor air quality.

3.40. Data received from BSRIA confirms that this policy change has an impact on around 2% of naturally ventilated dwellings that have a design air permeability of below $3m^3/m^2h$. In reality, around 5% of all new build naturally ventilated dwellings have a measured actual air-permeability of below $3m^3/m^2h$ @ 50 Pa, and hence it may be that a larger number of dwellings would be impacted by this proposed change.

3.41. It is assumed that the developer would still need to be compliant with the overall performance standards. Hence, the cost associated with this change would be the difference between the cost saving of construction to a reduced standard of air permeability and the additional costs of improvement elsewhere in the dwelling (e.g. to the building fabric or services) now necessary to comply.

3.42. The principle benefit would be expected to be achieving improved levels of ventilation in overly tight, naturally ventilated homes and the reduction of problems related to condensation and mould growth and decreased levels of respiratory illnesses associated with improved indoor air quality.

3.43. The cost and benefit of this policy change will be assessed more fully in the final stage impact assessment.

Part F

3.44. There are a number of proposed changes to Part F. Many of the changes are intended to simplify the guidance and the associated costs and benefits are discussed later in this section. The analysis here focusses on changes where additional ventilation provisions are required. The combined impacts are presented at the end.

Increased background ventilator sizing for naturally ventilated systems

3.45. The proposed policy change is to simplify the guidance for naturally ventilated systems. As a consequence of this, it will result in an increase in the size of background ventilators for each naturally ventilated property with an air permeability leakier than 5 $m^3/hr/m^2$.

3.46. The percentage of new homes impacted per year is estimated based on the number of new homes that currently have a naturally ventilated system with an air permeability leakier than 5 $m^3/hr/m^2$. Data for new homes made available from EPCs lodged on the Energy Performance of Buildings Register suggests that 59% of new homes are naturally ventilated. Furthermore, unpublished BSRIA data estimates that 65% of these are leakier than 5 $m^3/hr/m^2$. Hence, it is assumed that this policy applies to 38% of new homes.

3.47. For simplicity, it is assumed the increased trickle ventilator area on average can be based on the semi-detached home. This results in the requirement of two additional background ventilators – one of 5000mm^2 and one of 10000mm^2 equivalent area. The total capital cost of these trickle ventilators per home is £17.

3.48. The benefit of this policy change is simplification and improved compliance. As previous Part F revisions assumed 100% compliance, no additional benefit has been accounted for here.

Increased background ventilator sizing for MEV systems

3.49. The proposed policy change is for the size of background ventilators to be increased from 2500mm^2 to 5000mm^2 equivalent area in habitable rooms for mechanical extract ventilation (MEV) systems.

3.50. The percentage of new homes impacted per year is estimated based on the number of new homes that currently have an MEV system. Data for new homes made available from EPCs lodged on the Energy Performance of Buildings Register suggests that this comprises 24% of new homes.

3.51. The total cost per home is estimated as £6. This is based on approximately 4 background ventilators per home on average.

3.52. The benefit of this policy change is improved air distribution in the home. This should lead to improved ventilation and indoor air quality, with associated health benefits. These benefits have not been monetised here and are intended to be included for the final Impact Assessment.

Combined Part F impacts

3.53. The overall costs and benefits for the proposed changes to Part F, compared with continuation of the existing Part F 2010 standards, are shown in Table 8. As discussed above, these only include net costs with around 80% arising from the amendments for naturally ventilated systems. As noted earlier, the currently non-monetised health benefit from the changes for MEV systems will be considered further for the final Impact Assessment.

Table 8: Summary of results from cost benefit analysis (Part F changes)	
	Part F

Energy savings (£M) Incremental costs(£M)	- (29.6)
Total financial benefit/(cost) (£M)	(29.6)
Carbon savings - non-traded (£M) Carbon savings - traded (£M)	- -
Total carbon savings (£m)	-
Air quality savings (£m)	-
Net benefit/(cost) (£m)	(29.6)

Improved Compliance and Performance

3.54. In some new homes there is a gap between the designed and as-built performance of new buildings. The cause is poor build quality leading to non-compliance with the Part L and F standards.

