

FAO. Mr Simon Berkeley BA MA MRTPI, Inspector, SLDC Local Plan

Dear Mr Berkeley

Comments on Modified Local Plan – May 2013

May I comment upon the recently published SLDC modifications and related matters. My comments relate specifically to the previously referenced R121M-Modified site (and related surrounding land and adjacent sites). However, they appear to have a more generic relevance where they relate (i) to an apparent serious lack of care in the preparation of materials upon which the current modified proposals are based; and (ii) upon apparent inconsistencies in policy recommendations between individual proposals which appear to have specific common circumstances.

May I note that once again the nomenclature has been changed (for the third time?). In situations where public consultation is expected this is particularly confusing, and in effect deters public participation. In contrast to earlier stages (such as consultation on the Core Strategy), upon which all plans have been developed, SLDC have offered a reasonable timescale for response. In the first stage of the Land Allocation process there were more than 5000 responses. In later stages changes in the order of presentation of materials, changes of titles, etc, and the poor quality of cross referencing makes continued participation difficult. Most participants are 'worn down' by the difficulty of dealing with these documents; as well as the policy of SLDC strategic planners in largely ignoring the considered and often detailed and constructive contributions of those who participated. For example, in the current set of documents, the page cross references which form the major value of the "Proposed Main Modifications" summary document (Ex061) practically all page references are incorrect. For example, (Ex061, p7) states that para. 2.23 may be found on p21, but it actually appears on p27! Similarly all following pages are progressively and increasingly erroneous (the pagination was apparently taken prior to the 'track changes' and addition of notes). Was any data checked before publication? Is this standard of care also present in the technical content of the proposals? Previous documents were riddled with errors, such as confusion between places and references. Due to this please allow for any minor inconsistencies in nomenclature in references to sites and actions below.

1. Relevant 'General Criteria' modifications

It is noted (Ex061, p7, MM07) that additional stress on Biodiversity and Geodiversity has been included in the modified "Local Plan":-

Biodiversity and Geodiversity – considerations including the potential impact of development on the conservation, enhancement and restoration of habitats and species and geodiversity assets, and scope to maximise opportunities for restoration, enhancement and connection of natural habitats.

It is also noted that:-

Landscape and Settlement considerations including the potential impact of development on landscape and views.. etc.

is maintained as a key general criterion.

Furthermore it is noted (Ex061, MM08, p8 and Ex063 para.2.25, p28) that major and significant changes and additions have been made in regard to managing flood risk:-

Managing flood risk...through surface water (through local drainage issues) is a key issue. Following the application of the sequential test, a small number of sites are partially within flood zones 2 and 3a. In such cases, new dwellings will not be permitted in the affected parts of the site concerned. The Council has held detailed discussions with the Environment Agency (EA) on all allocations and sites have only been proposed for allocation where the EA and the Council's own land and drainage team are satisfied that a solution can be achieved. The County Council now has a role preparing a Cumbria Surface Water Management Plan. **Natural England and the Environment Agency are working to restore the natural functioning of rivers.. Once all elements of the Flood and Water Management Act 2010 have been implemented, Cumbria County Council will assume responsibility for developing a Local Flood Risk Management Strategy which will include risks from surface water run-off, groundwater and ordinary watercourses, completing a Preliminary Flood Risk Assessment and preparing Surface Water Management Plans for areas of greatest risk and approving, adopting and maintaining Sustainable Drainage Systems (SuDS) that meet National Standards for development.** The County Council's drainage team have also been engaged throughout the process and **will use their new powers.** Development Management and Development control decisions will use the Surface Water Management Plan to ensure that effective surface water management is incorporated in all new development.

