Application Ref. DC/19/04650
EXECUTIVE SUMMARY
REVIEW OF PLANNING APPLICATION LANDSCAPE DRAWINGS
for
Chilton Parish Council and Lady Hart of Chilton
relating to the Anderson Group Site at
Land off Waldingfield Road, Chilton, Sudbury

17th December 2019

EXECUTIVE SUMMARY

Ruth Elwood is an experienced landscape architect with almost 30 years' experience.

EDP Landscape Strategy referred to in Condition 4 of OPP shows a dense landscape buffer that has multiple layers of trees specified for planting on a high density grid at 2.5m centres in order to create a dense tree screen along the site frontage at Waldingfield Road. This landscape barrier extends from Saint Mary's Close right up to the boundary with Chilton Priory. (EDP drawing extract illustrated Para. 3.1/3.2)

The Applicant has not completed a thorough assessment of effects. The resultant site layout is ill considered in terms of plot scale/ height and housing positions, in relation to the lack of available space for adequate buffer planting to sufficiently mitigate effects upon the heritage assets and landscape around Chilton Hall.

Key housing plots 125 to 130 are too tall at 9m high. These will be visible in perpetuity from Chilton Hall and the historic park and garden (RPG).

The area proposed by Applicant for the landscape barrier along the site frontage is inadequate in size. Measurements reported for its width in the Officers Report are inaccurate.

The Applicant's proposed naturalistic style of planting as a staggered single row will not provide a robust screen during winter. The 48no trees proposed are insufficient in number to provide a realistic screen as there is no layering of multiple canopies. The high density shrub planting will not provide screening at 9m high. They are not adopting grid planting across multiple rows to create canopy layers.

The current revised proposal provides only 10no additional trees.

We conclude this will be wholly inadequate to screen the 9m high key plots directly facing Chilton Hall. This does not constitute a dense tree belt as a robust impermeable screen in all seasons as required to mitigate harm.

We consider the following is required to screen the development:

- Key plots 1, 130 to 125 need to be single storey housing.
- The planting area allocated as landscape buffer needs to be deeper.
- A minimum of 20m depth is achievable without the applicant having to undertake a significant layout review, as demonstrated to them.
- The 20m wide buffer area needs to be measured from the base of the existing hedgerow on the site side of the hedge.
- The 20 m wide buffer needs to extend along the full length of the site frontage from Saint Mary's Close to Chilton Priory, widening further at this SE corner.
- Trees need to be planted in significant quantities. An increased width of planting to accommodate an increased density of trees planted on a staggered grid is essential to create a layered canopy effect that will act as a visual screen during all seasons. This can be achieved by using a 4m grid matrix of tree planting with shrubs. Up to 185no trees could be accommodated within this 20m buffer using this method.

The Applicant's proposal for 48no trees in the buffer and to plot frontages in this area as wholly unacceptable, regardless of the size of tree at time of planting.

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1.0 Qualifications

1.1 Elwood Landscape Design is a Practice registered with the Landscape Institute and is in its twentieth year in business. ELD Director Ruth Elwood, BA(Hons), Dip LA, CMLI, has 29 years of experience in matters relating to landscape design and planning for development. ELD has appraised the landscape documents provided by the applicant, Anderson Design and Build and their landscape architect advisors at James Blake Associates for the above planning application.

1.2 We make the following detailed comments relating to individual drawings and document content. A summary is contained in our Executive Summary to the front of this report.

2.0 Existing Site Facts

2.1 Site Boundary Hedge: The existing site boundary hedge is a single row of shrubs and occasional trees located to the back edge of the highway ditch, with large gaps between trunks and a thin canopy, with little to no screening value. The canopy is narrow in places and in others, overhangs the ditch at a higher level. This hedge is NOT a 5m wide linear shrub planting belt, as the proposals plans would suggest. The hedge contributes little towards mitigation and screening of the site development, as seen from the highway or from the registered historic park and garden (RPG) of Chilton Hall.

Clear gaps seen through the hedge throughout its length (Image Google Streetview)

2.2 The Existing RPG Tree Boundary: The existing mature trees along Waldingfield Road at the edge of the Registered Park and Garden of Chilton Hall are tall and attenuated, with the majority of branch development in the top canopy area, with several large gaps between trees. Shrubs are relatively small and the combined planting offers little in screening value, relative to the 9m high ridge lines of proposed development. Currently the site hoarding gated entrance is visible from within the parkland.