3.55. The consultation is putting forward proposals for guidance for typical performance gap issues, a new-style compliance report, more information to building control, more information to householders to encourage housebuilders to improve the performance of new buildings. The consultation is also putting forward proposals for home user guides which will better inform new householders on how to use their home. Costs have currently not been monetised and will be considered further in the final Impact Assessment.

3.56. The consultation is also putting forward proposals to simplify the guidance in the Approved Documents. Whilst simplification, in principle, should lead to reduced time in understanding and following the guidance, it is assumed that there is no reduced time compared to continuing to follow the current standards with which the housebuilding industry is already familiar.

Impact of Ban on Combustible Materials

3.57. The government banned the use of combustible materials in the external walls of on new residential buildings with a storey 18m or more in height. This impacts on the choice of external wall systems, including the type of insulation adopted. The costs and benefits of this ban under current Part L has been assessed in another Impact Assessment.[11]

3.58. This consultation is proposing to raise the target emission factor and introduce a target primary energy in the Part L standards which may result in additional costs for residential buildings with a storey 18m or more in height. In particular, the current notional building external wall U-value is 0.18 W/m²K. This consultation is proposing to keep this U-value for the option 2 (which adopts Fabric 1 specification) but is proposing to adopt a U-value of 0.15 W/m²K in the notional building for the option 1 (which adopts for Fabric 2 specification). There is also an uplift to the limiting fabric standards to 0.26 W/m²K.

3.59. Neither the target emission factor or the target primary energy requires a developer to adopt a higher standard of external wall insulation. Part L sets performance-based targets that can be achieved through a combination of fabric and building service efficiency measures as well as the adoption of low carbon/primary energy sources. Hence, there is significant flexibility in how the Part L targets are complied with. Furthermore, the cost-benefit of improving the standard of external wall insulation is less attractive for high rise apartments compared to most other dwelling types due to their relatively low external wall area to indoor volume ratio and thus relatively low space heating loads – hence making alternative means of complying with Part L more attractive. The uplift to limiting fabric standards could require a developer to adopt a higher standard of external wall insulation;

[11] https://www.gov.uk/guidance/ban-on-combustible-materials

however, it is expected that most developers are already building to this standard in order to meet the existing target emission rate and fabric energy efficiency in ADL1A 2013.

3.60. This Impact Assessment has monetised costs and benefits for dwellings not captured by the ban. In particular, it has only considered lower-rise apartment buildings. The additional costs for high-rise homes associated with the ban will be considered further in the final Impact Assessment.

Training

3.61. There are transition costs incurred by businesses to familiarise their employees with the new technical requirements. We note that the overarching methodology has not changed (e.g. businesses will continue to use SAP to assess Part L compliance for new homes). Furthermore, the higher standards that will come into force are progressive i.e. should be able to be met in the main through straight forward amendments to current practices rather than radical changes in the way new buildings are constructed.

3.62. We assume that training is necessary for developers and associated professional services to design the buildings to the new Regulations and procure the appropriate building components, for the supply chain to be ready to meet this demand and for building control to assess the building applications and work.

3.63. Our estimated costs for training and dissemination is based on the previous change to Part L regulations (2013) when applied to new homes only, which assumes that there will be external training courses and that information from the external course would then be disseminated further internally. In addition, we assume that there will be indirect familiarisation costs associated with employees learning how the changes would affect their work; and also for small builders, we assume an initial cost associated with rejected building applications due to error in not updating to new standards.

Table 9: Transitional training cost to business (£mil)	
	Cost (£millions) *2011 base year, 2012 prices year*
External Training Cost	0.32
Internal Training Cost	0.49
Total Training Cost	0.81
Familiarisation Cost	0.92
Application Cost to Small Builders	0.60
Total	**£3.14 million**

3.64. Using the HMT GDP deflator, this means that the estimated transitional costs in 2019 base year and 2020 price year is **£3.15 million.**

3.65. Please note however that this estimate needs to be treated with caution as the scale and process for training and dissemination may be different for this set of regulations; we will need to use information gathered during consultation to produce a more robust analysis, and this will inform the final IA.