It is further noted (Ex063, p57, paras. 2.66) under "**Implementation, Mitigation Measures and other Policy Considerations**" that certain sites are to be 'brought forward' in 2 tranches via 'Development Briefs'. It is also noted that (Ex063, para.2.68, p58) that local communities will be offered "significant opportunities for communities and parish councils in shaping new developments. New requirements for community engagement by developers through early engagement on planning applications will also offer opportunities for communities to shape new development". It is noted (Ex063, p57) that specific Development Briefs are proposed:-

Briefs – First Tranche (to be adopted by December 2014)

Housing Allocations, **Land at Kendal Parks, Kendal**

Housing Allocation, **Stainbank Green, Kendal**

Housing Allocation, **Land at Underbarrow Road, Kendal**

Mixed-use Allocation, **Land north of Kendal Road, Kirkby Lonsdale**

Housing Allocations, Land South of Milnthorpe and Land adjacent to Firs Road

Housing Allocation at **Milnthorpe Road, Holme**

Business Park Site, **Land at Burton Road, Kendal**

Briefs – Second Tranche (to be adopted by December 2016)

Housing Allocation, **Land west of High Sparrowmire, Kendal**

Housing Allocation, **Land north of Laurel Gardens, Kendal**

Mixed-use Allocation at **Green Dragon Farm, Burton in Kendal**

Housing Allocation at **Land north of Sycamore Drive Close, Endmoor**

Mixed-use Allocation, **Land south of Allithwaite Road, Grange-over-Sands**

Housing Allocation at **Cross-a-Moor, Swarthmoor.**

Complex Briefs

Strategic Employment Site, **Land at Scroggs Wood, Kendal (to be adopted by March 2014)**

Housing Allocations at **Croftlands, Ulverston (to be adopted by Dec 2016).**

1.1 Comment on Development Briefs versus Allocations

If these are the only Development Briefs planned it is not clear why many more sites are earmarked for allocation. If further sites are needed then a further allocation could be made to meet actual current and more informed projected needs. There had been an agreement to limit the plan horizon to 2020. This was the subject of a consultation in which the overwhelming view was to do this. Why is SLDC ignoring this decision?

1.2 Comment on actual need and demand for housing and current trends

There are major questions over the actual need and demand for housing in the SLDC area. Whereas it is assumed that the plans are intended to supply local need, it is likely that the only way to fill housing at the proposed level of development is to 'import' more people which will further burden stretched local infrastructure and services. For example, the K-Village development has now been practically completed for almost two years, yet of the 86 apartments it offers, only a tiny handful are occupied and more than 95% remain vacant. There are typically several hundred houses on the market in the South Lakeland area; both for sale and to let. It is clearly evident that the assessments made in 2008 and updated recently require further examination.

1.3 Comment on past consultation and future changes to meet stated criteria

In general terms a clear question arises as to how future consultation will differ from the past stages where extensive public consultation appears to have had almost zero influence on SLDC's shaping of proposed developments. Although a 'Consultation Report' is mentioned (Ex063, para.1.10, p9) there is no reference to this document on the website. In previous superficial analysis reports from SLDC have simply dismissed the mass rejection of proposed plans by the community. Hence the comment that the plans have been "shaped" is factually incorrect.

2. Impact of modifications for 'Land East of Castle Green Road' (R121M)

Currently the "East of Castle Green Road" site (previously known as R121M) is not scheduled for either of the Tranche-1 or Tranche-2 Development Briefs, and hence it appears either that this site is of marginal viability, or it is reserved for later assignment for a Development Brief.

Proposals for the site are noted with an introduction (Ex063, para 3.20, p72):-

This 4.11 ha site on the eastern edge of Kendal comprises a group of fields which rise from Castle Green Road and existing housing on Oak Tree Road towards the West Coast Main Line. The front of the site is visible from Castle Green Road and can also be seen from a short stretch of the West Coast Main Line and from Sedbergh Road. The site is well located for Kendal Town Centre and for the local facilities in south Kendal. Elsewhere Castle Green Wood and steeply rising ground limit its visibility from the east. The site and its surroundings contain a number of landscape features including tree groups, a belt of trees adjoining properties on Oak Tree Road, stone walls, wet areas, ponds, springs and watercourses some of which have biodiversity significance. Given the constraints on the site, it is estimated that the site could accommodate around 60 dwellings.