Existing parkland boundary vegetation along Waldingfield Road

The site hoarding is clearly visible behind trees and shrubs bordering the RPG parkland boundary along Waldingfield Road

2.3 Relative Levels & Elevation: Chilton Hall is located at approximately 65m AOD, as per OS contours. The moated garden at the Hall is on a raised platform around 2m above the walled garden, suggesting it may be around 67-68m AOD. The land falls to the north west towards the site, which at its centre is 60m AOD, before rising to 65m AOD to the north of the site boundary. The 9m high ridgelines will therefore be clearly visible from this elevated platform, in the moated garden and elsewhere in the RPG.

Extract from Google Earth Ordnance Survey, showing site levels around Chilton Hall

3.0 Approved Outline Application - Development Facts

3.1 EDP Landscape Strategy: Ref. EDP3925/11b, illustrates a dense landscape buffer that has multiple layers of trees (a minimum of 3no rows of trees), specified for planting on a high density grid at 2.5m centres, to create a dense tree screen along Waldingfield Road.

3.2 Permeable gaps exist between frontage properties, with additional trees in rear gardens to break up rooflines to create subsequent layers of vegetation between areas of development. It also has trees in clumps planted further back across the site. This landscape barrier extends as a dense linear feature from beyond the first property at St Mary's Close to the SE corner, right up to the boundary with Chilton Priory. The existing hedgerow is identified as a narrow strip against the highway. Save for site access, the existing boundary hedgerows and trees will be retained, reinforced and enhanced, whilst being brought into regular, long-term management.

Multiple layering of tree canopies are proposed, to act as a landscape buffer illustrated on the EDP Outline Approved Landscape Strategy. The existing hedge is shown as a narrow strip of vegetation and trees are planted as a matrix, with 3 rows of canopies

4.0 JBA drawings Ref. JBA 19-144-01 Rev H, Detailed Proposals Ref. JBA drg 19-144-12 Rev F, 19-144-13 Rev F and Plant Schedule, Ref. JBA 19-144-14 Rev F

4.1 Insufficient depth of screen planting. A landscape buffer of 20m minimum depth all along the site frontage is achievable within the site layout and would not require a major layout review to accommodate this. CPC suggested this at the recent site meeting to ensure at least 5 rows of trees could be accommodated within the buffer planting. This was to be measured from the inside base of the existing hedge on the site side, as the hedgerow is thin with a lack of screening value. The JBA masterplan suggests a wide and thick hedge along the site boundary, which is very misleading, with additional 'width' only at the canopy tips. The total width of planting perpendicular to the road, to include the existing hedge is approximately **11.5m-15m maximum width,** opposite key plots 1, 130 to 125. This is significantly narrower than the 20m width requested for most of the plot frontage landscape, to provide the landscape buffer in addition to the narrow, existing hedge.

4.2 It should be noted, planting depths are **inaccurately reported** in the JBA 'Landscape and Visual Mitigation Measures', dated 14th November and Planning Committee Report P101 as being between **14m-21m**, with an **average of 19m depth**, assuming this includes the hedge, incorrectly indicated as 5m wide.

4.3 Depth of planting is inadequate. The revised detailed layout JBA drg 13 Rev F (below) indicates planting extended by an average of 5m. This is not significant in the overall

scheme, when a minimum 20m depth of new planting was requested behind the existing hedge and only a maximum of **11.5m-15m has actually been provided**.

4.4 This additional 5m extension only provides 4-5 rows of shrubs at 1/m2, with only 10 additional trees indicated in the whole of this buffer opposite key plot 1 and plots 125, 126, 127 and 130. **It is a fact that a single tree canopy, or even 3 tree canopies combined, will NOT create a robust network of branches in winter to filter and block views** of the proposed 9m high linear rooflines associated with this development. This can only be achieved by greater multiples of layered tree canopies; but these require sufficient space to develop as a linear woodland with a shrub understorey. The number of trees required would depend on species.