Transitional arrangements

3.66. The more stringent transitional arrangements will mean that the Part L standard that developers need to build to will no longer apply indefinitely across whole development sites. This should mean that more homes are built to the new Part L standards sooner; this will result in greater energy and carbon savings but may be more expensive to developers. Anecdotally, the transitional arrangements could also lead to faster build-out on sites as developers may prefer the certainty of building to the same standards for the whole site.

3.67. However, it has not been possible to monetise in detail this impact. This will be reviewed in more detail for the final stage impact assessment.

Comfort taking

3.68. Comfort taking is when reduction in heating bills leads to some householders choosing to heat their homes to higher temperatures. Consideration was made as to whether comfort taking should be taken into account in the new homes model.

3.69. With reference to the approach taken in the Green Deal IA; the most appropriate approach to take for comfort taking in new homes was is unclear. The Green Deal IA's calculation of 15 per cent comfort taking for existing dwellings was based mostly on existing social housing rather than owner-occupiers. A further and larger extrapolation would be required to take the same conclusions to new-build homes, which is most relevant in this case. Since people in different situations are unlikely to perceive the same value of comfort, it is not reasonable to assume the same level of comfort taking for existing and new homes. The counterfactual for the new homes analysis is a Part L 2010 standard which is already a much more energy efficient standard than for a typical existing home. It is much less likely that there would be substantial further comfort taking from this uplift because consumers are unlikely to perceive this relatively small difference in standards. Furthermore, given the lack of empirical data available, applying any other assumption other than no comfort taking would effectively involve the imposition of an arbitrary assumption. We have therefore applied no comfort taking to new dwellings.

WIDER IMPACTS

Economic and financial impacts

Competition

4.1. The principal markets affected by the 2020 policy are the markets for the development of new domestic buildings along with the supply chains for the production of construction materials used in those developments.

4.2. As a result of higher standards for new buildings from 2020, building developers would have to comply with the more stringent targets and as a result would see costs rise. As the increase in costs will affect all developers equally, any competitive effects in the market for building development are likely to be negligible.

4.3. Both Part L uplift options for 2020 assume some improvement in fabric and services specifications. If fabric energy efficiency had been improved in isolation, this could have given manufacturers of products which impact on fabric performance (insulation, windows) an advantage over those involved in manufacturing and supplying building services (e.g. boilers, lighting); however, this is not the case. Furthermore, flexibility is provided in a way that developers can meet the higher performance standards, which should ensure that no one product or manufacturer can dominate any part of the market.

Innovation

4.4. Particularly with respect to raising the Part L standards for new homes, there should be the potential for new firms to enter the market due to the setting of higher standards and the flexibility for developers to choose building technologies to meet these standards. This should encourage innovation among manufacturers.

4.5. The options for more ambitious improvements in standards would likely result in an increased use of low and zero carbon generation technologies. There is competition in the supply of such technologies with a mix of large and small suppliers. As the cumulative production of such technologies rises, learning effects coupled with competition should bring down the unit cost. This learning effect has been built into our modelling of costs.

Small businesses

4.6. Small businesses in the housing sector principally comprise developers, constructors, architects, engineers and other technical specialists. The impacts of a change in building standards are likely to be most significant for developers as any change in costs will affect their cost of business. For other parties, impacts are most likely to comprise a short term need to understand and revise practices to reflect the new requirements, however this is unlikely to be above the level that would be typically expected as part of ongoing professional development.

4.7. Small developers typically operate in a different segment of the housing market to larger businesses and will undertake projects that are not well suited to a larger developer's business model such as smaller sites or those requiring a more bespoke design solution. Therefore, while the impact of new standards on absolute build costs for a smaller developer may be higher than those for a larger business, this does not necessarily mean they will be affected more significantly. This is because their starting cost base is likely to be higher and other elements of their business model will differ.