The further notes detail flood risk and mitigation (para 3.21); including a modified addition highlighting flood risks:-

The eastern part of Kendal has surface water drainage issues and the Stock Beck Flood Alleviation Scheme has recently been implemented. there is an existing and complex flood issue, but there is scope for mitigation. On this site, there is an established flood risk to the site. The catchment may include railway drainage. There are issues concerned with sheet runoff, flooding from the watercourse and an undersized and substandard culvert under Oak Tree Drive/ Rowan Crescent. A site specific Flood Risk Assessment should thoroughly investigate and determine all the flood constraints and opportunities to mitigate the impact of any development and improve the existing situation. The lower part of site could be used for flood attenuation to provide betterment to Stock Beck Flood Alleviation Scheme. Sustainable Drainage is a requirement for this site. **and development will not be permitted in that part of the site which falls within Flood Risk Zone 3a unless the developer can demonstrate through an acceptable Flood Risk Assessment that it is safe to do so without increasing flood risk elsewhere.**

The notes are followed by a proposed 'policy' for the site:-

POLICY LA2.3 LAND EAST OF CASTLE GREEN ROAD

Purpose:

To ensure that the site delivers high quality sustainable development and that landscape, transport, drainage and biodiversity impacts are effectively mitigated.

BUILT DEVELOPMENT ON LAND EAST OF CASTLE GREEN ROAD WILL ONLY TAKE PLACE ON NORTHERN TWO FIELDS ONLY WITH THE REMAINDER TO BE USED FOR SURFACE WATER MANAGEMENT, OPEN SPACE AND ROAD ACCESS.

AS WELL AS OTHER CORE STRATEGY POLICY REQUIREMENTS, DEVELOPMENT MUST MAKE PROVISION FOR THE FOLLOWING:

A CLEAR LANDSCAPE AND GREEN INFRASTRUCTURE FRAMEWORK INCORPORATING AND SAFEGUARDING SIGNIFICANT TREE GROUPS AND STONE WALLS AS WELL AS SIGNIFICANT STRUCTURAL AND PERIMETER LANDSCAPING TO ACHIEVE A SATISFACTORY RELATIONSHIP WITH ADJACENT RESIDENTIAL PROPERTIES, THE CASTLE GREEN ROAD FRONTAGE AND CASTLE GREEN LANE AND AREAS OF BIODIVERSITY IMPORTANCE;

ANY NECESSARY MITIGATION MEASURES TO ADDRESS POTENTIAL IMPACTS ON GREAT CRESTED NEWTS NEAR THE SITE;

RETENTION OF HEDGEROWS AND STONE WALLS;

SUBMISSION AND APPROVAL OF A FLOOD RISK ASSESSMENT TO ASSESS AND DETERMINE FLOOD CONSTRAINTS AND OPPORTUNITIES;

SUBMISSION AND APPROVAL OF A TRANSPORT ASSESSMENT.

2.1 Comment on landscape and wide ranging visibility and visual impact

In terms of the General Criterion for Landscape and views the description above is inaccurate and incomplete. The side of the R121M development and the proposed new access road from Castle Green Road (CGR), which would apparently bifurcate the also proposed 'amenity land' to the South, would be visible from CGR. However, it is not stated (in Ex063) that the whole of the site would be highly visible downwards from the West Coast Mainline, but importantly and also from Kendal Castle, from the North and South and distantly from Scout Scar (LDNP) to the West. This site if allocated and developed would be the highest development at the edge of the Eastern boundary of Kendal. It would literally create a new 'level' of upward extended significant large-scale development under Hay Fell which would have major visual impact from miles around. This is contrary to the stated landscape criterion (Ex063, para 2.23, p27).

The note (of Ex063) also mentions “biodiversity significance” but does not elaborate that the whole of the site is within the normal area for which the habituated Great Crested Newts (GCN) normally occupy.



Figure 2.1 – Proposed site and Great Crested Newt primary occupation area

Figure 2.1 above shows the current status in which an extended set of streams and ponds are occupied; the yellow ellipse shows the projected minimum occupation area of the estimated large population of GCNs. The red rectangle shows the proposed housing site for 60 dwellings and the blue lines show the most direct projection of access roads (proposed by SLDC two years ago). In this case the proposed access road bisects and destroys a significant part of the breeding ponds and streams. In compliance with the newly modified General Criterion 2.23 (Ex063, para 2.23, p27) which under “**Biodiversity**” mandates “**considerations including the potential impact of development on the conservation, enhancement and restoration of habitats and species..**” GCN’s are a protected rare species and this colony is thought to be large and significant in Geodiversity terms.