4.5 Approximately half the trees proposed are indicated as larger stock, but tree densities are low, in a single staggered row of canopies one tree deep opposite these key plots and 3no canopies to the front of plot 1 and 130. Shrubs will never reach 9m in height, with an average of 5m at maturity. **Even when mature, this tree planting scheme will fail to provide a closed woodland screen at canopy level during winter months, as viewed from Chilton Hall and the RPG.**

4.6 Significantly more trees and rows of tree are required in lieu of shrub planting.

4.7 JBA drawing 13 Rev F detailed proposal planting depths are actually as follows:

- The landscape buffer at the centre of the site opposite Chilton Hall and the key plots is at its narrowest at **10.5m** wide and **14.5m wide** at its widest point, plus the width of the existing narrow hedge, shown incorrectly as a dense linear feature 5m wide. Trees are proposed generally as a single staggered row, widening towards Chilton Priory where more space permits greater depth of planting.

4.8 When the current JBA plan is compared with the approved outline permission EDP Landscape Strategy, (above), tree numbers are significantly lower, as the approved drawing EDP shows multiple layering of canopies on a grid, that will combine to create a dense screen, with a minimum of 3no rows of trees indicated along the whole length of the southern boundary. JBA has not adopted the matrix planting system to achieve a similar level of screening value.

4.9 **Proposed tree canopies need to be layered in multiples, with a minimum of 5no new tree rows, not 1no or occasionally 3no trees deep as currently proposed to the front of critical plots 1, 130, 127, 126 125 and 124.** These new canopies will also need to combine with existing parkland trees at Chilton Hall to create a more effective screen. The maximum number of tree canopies currently located between the development site and moated garden, based on JBA drg 13 rev F is either 2 or 4no tree canopies. This is not adequate to provide an impermeable buffer to screen new housing and

retain the feeling of remoteness, isolation and tranquillity from within the RGP grounds around Chilton Hall.

4.10 Tree quantities in the JBA Rev F layout below are:

- Based on an assumed site boundary length/distance of 149m x average buffer width of 13.25m = 1,974m2 total area, with **48no proposed trees,** which is an increase of 10no, compared with the original JBA scheme.

JBA landscape proposals, 144 13-Rev F showing the single staggered row of trees along the majority of the site boundary

4.11 Tree quantity calculations: These are detailed in Appendix 1. In summary, based on the above JBA proposals plan, matrix planting would provide 87no trees across 3 rows at 5m centres, or 111no trees at 4m centres across 3 rows. If the same principles are adopted over a 20m minimum width tree belt, 116no trees could be planted at 5m centres across 4 tree rows. At 4m centres, 185no trees could be planted across 5 tree rows, which is **significantly more than the 48no actual tree quantity proposed**. This would be a significant increase in density and quantity to create a greater layering of canopy screening value.

4.12 Based on the simple comparison of 48no trees actually proposed by the Applicant, against a possible 87no to 111no trees that are achievable; **proposed tree quantities are unacceptable, regardless of their size at the time of planting**. When compared to tree quantities achieved with a 20m wide buffer, the positive effect of multiple canopies layers becomes very evident. As per the EDP Landscape Strategy, **grid planting is the only way to ensure canopies overlap with a number of staggered rows to create a layered visual screen and woodland effect.** The Applicant's current proposal for naturalised planting with irregular gaps does not achieve this dense effect and the JBA buffer is too narrow to accommodate enough trees to create the layered screen.

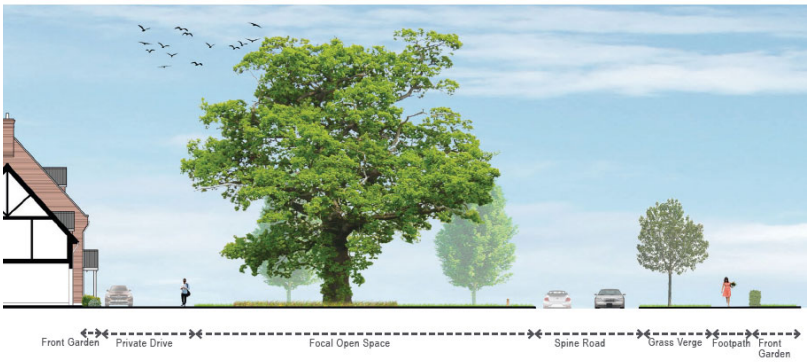
4.13 Planting details are inadequate. The existing boundary hedge is inaccurately shown, as it is very weak and provides limited screening value, yet indicated to be a dense 5m wide buffer screen as above. Plant labels are confusing in relation to hedge strengthening, with no proposal to extend it as a new hedge section to close the gap over the construction access boundary towards Chilton Priory, as per the approved outline EDP Strategy drawing.