4.8. Further, smaller developers are less likely to hold land for extended periods prior to development. This means that the implications of new standards on small development companies may be more easily accommodated by altering their land offers whereas for larger businesses developing sites that they have owned for several years, any additional costs of new meeting standards are more difficult to pass back to the landowner.[12]

4.9. As discussed above in the section on transition costs, for Option 1 the increase in fabric specification may be more difficult to adjust to for smaller businesses who employ their own workforce and will therefore need to retrain. For option 2 both larger and smaller businesses will likely subcontract the installation of solar panels and alternative methods of complying with these standards such as installing heat pumps. Familiarisation will therefore not be an issue, but smaller and larger developers will receive varying quotes to account for the economy of scale. As discussed above the starting cost base is already different for smaller businesses.

4.10. We intend to use the consultation process to gather up-to-date information about differences in the effects of the regulations on small business; it is worth noting that in the responses to the consultation in Part L 2013, small and micro businesses preferred less significant changes to energy performance standards for each of new and existing, domestic and non-domestic buildings, which seems to indicate that these businesses will be disproportionately impacted by these types of changes involving increases in standards.

Social impacts

Housing supply

4.11. MHCLG has conducted a study of the impacts of the policy on housing supply based on internal viability modelling. In this case, we assume that this policy would lead to increasing build cost, which could deter constructors from building as many houses as it may not be possible to pass this cost onto the price of land. This would then have a negative impact on net additional housing.

4.12. We are also aware that the sector will not have had a long lead in time before this change is introduced and so it is unlikely that these costs will be factored into land purchases in the short run (especially where developers have already purchased sites for future pipeline developments). As such, the short term impact on housing supply viability may be slightly more volatile, but we also believe that the system as a whole is sufficiently robust to be able to absorb unanticipated costs in other ways. For example, developers have options to renegotiate their Section 106 or make changes to planning permissions to absorb these costs.

4.13. There are a number of ways in which increased costs could manifest, of which a reduction in supply is just one possibility. More analysis would need to be carried out during consultation to understand this better.

Health and well-being impacts

4.14. There are improvements in indoor air quality, and consequently occupant's health and well-being, from the proposed changes to Part F. Improved indoor air quality arises as a result

[12] This impact is at least partially offset by the current existence of transitional arrangements that allow construction to older building standards provided the development has commenced, however this will not be the case in every instance.

of better air distribution between rooms and simplification of the guidance which should deliver greater compliance and reduce the risk of under-ventilation.

4.15. There are also potentially beneficial improvements in health and quality of life from the effect of increased energy efficiency on thermal comfort. We do need to be mindful of the potential effects that tighter building envelopes could have upon indoor air quality and indoor temperatures in summer. Hence, the parallel review of Parts F and L, and a planned consultation on new requirements and guidance to reduce the risk of overheating in new homes.

Rural impacts

4.16. Assessing rural impacts means determining whether the impacts on rural areas will be different to those for urban areas, and whether there are specific local or regional effects.

4.17. Part L currently includes a fuel factor which differs by fuel type for heating. One purpose was to provide some relief in the target applicable to dwellings that are off the gas grid principally those in rural areas. The fuel factor means that if the chosen heating fuel is more carbon intensive than gas (such as oil or LPG), the carbon emissions target is increased making it less demanding. Without the fuel factor, builders would have to build to higher (and more expensive) fabric and/or services standards in order to meet the same emissions target as homes connected to a gas supply.

4.18. The consultation seeks views on the option to remove the fuel factor. Note that due to the changes in carbon emission factors described previously, electricity use is now less carbon intensive than gas and thus the fuel factor is automatically dis-applied for heat pumps or direct electric heating; thus this proposed change has no impact on rural homes adopting an electric heated solution. Note that in this assessment we have continued to apply the fuel factor to the carbon target, rather than the primary energy target, as the carbon target is the harder to achieve for higher-carbon fossil fuels.