2.2 Comment upon Biodiversity assessment

The above description implies that the biodiversity aspects are minor, but the actual case is that a major current part of the occupied habitat would be destroyed and denied if the housing development went ahead, and the proposed roadway would form a major barrier. In other cases (e.g. Ex063, Policy LA2.5, p76) much more specific requirements are given:

“...CREATES A LANDSCAPED BUFFER ZONE AND HABITAT OF 10 METRES AROUND THE WATERCOURSE AND INCORPORATES ANY NECESSARY MEASURES TO MITIGATE IMPACTS ON GREAT CRESTED NEWTS.

It is surely appropriate to apply consistent conditions across sites. But a 10m barrier around the watercourse in use (which runs across the projected road track) would mean that the proposed road across the amenity area would not be possible.

A further example (of a plant habitat) in another allocation policy (Ex063, LA2.7, p79) mandates:-

THE SAFEGUARDING THE AREA OF MEADOW SAXIFRAGE AT THE NORTH EAST CORNER OF THE SITE; THE UNDERTAKING OF A DETAILED ECOLOGICAL SURVEY TO DETERMINE THE EXTENT OF MEADOW SAXIFRAGE WITHIN THE NORTH EAST CORNER OF THE SITE AND THE IMPLEMENTATION OF ACCEPTABLE MITIGATION MEASURES TO ENSURE THE DEVELOPMENT AS A WHOLE ENHANCES THIS HABITAT;

Again for consistency across cases, it is clear that a full assessment must be made of the extent of the GCN population and their habitat, and that any plans are designed to enhance this habitat (in line with General Guidance) rather than restrict, deny or destroy this complex sloping habitat which features many ponds, streams and water courses.

2.3 Comment upon road traffic access, including emergency vehicles

The recently published Site Access Assessment (noted at p60, but actually on p63) for Site R121 has been carried in consultation with CCC and with consultants AECOM. Clearly, from the report, photographs were taken; reproduced in Figure 2.2 below.



Figure 2.2 – Photographs of ‘site’ taken by SLDC, CCC or AECOM

As shown in Figure 2.1 above, the assumed road access (there has been no clear policy statement) suggests that to ‘open up’ the development two roads should be used for access; this is assumed to mean Castle Green Road (CGR) and Oak Tree Road (OTR). The photographs are rather misleading and also inaccurate. The wide view on the left (to the South) is deceptive as there is no pavement where the ‘stub’ meets the wall. The view in the centre (to the North) is towards the junction with Rowan Tree Crescent (RTC), and hence appears wide. In fact OTR, and more acutely RTC are narrow. At their widest points they are significantly narrower than the recommend width for access stated by CCC. As shown in the distant centre view, cars are always parked partly on the pavement to allow reasonable access. The most acute part (and the real limiting factor for access not mentioned at all by CCC/AECOM ‘experts’) is the segment of Oak Tree Road from Rowan Tree Crescent down (literally) to Castle Green Road. Figure 2.3 below shows the view down the 1 in 10 slope

(10%) hill. In Winter this road is extremely dangerous. Many residents have sloping driveways and cannot use them in ice and snow conditions and are compelled to park on the road. It also has a sharp bend at the bottom and is even steeper for the final 5m.



Figure 2.3 – View of critical part of Oak Tree Road

It is evident that this critical part of this proposed access road for the new development was ignored in the advice given. There is clearly an implication here of desperately seeking the 'right answer', rather than the objective facts. (It is also noteworthy that the noted right-hand photograph of Figure 2.2 is not the claimed view "looking into the site" at all. The site is to the North-East of this point. It is in fact the view to the South-West, towards CGR. The clear area in the centre of the snow field is one of the GCN ponds (which lies directly in the line of the proposed road).

To make Oak Tree Road 'work' for the increased traffic would require no waiting/parking designations along its whole length. These are not used elsewhere in SLDC in any outlying streets. To impose these designations here would be unfair to residents of OTR and RTC. In summary the current traffic proposals are based upon misleading and inaccurate data. A proper objective assessment of costs should be made. The only viable option is to make a full width access road to the proposed site across the reserved 'amenity space' but this would have major biodiversity and landscape issues. To enter the site would require a large radius bend on a high and sloping site which would encroach on the amenity land. The other possibility is to use part of the housing site for a lower road which then snakes upwards at the far end, taking the rising segments inside the housing site.