4.14 Lack of clarity/detail to drawings and specifications. There are a number of conflicts in drawing details in terms of: graphics; incorrect labelling; difficulties in interpretation of tree sizes and locations; seeding conflicts with planting; lack of bespoke specification or detail in terms of mulching, staking, irrigation; soil remediation; planting and maintenance of larger, semi mature trees. The general specification and key to identify all plant names and sizes is on a different drawing, ref. 14 Rev F and has no reference to the additional A4 planting/soiling specification report called 'Landscape Implementation Note, Softworks Only'.

4.15 Over specification. Planting of Area G shrubs is at a high density, at 1/m2. This will increase future maintenance with future thinning of 30-50% of plants to allow them to expand and grow to avoid smothering and failure from competition. Instead, shrubs could be planted at a slightly lower density at 1.5m centres. 46% of these plants are specified as very small, bare root whips, which will take longer to establish and mature, not 100% as container grown bushy stock, as agreed at the site meeting.

5.0 Sections Through Planting, Ref. JBA 19-144_LANDSCAPING_CROSS_SECTIONS_REV_B

5.1 JBA Site Sections not updated. It was accepted that the original sections submitted were significantly exaggerated and very misleading, with a 100 year old mature oak tree illustrated as a new lime tree on Section E-E. Revised sections across the site have not been resubmitted.



Original Section EE showing a 100 year old Oak tree (not lime as specified)

5.2 We note from nursery photos of proposed native trees, ref. 'Waldingfield Road- Native Buffer Trees to Southeast Boundary', that the tree balance is split almost 50-50 between semi mature/larger stock with broad canopies and smaller stock, with an average canopy size of 1.0-1.5m diameter. It is very unlikely that these will all grow to reach the same mature width as their height in 5 years, as illustrated on the JBA Long Section. Proposed quantities of tree sizes at planting are:

- Semi mature @ 16no and 18-20cm girth @ 9no = 25no
- 16-18cm girth@ 13no (average medium sized stock) and 10 - 14 cm girth @ 10no (smaller stock) = 23no

5.3 The long section is inaccurate. This is a single section shown at Year 1 and Year 5 after planting, illustrated from the edge of the walled garden pine tree group and not the moated platform garden, through the parkland to the proposed site landscape buffer. The tall, mature pine trees have long clear stems and offer no screening value. Incorrectly, a combine harvester is illustrated cropping the parkland grassland!

5.4 Incorrect levels. The section incorrectly shows the land rising from the edge of garden across the parkland to a high point along Waldingfield Road and then correctly falling to a lower point within the site to the north. This is contrary to the OS map that shows Chilton Hall on an elevated plateau above the site at 65m AOD, with the moated garden raised several metres above the existing walled garden and parkland. The land falls towards the lower land at Waldingfield Road; hence clear, elevated views towards the site are gained from this historic landscape area. The Long Section provided fails to include an 'eye line' indicating views from the raised moated area, passing through vegetation to the 9m high plot ridgelines.

5.5 The Long Section has no vertical scale to indicate tree height. However, based on the previous JBA site sections, trees were illustrated as having thick and dense canopies in Year 1, at 5m high x 3m wide, which is wider than many of those illustrated in the nursery photos for mature stock. In Year 5, trees were illustrated as being 7-8m high x 4.5m wide, which assumes a significant amount of growth at 0.5-0.6m each and every year from year 1. At maturity, 20+ years after planting, trees are shown at 12m high x 10m wide.

5.6 We believe annual growth of 0.5m is not achievable and has created an inaccurate visualisation. Most trees once established may grow up to 15-20cm per year in ideal conditions (depending on species). Normally, trees planted as semi mature stock remain static for 2-3 years until established, before good visible growth is evident. It is therefore unrealistic to expect trees to grow at the rates indicated within 5 years after planting, taking account of actual sizes when planted.

Long Sections from Chilton Hall, ref. JBA_19-144-15_Sudbury_Long_Section_Chilton_Hall.

5.7 A second section was requested to demonstrate the level of development seen through the parkland field gateway at the site entrance; but no details have been provided.

5.8 We note the JBA supporting letter ref. 'Landscape and Visual Mitigation Measures', dated 14th November, refers to the RPG listing and sets out several interesting quotes from Babergh DC Joint Landscape Guidance as follows:

5.9 *'In terms of Landscape/Historic Landscape Character the following guidance applies: Development should avoid dominating other buildings or landscape features around it or detract from views of listed buildings or heritage assets.'* **This historic landscape has clearly been overlooked as a heritage asset in all reports, the site layout design and the detailed landscape design and fails to comply with the above Guidance**.