4.19. Analysis suggests that there may not be any substantive cost difference between retaining or removing the fuel factor in practice if complying with the Part L 2020 option 2 target. It will be challenging in either case to comply with this target using LPG or oil as fuels e.g. the design specifications for Option 2 in Table 4 will not be sufficient as the amount of PV likely to comply would exceed the roof area available (although it may be possible to comply with more expensive and efficient PV panels than assumed in the option 2 specification). A lower cost option is likely to be to change to a low carbon heat source, such as an air source heat pump. As the analysis below Table 5 shows, the adoption of an air source heat pump can be a relatively low capital cost option to meet the Part L 2020 option 2 target. Moving to a low carbon heat source means that the need for a fuel factor becomes redundant.

4.20. From discussion with industry, we are aware that there are many homes off of the gas grid that are already being constructed with heat pumps instead of using oil or LPG.

Environmental impacts

4.21. The environmental impacts are central to this policy and are therefore covered in the main body of this impact assessment.

Administrative burdens

4.22. Administrative burdens are identified as the costs to businesses of legal requirements to provide information.

4.23. This consultation is proposing to introduce new mandatory requirements on the developer to provide information to both a Building Control Body and to the householder. The information being provided to each is a new style compliance report, the Building Regulations England Part L report (BREL) and photographic evidence. From discussions with industry we understand that many developers already have photographic evidence of the building work of interest. A compliance report is already produced from SAP software, the extra details required is believed to be little extra burden. There may be costs associated with collating, emailing and printing; but these are believed to be minimal, in the order of <£10 per dwelling. The benefits of improved compliance would likely outweigh the costs significantly.

Appendix A – Net Completions Projection

Below is the independent analysis conducted by Adroit Economics of the number of net completions broken down by building type. This is used in our cost benefit modelling.

Table A.1: Assumed projection of net completions by dwelling type										
Building Type	Annual number of net completions									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Detached* house	71,000	73,000	75,000	76,000	76,000	76,000	76,000	76,000	76,000	76,000
Semi-detached house	57,000	58,000	60,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000
Terraced house	38,000	40,000	41,000	42,000	42,000	42,000	42,000	42,000	42,000	42,000
Flats	65,000	67,000	69,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000

*Bungalows have been included in the detached house category, and represents around 5% over its total

Source: Adroit Economics

These estimates of new build completions are produced by an independent consortium. They are indicative and should be used for appraisal purposes only and do not represent an official forecast of changes in housing supply.

Please note, these projections are not an estimate of 'net additions', which is the figure usually used to calculate changes in housing supply. They do not account for change of use or conversions, which are a significant element of net addition but is outside the remit of this impact assessment; nor does it capture the impact of policy interventions that could increase industry's capacity to build new houses.

Appendix B – Cost Breakdown

The developed costs are based on the expert view of Currie & Brown's cost specialists, drawing on evidence from their internal cost datasets, recent published cost data and information provided by suppliers.

The cost analysis is intended to reflect typical national costs from Q2 2019 that might be incurred by a medium sized housebuilder using traditional (i.e. masonry) construction methods and with a reasonably efficient supply chain, design development and construction processes. However, costs incurred by individual organisations will vary according to their procurement strategies, the location of their activity (e.g. costs will be higher in London and the South East of England) and the detail of their housing product. These variations design, location and delivery method could result in a cost range of +/- c.30% or more. Notwithstanding these variations, the proportional uplifts associated with moving from one specification to another are likely to be similar across different market segments[13].

To provide context to the cost variations assessed in the study an indicative overall build cost (£ per m^2) for each building archetype was estimated using Currie & Brown internal data. This figure is indicative of the level of cost that might be expected for a home built in accordance with the requirements of Part 2013. The build cost should be taken as indicative only as it is sensitive to a wide range of design and specification variables in addition to the economies of scale and regional variations discussed previously.