2.4 Comment on flood impact and mitigation

The description of the site and in particular the flood issues have been described (Ex063, para 3.20, and 3.21, p72) and reproduced for convenience above. The proposed site is complex and steeply sloping. The description notes that the amenity open space is to be used for surface water management. It is apparent that this view has probably been gained from a 'paper exercise' rather than a site survey. Even a walk around the site indicates the clear trends: that the land rises both to the East and to the South. To the East the land rises

steeply to the Hay Fell area, with plateaus at ~200m AMSL. Rainfall run-off is clearly extremely complex and variable, as outlined in the Jackson Report. A simple exercise with a hiking altimeter (used during an afternoon of practically constant atmospheric pressure) provides relative 'spot' height data over the extended site below in Figure 2.4 below. The reference (0m) lowest level is at the end of the Stock Beck reservoir at the upper left hand.



Figure 2.4 – Topographic data and probable flood flow paths

Further relative spot heights are marked in red. Progressing up the (old) Sedbergh Road the incline is modest up from Stock Beck, then flatter, then rises steeply toward the West Coast Mainline (at +44m, or 143ft above the reference). Similarly the relative height increases in the South-East direction up CGR, reaching +21m (68ft) at the hotel entrance, +23m at the level of the large pond and +30m at the top of the hotel roadway. On OTR the land rises steeply (to +11m) over the first 100m to RTC; and then further to +13m and finally +14m at the stub road.

In connection with surface water run-off flood risk, for example, for which the recently completed Stock Beck installation is designed to manage in the vicinity of the R121M, it is also noted that SLDC has been supplied with a preliminary report by a recognised expert in water, construction and the environment, Professor Robert Jackson (the “Jackson Report”). This report comments upon the likely hydrogeology featuring complex perched water tables and myriad unpredictable underground linkages. It infers a ‘tipping point’ when water tables rise and the capability to absorb further water ceases with an underground horizontal flow above the water table.

The report strongly recommends a reliance on the ‘precautionary principle’ in essence requiring that uncertainty must be matched with caution. It also notes the increasingly commonly held view that due to climate change effects rainfall and prolonged spells of precipitation are more likely. This will stress the capability of natural features to store surface water. Where natural features are reduced or blocked, for example, by major building in areas of high run-off, under steep ground, these effects are clearly particularly

acute. It is not clear that any significant analysis has been carried out for the proposed R121M site, yet SLDC has commissioned a road access report which has a much lower level of criticality. It appears essential that SLDC should commission an expert and independent assessment this critical aspect of the site before any allocation takes place. This level of care is clearly strongly implied by the relevant General Criterion (Ex063, para.2.25, p28).

As a first level approximation the red arrows marked on Figure 2.4 indicate 'cross-isocline' flow lines, upon which water on a smooth surface would flow. Of course water flowing underground is strongly influenced by the many complex factors noted in the Jackson Report: flow mechanisms are extremely complex and related to previous state and rainfall rates; undergrounds aquifers and streams can shift unpredictably.

Even this token survey indicates that the amenity site to the South is higher in general than the base of the site proposed for building. Hence a gravitational solution in which a holding tank is constructed in the amenity space (in addition to severely impacting on the bio-diversity issues) would thus require a major excavation to allow it fill and then the stored water would have to be pumped out over time to restore the facility to its 'readiness' state.

The area shown for the proposed house building forms a natural soak-away for rainwater. Even with this massive soak-away area the ground water currently often creates high volumes of surface run-off. In heavy rainfall the land alongside CGR streams with surface water flowing out of the flooded drains, out of walls and out of the road surface. Without this soak-away the clear likelihood is that a major increase in surface water will occur, increasing the incidence of floods in the downstream areas of CGR, Sedbergh Road and onward into the Stock Beck reservoir. It is evident then that the optimal location of a water storage area is directly under the proposed site, to try to compensate for the likely loss of much of the 'soak-away' by further building.

The works to achieve reliable flood mitigation would therefore appear to be complex and extensive, in contrast to the 'viable' assessment given for the site. It is evident that no serious in-depth assessment has been made, by SLDC, CCC or the EA. As noted (Ex063, para 2.25, p28) the assessment of flood risk is to be governed by the Flood and Water Management Act 2010. It is not clear what SLDC and its (duty to cooperate) partners have done or plan to do in regard to this site. Who will be responsible for the design and cost of an installation? If this installation requires active pumping and ongoing management, inspection, maintenance, etc, who will be responsible for funding costs? Has the responsible body agreed to budget for this cost? Finally who will hold liability for damages and rectification costs if the facilities fail? Has any progress been made in fulfilling the general criteria (Ex063, para.2.25, p28) for this site?