5.10 *'Proposals for new development should take into account the following landscape guidance, as appropriate: 'Planting in a series of clumps rather than a single tree belt*

can be more effective, particularly in open landscapes with limited tree cover.' **There are no tree clumps proposed, other than small groupings around the entrance and a single staggered row across the site frontage, which contradicts this guidance. A tree belt matrix would be far more satisfactory planted on a grid to establish canopy layering and thereby a dense screen of layered branches once mature; rather than a single canopy as proposed.**

5.11 *'Extension of existing tree belts increases their value as habitat corridors. This will ensure a strong visual screen in order to protect the setting of the Chilton Hall Registered Park and Garden (refer to Long Section drawing JBA 19/144-15).* **A strong visual screen has not been established as part of the proposal.**

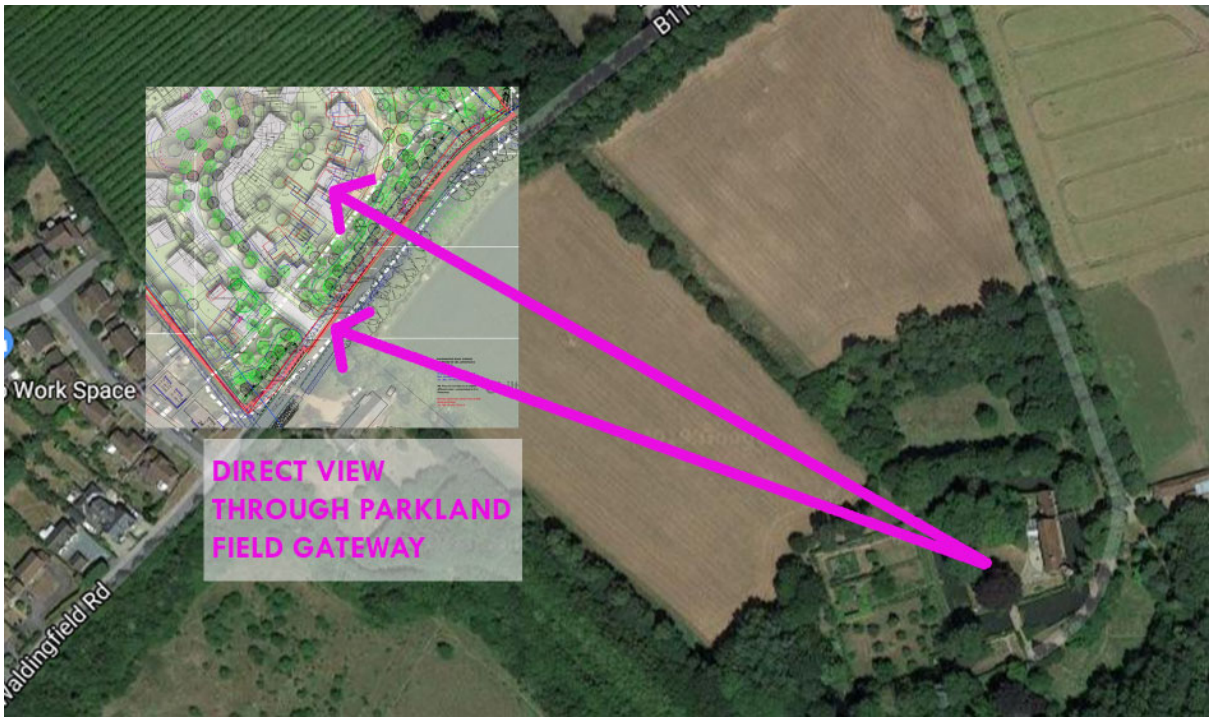
5.12 The letter also illustrates a reverse photo from the parkland gateway looking towards the Hall. This does not take account of the raised garden platform. The letter states, 'Views from within the property looking back towards the Site would be towards the proposed site access point, although these views are at some distance (approximately 325m) and would be heavily screened by the proposed landscape buffer.' **We strongly disagree with this assessment of the effects and screening value as viewed from the property and from within the parkland landscape, especially through the field gateway. The proposed landscape buffer <u>will NOT create an 'impenetrable screen'</u> as claimed.**