Base costs for future years are those for the 2019 price year, and subject to adjustments for learning for technologies that have not yet reached a mature market position. It should be noted that construction costs can vary considerably and rapidly with market conditions, particularly where activity levels result in a change in the availability of skills and materials. In these situations, it is not unusual to see quite large (several percentage points) change in overall costs over a period of months.

[13] Costs increases may be outside the described range for highly bespoke designs, however these homes are typically more expensive to build and so the relative impact on build costs may be similar or potentially smaller than for more typical homes built in higher volumes.

Table B.1 includes details of the cost information used for each specification option, including any variations between building type, costs are only shown for those specifications that vary between the considered specification options.

Table B.1: Cost data for fabric elements that vary between the selected specifications			
Element	Specification	Unit	New cost (£ per unit)
External Wall – plasterboard, blockwork, mineral wool brick, lintels, ties and cavity trays/closers	0.18 W/m².K	m²	£221
	0.15 W/m².K	m²	£224
Ground / Exposed Floor	0.13 W/m².K	m²	£153
	0.11 W/m².K	m²	£159
Roof – mineral wool insulation at joist level	0.13 W/m².K	m²	£185
	0.11 W/m².K	m²	£187
Windows uPVC	1.4 W/m².K	m²	£240
	1.2	m²	£300
	0.8	m²	£360
Waste-Water Heat Recovery	Vertical pipe system (houses and upper floor flats)	Nr	£400
	Tray system (ground floor flats)	Nr	£1200
Radiators (installed but excluding heating pipework)	Standard	Nr	£60
	Sized for low temperature heating	Nr	£90
Roof mounted - photovoltaic panels	Fixed costs for systems <4kWp	Per installation	£1,100
	Variable costs for systems <4kWp	Per kWp installed	£800
	Variable costs for systems >4kWp	Per kWp installed	£1,100