The Local Plan has other sites where there is a recognised flood risk. In many cases the Local Plan proposes the condition:-

Development will not be permitted in those parts of the site that fall within Flood Risk Zones 2 and 3a unless the developer can demonstrate through an acceptable Flood Risk Assessment that it would not be at an unacceptable risk of flooding or increase flood risk elsewhere.

This is a rather vague statement, it offer no defined standards for the challenge that defences must meet. However, in one case, perhaps where like this case there are major

ramifications, the proposal for flood mitigation (Ex063, para 5.29, p148) are clearer and offer a definitive standard:-

Inappropriate development will not be permitted in those parts of the site which fall within Flood Risk Zones 2 and 3a unless the developer can demonstrate through an acceptable Flood Risk Assessment that it would not be at an unacceptable risk of flooding or increase flood risk elsewhere. Surface water run-off should be **collected** and stored within the site up to **sufficient to cope with** a 1 in 100 year plus climate change event.

It would seem completely appropriate that such a standard be applied in this case also; to provide a level of objective specification that can be measured in terms of expected rainfall over time. If this standard is required for one site, it should surely be used as a general requirement for SLDC and its partners can develop assessment procedures. Of course, a key point is that we now appear to be getting 1 in 100 year event every few years.

3. Overall Summary

Except for the most superficial examination, which unfortunately is all that has apparently been done to date, it is clear that the 'East of Castle Green Road' site has multiple complex issues:

Landscape – site is on the edge of the current extents of the settlement, on the highest ground with very high prominence from the North (LDNP) and South

Bio-diversity- site is habitat to an extensive Great Crested Newt population

Access – the Oak Tree Road option is narrow and steep and is not suitable; the proposed separate road occupies the reserved amenity area (does a road present an amenity view?) and would disrupt, and partly destroy the protected biodiversity habitat, rather than improving it, for a small number of dwellings.

Flood impact – the proposed site is an important ground water sink which even now fails to control flooding at peak events. Simple mitigation using storage tanks in the amenity area are unlikely to be viable due to topography which has not been taken into account; tanks on the site are likely to be required coupled with extensive pumping and associated capital and maintenance costs for which it is unclear how this would be managed and controlled. It appears likely that SLDC would have to obtain and retain perpetual ownership of that part of the site in which underground facilities are located for access, as in the Stock Beck case.

In conclusion it is unclear in these circumstances why this small site (of only 60 proposed houses) is still under consideration. Doubtless one reason is that the developer expects to build a large number of high cost houses which have good (and costly) views over the Fells to the West. The site will attract new residents to Kendal, whose infrastructure is already over-reached in many aspects. It is however, most unlikely that a developer will use this expensive option to develop site for lowest cost accessible housing on which profit margins are slim. The high added cost of mitigation and managing the steeply sloping site would further drive down commercial viability.

3.1 Comment on overall summary

In summary the major and complex mitigation for the several facets of the site, in particular for the flood risk, makes this site unsustainable. Based upon the modified Local Plan requirements this site is not viable or sustainable and clearly should be removed from the list allocations.

Brian S Hoyle BSc PhD CEng

FAO. Mr Simon Berkeley BA MA MRTPI, Inspector, SLDC Local Plan

Dear Mr Berkeley

Addendum: Comments on Modified Local Plan – May 2013

Noise Mitigation - Land East of Castle Green Road

May I raise one further additional point on the above, which has only just come to light and I believe is critically important. The matter concerns a further important apparent omission in the Assessment of Sustainability and resulting viability for the above site.

I have personally raised this general matter before (in response to the first consultation – may be found in the archive). In that submission I noted the impact of the clear proximity of the proposed houses to the West Coast Main Line (WCML), both in terms of the obvious expected increase in noise as traffic inevitably increases in the future; and also (in the light of the recent Grayrigg derailment) on the unlikely but deadly effect of an accident on the sweeping curve of the line at the head of the planned site.