5.13 *'The landscape and visual mitigation measures outlined above are considered sufficient to preserve the setting of the Registered Park and Garden (RPG), with views towards the Site from within the RPG being heavily screened by retained vegetation and the proposed landscape buffer.'* **Again, we strongly disagree with this statement.**

5.14 <u>Clear visual links and adverse effect on Chilton Hall</u>. St Mary's Close creates the gateway entrance and a transition between the rural countryside and the more urban environment to this part of Chilton. The 4th and 5th houses on St Mary's Close are now seen from the Hall through the parkland field gateway, following the removal of the roadside hedgerow to create the site access. This urbanises the Hall's rural character and now provides a very clear visual link to the new development's access and proposed entrance housing. The new 2 storey housing will be closer to the RPG and higher than the existing visible houses. This clearly will have an adverse effect on this historic asset's setting, by reducing the feeling of isolation, remoteness and tranquillity. These are key attributes that reinforce the character and act to protect and enhance this historic landscape setting. The presence of new visual links to any development is insensitive, creating significant adverse effects on receptors located in and around the Hall and its gardens.

5.15 Had the design layout been better considered from the outset, the siting of the main development access should have been placed further east along Waldingfield Road, beyond the parkland gateway. In addition, properties of a lower height should be

located along the front row of housing opposite the Hall, reducing the level of visibility and associated harm to the setting. **The proposed 9m high properties will be clearly visible in winter, in perpetuity, from the RPG as a dense screen is not achievable within the buffer space currently indicated on the Applicant's design drawings.**



Overlaid aerial photo and combined outline approved layout with JBA proposals rev A and F (from above), with key views from the RGP moated garden indicated

6.0 Construction Access and the Site Welfare Plan

6.1 Damage to POS soil structure. The new construction access in the SE corner of the site has already caused degradation of the existing hedge, creating a large gap through the loss of coppiced hazel and valued vegetation, with severe compaction and severance of roots. This access and hard standing for compound area, site office, contractor parking etc. is within the proposed POS, which will render the soil profile as 'damaged' making it difficult to remediate and return to its original state suitable to receive planting of new tree stock.

Initial widening of the access and impact on trees

1st November 2019, Hazel removal evident, with compaction and hard surfacing, tree root damage (and no tree protection) at construction access

6.2 The JBA 'Landscape Implementation Note, Softworks Only', is a brief specification for soil remediation and planting, but the detail is very limited. A basic yet critical omission in the specification for working clays soils, is the failure to mention that no soil handling should be undertaken if the soil is frozen, during and/or after heavy rainfall, and should not continue until the soil has regained a non-plastic (friable) consistency to avoid smearing and further damage to the natural clay soil profiles. Currently works are being undertaken during a period of heavy rainfall and soil saturation throughout November and December. The use of the POS as an area of hard standing is also contrary to guidelines in BS 5837:2012 Trees in Relation to Construction.

6.3 British Standard 5837:2012 – Protection of POS soils. This BS provides that all trees and areas of proposed soft landscape must be protected during site works with stout exclusion fences. In Section 6.2.1.2 it states that:
"Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on the extent of the soft landscaping shown on the approved drawings. It also states that:

6.4 *6.2.1.3 The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority."*

6.5 Tree Protection. No tree protection fences had been installed until very recently to protect Chilton Priory boundary trees, or the existing site hedge – this is contrary to the AIA. It should be noted that damage to tree roots has already occurred as orchard clearance works and access construction were already well advanced during the site visit.

A lack of tree protection is evident, with extensive disturbance to ground by a digger within the protected RPA next to Chilton Priory boundary trees, in December 2019

7.0 Conclusion

7.1 Overall, the original approved outline design layout was poorly considered in terms of the main entrance location. Current design is ill considered in terms of plot scale/height and building position in relation to the available space for proposed planting.

7.2 Obvious improvements, include allocating smaller (lower) houses to the south, offset from the boundary/Hall by a wider area of buffer planting a minimum of 20m wide opposite key plots. An increased depth of planting with increased tree densities is essential, to create a layered canopy effect that acts as a visual screen during all seasons. This can be achieved with a full 20m minimum depth of planting, using a 4m-5m grid matrix of tree planting with shrubs. Currently a narrow, single staggered row of single canopies is indicated opposite key plots resulting in 48no trees proposed. Potentially, between 116no and 185no trees could be achieved by matrix grid planting within a 20m wide buffer; making **current proposed tree quantities wholly unacceptable, regardless of their size at the time of planting**. Single storey housing and an increased number of tree rows closest to the Hall would greatly assist with the retention of landscape character and improved screening of new development, reducing the level of adverse harm.