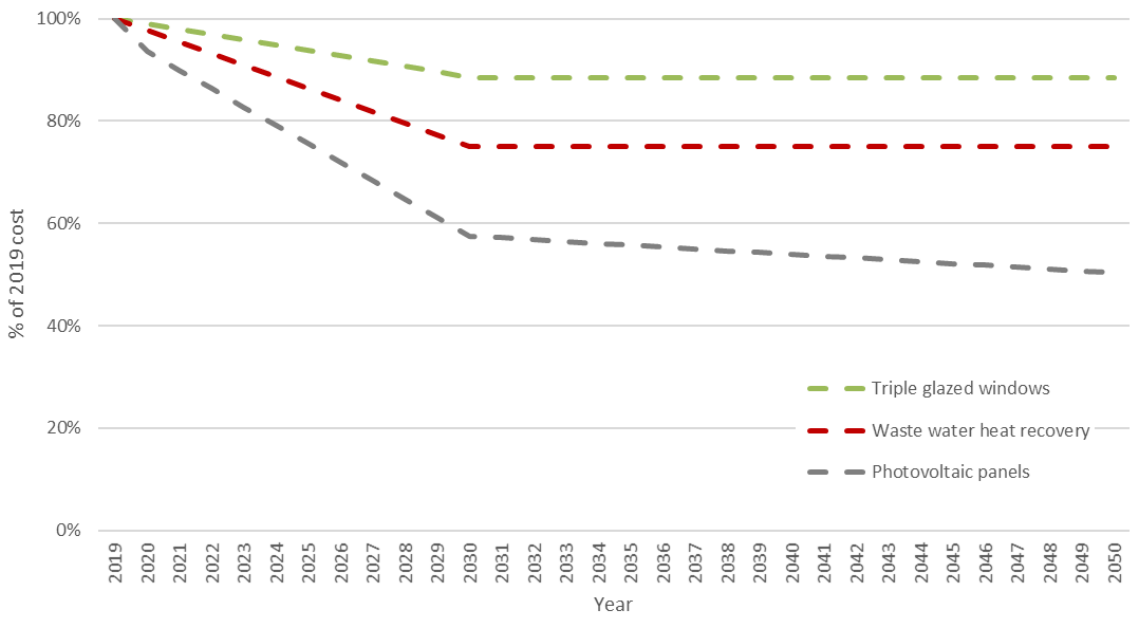
Cost projections

Cost projections were assigned to each specification option to capture any expected change in the current cost over time. For many building elements no adjustment was applied to the current costs because the technology is deemed mature and unlikely to experience a significant reduction in cost per unit of performance. This does not mean that cost in the future will be unchanged, only that it is not projected to change in a manner that is disproportionate to the wider construction cost base.

For more immature specifications, the potential for future reductions in cost through learning was assessed based on existing published cost projections or by applying appropriate learning rates to global market projections.

Figure A.1 shows the future cost projections of technologies relevant to this consultation. These cost projections are relative to 2019 costs and do not account for other economic and market factors that will impact costs over this period (e.g. market conditions, interest and exchange rates, skills availability and commodity prices).

Figure A.1 Projected variation in base costs as a result of learning



The analysis does not include any medium to long term cost savings associated with productivity gains of the sort envisaged by the Construction Sector Deal and the Construction Strategy 2025. Should these savings be realised, then this would have the effect of reducing build costs and the additional costs of more energy efficient and lower-carbon buildings, making the achievement of tighter standards more cost-effective. Further analysis of the relationship between build standards and construction productivity is ongoing.

Appendix C – Primary energy and carbon factors

The below tables contain the calculated primary energy and CO_2 emission factors used to develop the Part L 2020 options; these can also be found in cSAP.

Table C.1: Primary energy factors for electricity used in the analysis [kWh/kWh]												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Standard tariff	1.602	1.593	1.568	1.530	1.487	1.441	1.410	1.413	1.449	1.504	1.558	1.604
7-hour tariff (high rate)	1.635	1.626	1.600	1.562	1.518	1.471	1.440	1.443	1.479	1.535	1.591	1.637
7-hour tariff (low rate)	1.521	1.512	1.488	1.453	1.411	1.368	1.339	1.342	1.376	1.428	1.480	1.522
Electricity sold to or displaced from grid, PV	1.715	1.697	1.645	1.567	1.478	1.389	1.330	1.336	1.405	1.513	1.623	1.718

Source: BRE, CO_2 and Primary Energy Summary Tables for AECOM 2019_04_26

Table C.2: Primary energy factors for other fuels used in the analysis [kWh/kWh]	
	PEF
Mains gas	1.130
LPG	1.141
Heating oil	1.180

Source: BRE, CO_2 and Primary Energy Summary Tables for AECOM 2019_04_26

Table C.3: Primary energy factors for renewables in the analysis [kWh/kWh]		
	PEF	**Description of Application in Analysis**
Renewable heat on-site	0	Applied to heat pumps and solar thermal. Both technologies offset demand and therefore primary energy for other heating fuels.
Renewable electricity on-site	0	PV – applied to portion of electricity generated by PV and used on-site (as calculated in draft SAP 10). The total electricity generated by PV also offsets grid-supplied electricity at the 'electricity sold to or displaced from grid, PV' PEFs in Table C.1 above.
Renewable electricity off-site (as part of grid mix, or exported to grid)	1	Affects grid electricity factors in Table C.1 above. PV – applied to portion of electricity generated by PV and exported to grid (as calculated in draft SAP 10). The total electricity generated by PV also offsets grid-supplied electricity at the 'electricity sold to or displaced from grid, PV' PEFs in Table C.1 above.