This aspect was not commented upon by SLDC and local verbal advice was that this is not relevant, as the line was already in existence. This advice now appears incorrect as the noise impact arises absolutely in regard to dwellings and must be considered in the sustainability assessment.

The HS2 project provides accessible information on both the impact of noise by high speed railways in general (not just new faster railways); and the surrounding environment in which impact justifies mitigation where people live.

Notes below are extracts from the public document (available on-line) which deals directly with the proximity of dwelling houses to the railway line.

<http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hs2-aos-appendix05.pdf>

This document details the character of noise, its assessment and the range for which mitigation is generally applicable. For example it notes the existence of clear requirements on noise:-

1.3.1. The recent Defra Noise Mapping in England for aircraft, road, rail and industrial noise sources have been produced to help fulfil the requirements of The Environmental Noise (England) Regulations 2006. The maps use Lden [the day, evening (with 5 dB penalty), night (with 10dB penalty) noise level] and Lnight, as required by the EU Environmental Noise Directive, and also a number of Leq values for different periods within the day.

1.3.2. From the results of the mapping it was a requirement that Action Plans would be drawn up to determine locations which should be investigated to see what measures, if any, might be taken in order to improve the noise management. Each Member State was free to determine the manner in which it determined these Important Areas.

1.3.3. In England, Defra concluded for railways that Important Areas were those where 1% of the population are affected by the highest noise from major railways and „First Priority Locations“ (those to be looked at first) would be where the mapped noise level exceeded 73 dB LAeq for the period 06.00 – 24.00. Consistent with the mapping requirements this was a free field noise level (no effect from the building façade) for a receiver 4m above the ground.

1.3.4. In developing this criterion it was stated that “implementing many of the potential actions available to manage noise issues and effects would not only address the noise as measured by the LAeq,18hr indicator but also the noise that occurs at night.”

From this note it is apparent that *The Environmental Noise (England) Regulations 2006*, mandates an assessment, where there is a clear potential for a major noise source that may not comply with maximum allowable levels. In further detail, the allowable noise level and the mitigation proposed for the case of a proposed new railway noise source is:-

6.1.1. To indicate potential noise impacts associated with the HS2 proposed scheme option, the number of dwellings that could potentially experience high HS2 noise levels have been reported. The proposed criterion for a high noise level exposure is defined as a free field noise level greater than or equal to 73 dB LAeq,18hr. 18

6.1.2. The Noise Insulation (Railway) Regulations (NIRR 1996) are England and Wales legislation that applies to works on new, altered or additional railway systems such as HS2. The regulations set the daytime criterion for noise insulation of residential buildings at:

- greater than or equal to 68 dB LAeq,18hr at the building façade (i.e. a facade noise level);
- the new altered or additional railway must make a contribution of at least 1 dB LAeq,18hr to the total railway noise;
- at least 1dB LAeq,18hr increase in total railway noise level; and
- within 300m of the new, altered or additional railway.

6.1.4. It follows that other design criteria need to be developed to inform the design process in order to minimise the noise impacts on the local community. To this end, it should be noted that there is no universally accepted approach but there is general acceptance that it is appropriate to evaluate rail noise impact in terms of noise change, as evidenced by noise impact assessments on recent railway schemes e.g. HS1 Channel Tunnel Rail Link, (CTRL), West Coast Main Line (WCML) and Crossrail. This is also the approach for roads as set out in the Design Manual for Roads and Bridges. Additional criteria (referred to as “assessment criteria”) would be developed at the EIA stage should the scheme be progressed, to provide further guidance on the community impacts and to inform the design process.

6.1.5. In terms of a railway noise change, 3 dB LAeq or more is generally considered as a noticeable change. For the AoS study, this has been taken as the difference in railway noise, with and without the presence of HS2; this approach is consistent with the approach taken for HS1 (CTRL), Crossrail and WCML.

6.1.6. The World Health Organisation, in its 1999 Noise Guidelines report in 2000 states “to protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB LAeq”.

6.1.7. This has been taken as an indicator of the onset of annoyance and, therefore, a Noticeable Noise Increase for HS2 AoS purposes is defined as having a total rail noise level of greater than or equal to 50 dB LAeq 06:00 – 24:00 with an increase in rail noise of at least 3 dB LAeq 06:00 – 24:00. At receiver locations where predicted existing rail noise levels are low or there is no rail traffic (assumed at 45 dB LAeq,18hr), a predicted HS2 noise level of 50 dB LAeq,18hr or above would result in a noticeable noise increase as per this definition.