7.3 The Applicant has not carried out a thorough assessment or review of proposals. Site cross sections have not been updated; the long section is inaccurate and a second section was never undertaken. Hedge maintenance and strengthening intentions are unclear and no hedge extension is proposed to close the gap where construction access has been created. The additional 5m of planting gained is the equivalent of 4-5no rows of shrubs with only 10no additional trees and does not equate to a full 20m minimum depth of new buffer planting as requested, with 5no rows of tree canopies.

7.4 The current maximum planting depth provided is approximately 14m opposite plot 1 and only 11.5m opposite key plots 130-125, which are perpendicular the Hall/highway, widening towards Chilton Priory; making an **average depth of planting @ 13.25m**. It is not **generally 19m wide as incorrectly stated in the JBA letter and Officers Report.** Individually, the proposed trees are of a height sufficient to mask the

scale of the dwellings proposed, as stated in the Officers Report, **but, only if they are planted in greater density, as currently, the lack of tree rows to create a layered canopy effect will never screen the development.**

7.5 The introduction of a large construction access has also had an adverse, urbanising effect on this otherwise rural section of Waldingfield Road opposite Chilton Hall, with hoarding visible through winter boundary vegetation. This access and hard standing will destroy natural soil profiles, potentially prohibiting establishment of new planting, that should have been fenced off and protected from construction impacts as per BS 5837:2012. Tree protection is late in being erected and root damage from access construction and orchard clearance works has already been incurred. A watching brief will be required to ensure soil remediation and planting works are completed to a high standard during appropriate weather conditions.

7.6 Based on current buffer proposals, the 9m high properties to key plots 130 to 125 closest to the Hall are likely to be visible in perpetuity, seen between and behind 2no or 4no rows of trees, even when planting has matured. Based on a generous average of 15-20cm growth per year, this could take between 10 and 20 years to create a single tree canopy layer within the site, to combine with the parkland boundary trees, retaining clear views towards ridgelines from the raised moated garden and adjacent parkland. This visual link with existing and proposed housing will permanently erode the visually isolated character of these heritage assets due to the lack of consideration that has resulted from poor site design and a lack of space for appropriate planting.

7.7 Members should seriously consider whether this single row of trees within the development site is capable of creating the proposed landscape buffer required, to screen the 9m high key plots, that are located directly facing Chilton Hall. These will also be seen though the existing RGP boundary trees. It is our opinion that the proposals are totally inadequate to provide a robust and dense tree belt to mitigate harm during all seasons.

APPENDIX 1:

Tree quantity calculations, (Para 4.11)

The length of the boundary buffer planting is approximately 149m long, with a gap for the site access entrance.

If trees are planted at 5m centres x 149m = approximately 29no trees could be planted as a single row.

If trees are planted at 4m centres x 149m = approximately 37 trees could be planted as a single row. These would be layered up with additional rows depending on planting buffer depth.

Current JBA Drawing 144-13 Rev F layout:
The average depth of planting is 13.25m.

On a grid at 5m centres x av. 13.25m wide = approximately 29no trees could be planted as a single row, with 2 additional rows to provide, in round figures, **87no trees**, as 3no rows of trees in total. The approved concept strategy is also 3no trees deep on a grid of 2.5m centres.

On a grid at 4m centres x av. 13.25m wide = approximately 40no trees could be planted as a single row, with 2 additional rows to provide in round figures, **111no trees**, at 3no rows of trees in total, which is **significantly more than the 48no actual trees proposed.**

If the same principles were adopted across a 20m wide buffer x 149m = 2,980m2, tree quantities would increase significantly:

On a grid at 5m centres x 20m wide = approximately 29no trees could be planted in a single row, which could be layered up by an additional 3 staggered rows to provide in round figures, **116no trees**, at 4no rows of trees in total.

If the planting was tightened to 4m centres x 20m = approximately 37no trees could be planted as a single row, which could be layered up by an additional 4 staggered rows to provide, in round figures, **185no trees**, at 5no rows of trees in total; compared to the 48no actual trees proposed. The majority of these could be planted as smaller stock size, 10-12cm girth to replace the equivalent shrubs.

Shrubs are planted at high densities at 1/m2 and these could be reduced to 1.5m centres to allow greater space to expand as they grow and reduce thinning requirements.