Source: BEIS/MHCLG, 21/06/19

Table C.4: Carbon emission factors for electricity used in the analysis [kgCO_2e/kWh]												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Standard tariff	0.163	0.160	0.153	0.143	0.132	0.120	0.111	0.112	0.122	0.136	0.151	0.163
7-hour tariff (high rate)	0.171	0.168	0.161	0.150	0.138	0.125	0.117	0.118	0.128	0.143	0.158	0.171
7-hour tariff (low rate)	0.143	0.141	0.135	0.126	0.116	0.105	0.098	0.099	0.107	0.120	0.133	0.144
Electricity sold to or displaced from grid, PV	0.196	0.190	0.175	0.153	0.129	0.106	0.092	0.093	0.110	0.138	0.169	0.197

Source: BRE, CO_2 and Primary Energy Summary Tables for AECOM 2019_04_26

Table C.5: Carbon emission factors for other fuels used in the analysis [kgCO_2e/kWh]	
	CEF
Mains gas	0.210
LPG	0.241
Heating oil	0.298

Source: BRE, CO_2 and Primary Energy Summary Tables for AECOM 2019_04_26

Appendix 4 to the Stage to Questions Submission

Note from Brookbanks on s106 contribution levels

BROOKBANKS

Site Name: 10292 – Cranbrook Expansion

Technical Note: Typical s106 Contributions | Date 29th September 2020

1 Introduction

1.1 Brookbanks have unrivalled experience in designing and managing the implementation of major SUE and New Town developments across the UK.

1.2 In addition to the Cranbrook scheme, which we have been involved in for approaching 20 years, we are also variously master developers, designers, Project Managers, QS and RE at various large sites such as Sherford, (5,500 new homes), Comeytrowe (2,000 new homes), Swindon (2,380 new homes) and Didcot (4,254) as well as many other smaller sites

1.3 We have been asked by Hallam Land Management to review the typical s106 contributions that major sites such as those mentioned above have had levied against them, and to contrast this with the level of s106 that the proposed revised Infrastructure Delivery Plan ("IDP") will result in being levied on the Cranbrook Expansion scheme.

2 Methodology

2.1 We have reviewed the latest cost plans for each of the comparable sites and extracted the S106 allowance in each, we have also taken cognisance of the planning consent in terms of total numbers of consented new homes for each site and applied that to the total s106 allowances to arrive at a S106 cost per plot per site, which we have then averaged across the total cost and total number of new homes.

3 Findings

3.1 Historically, we commonly saw s106 contributions across all sites falling within the range of £8-12k per plot, purely on the basis that this is what sites would typically be able carry on a viability basis. As sites have become larger and more technically complex to deliver, we have seen a drifting upwards of these figures.

3.2 The table below demonstrates the current level of s106 contributions that our significant SUE and New Town sites are carrying.

Development	No. of Units	Section 106 Total	Section 106/Plot
Cranbrook	3,500	£38,604,035	£11,030
Swindon	2,380	£50,194,228	£21,090
Sherford	5,500	£80,406,182	£14,619
Comeytrowe	2,000	£20,493,886	£10,247
Bridgewater	1,000	£9,122,100	£9,122
Didcot	4,254	£76,813,021	£18,057
Total	**18,634**	**£275,633,452**	**£14,792**

Note: The Cranbrook figures stated above apply to the current consent for 3,500 new homes.

3.3 As can be seen from the above the average s106 contribution across the six examples is £14,792, with a maximum of £21,090, being the contribution per new home at Swindon, which requires substantial road improvements which being funded through the s106 agreement at a level of £6,929 per new home.

3.4 If these Swindon road improvements were carried, as with other sites, through the off-site infrastructure element of the developers cost plan this would reduce the s106 contribution on the Swindon site to around £14,161, more in line with the typical sites that we have reviewed, and with the knock-on effect of reducing the average s106 contribution across the sample sites to £13,907 per new home.

4 Conclusion

4.1 As can be seen above, the **average s106 contribution** across the sample of comparable sites **is £14,792**, and but-for the outlier costs of delivering substantial road improvement at Swindon through the s106 agreement the average cost per new home would be £13,907 on the above sample.

4.2 As you will appreciate both figures are **significantly below** the suggested level of S106 **that the revised IDP** is indicating for the Cranbrook expansion **of over £28,000** per new home