Clearly these notes apply in this document to the case of existing housing and the (new HS2) railway line. But it is obvious in terms of the bilateral impact (and the requirements of *The Environmental Noise (England) Regulations 2006*) that placing a new building adjacent to an existing major noise mandates a similar level of mitigation (in this case perhaps by the developer rather than the railway authority).

The HS2 AoS (Table 2) proposes a 300m wide corridor at each side of the line (600m total), as a Non-Residential Noise Sensitive Buffer Area. This also reflects the 300m distance given in the Noise Insulation Regulations for provision of mitigation.

The map shown below (to the relative scale shown) shows distance of a 300m boundary on the East of Castle Green road site.



It is clear that all of the proposed site falls within the recommended *Non-Residential Noise Sensitive Buffer Area* for high speed rail services (which definition applies to the WCML). Indeed it appears that some of the existing properties at the head of Oak Tree Road are also within this area.

This 300m condition may reasonably be assumed appropriate as a guideline for sound propagation on a flat site, but the WCML is actually set on platform-strip made within the hillside at a high level. The proposed housing site is also steeply sloping. As described in my previous submission the height of the site measured approximately relative to the Stock Beck basin is from +14m to +36m. The railway line is at +41m. A consultant with knowledge of the physics of the propagation of sound is likely to confirm that the sound will tend to descend with the slope of the land. Sound incident on the upper hillside is likely to both partially absorbed and reflected back to the West. The reflected component will add to the direct sound to the West and intensify the noise.

The other factor is that trains heading North are on a relatively steep uphill grade. Trains that use diesel power sets, in particular good trains are extremely loud. Trains heading South not scheduled to stop at Oxenholme are travelling very fast, and emit much noise.

The composite result is that the site is likely to exhibit very high levels of noise impact from trains passing. Contrary to the note for HS2, on which trains are not expected to run at night-time (for some reason?); the WCML has major activities at night when an extra 10db noise nuisance allowance is made (reducing the permitted level 3-fold). (In simple terms

each 3db is a doubling of sound level.) Extremely loud diesel goods trains tend to run at night when capacity is not filled with passenger trains.

The HS2 AoS considers noise mitigation in some detail. For example:-

6.3.1. The consideration of mitigation at this stage of the scheme's development is necessarily strategic. The airborne noise mitigation hierarchy consists of mitigation at the source, including the rolling stock and track, before mitigation of the propagation pathway, including barriers and earth bunds. Mitigation at the receiver, including noise insulation, should only be considered for residual effects, and as a last resort.

In this section the proposal makes the clear point (last sentence above) that mitigation should be taken at the rail-side; and that noise insulation at the property should be a "last resort". In this case it reflects the priority that is this easier when the railway is under construction than modifying many houses. However, *The Environmental Noise (England) Regulations 2006* mandates acceptable noise levels at the outside wall of a dwelling, not inside. Also people nearby will wish to enjoy the whole of their properties, and not have to remain indoors. Hence mitigation for the site should clearly be directed to the trackside. Here a large noise absorbing barrier (the HS2 documents suggest 2 or 3m in height of sound absorbing materials) should be deployed, for a distance such that the noise impact is reduced beneath the acceptable maximum level over the whole proposed development.

Summary

The modified allocation plan does not yet appear to take any account of the major noise impact of the WCML. There has apparently been no significant investigation of this key issue in the modified proposals. In contrast factors which SLDC consider 'Green' have been investigated and verified using consultants or by CCC, although with dubious and self contradictory results.

There is no mention of the need to comply with the *The Environmental Noise (England) Regulations 2006* in this case, or of the normal recommendation of a 300m *Non-Residential Noise Sensitive Buffer Area*, indeed the whole proposed site falls within the recommended buffer area.

There has apparently been no study at all of the noise propagation and amplification arising from the topography of the site, where the land falls away from the WCML down onto the proposed site, accentuating noise impact.

Even if it accepted that the site is viable, there is no suggested mitigation for the noise impact for this site, which is clearly within an area of major noise concern based upon widely published procedures. Here mitigation would be needed at the trackside (creating a widely seen visual impact which must in turn be mitigated).

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