

Examination of the Tunbridge Wells
Borough Local Plan

**Tunbridge Wells Borough Council
Hearing Statement**

**Matter 6: Strategic Sites
(Policies STR/SS1, STR/SS2,
STR/SS3, STR/PW1 and
STR/CA1)
Issue 1: Tudeley Village (Policy
STR/SS3)**

Document Reference: TWLP/022



Contents

Size, Scale and Location of Development.....	5
Inspector’s Question 1: [re. Determination of Site Area and Size of Allocation].....	5
TWBC response to Question 1	5
Inspector’s Question 2: [re. Alternatives to size and scale of Tudeley Village]	8
TWBC response to Question 2	8
Inspector’s Question 3: [re. Allocation boundary for Tudeley Village]	10
TWBC response to Question 3	10
Green Belt	12
Inspector’s Question 4: [re. Level of Harm to Green Belt].....	12
TWBC response to Question 4	12
Inspector’s Question 5: [re. Extent of harm to Green Belt].....	14
TWBC response to Question 5	14
Inspector’s Question 6: [re. Compensatory Improvements to Green Belt]	17
TWBC response to Question 6	17
Inspector’s Question 7: [re. Defining Green Belt Boundaries].....	21
TWBC response to Question 7	21
Inspector’s Question 8: [re. Exceptional Circumstances for Green Belt release]	22
TWBC response to Question 8	22
Mix of Uses and Infrastructure Requirements	29
Inspector’s Question 9: [re. Clarity on type and quantum of different uses]	29
TWBC response to Question 9	29
Inspector’s Question 10: [re. Appropriate mix of uses to encourage internalisation of trips] ..	32
TWBC response to Question 10	32
Inspector’s Question 11: [re. Phasing and Delivery of Infrastructure]	34
TWBC response to Question 11	34
Highways and Transport	37
Inspector’s Question 12: [re. Transport Impacts along B2017]	37
TWBC response to Question 12	37
Inspector’s Question 13: [re. Mitigation of Transport Impacts along B2017]	39
TWBC response to Question 13	39
Inspector’s Question 1: [re. Transport projections].....	43
TWBC response to Question 14	43

Inspector’s Question 15: [re. Connectivity to Tonbridge].....	46
TWBC response to Question 15	46
Inspector’s Question 16: [re. Justification for Five Oak Green Bypass]	52
TWBC response to Question 16	52
Inspector’s Question 17: [re. Deliverability of the Five Oak Green Bypass]	54
TWBC response to Question 17	54
Inspector’s Question 18: [re. Justification of the Five Oak Green Bypass location]	56
TWBC response to Question 18	56
Inspector’s Question 19: [re. Robustness of Transport Evidence]	58
TWBC response to Question 19	58
Viability and Deliverability.....	60
Inspector’s Question 20: [re. Infrastructure Delivery]	60
TWBC response to Question 20	60
Inspector’s Question 21: [re. the need for a SPD].....	63
TWBC response to Question 21	63
Inspector’s Question 22: [re. Viability of Tudeley Village]	65
TWBC response to Question 22	65
Landscape and Heritage	69
Inspector’s Question 23: [re. Setting of AONB].....	69
TWBC response to Question 23	69
Inspector’s Question 24: [re. Visual separation between Tudeley Village and Five Oak Green]	72
TWBC response to Question 24	72
Inspector’s Question 25: [re. Impact on Heritage Assets]	75
TWBC response to Question 25	75
Other Material Planning Considerations.....	79
Inspector’s Question 26: [re. Flood risk at Tudeley Village]	79
TWBC response to Question 26	79
Inspector’s Question 27: [re. Railway Station at Tudeley Village]	82
TWBC response to Question 27	82
Appendix 1: Hadlow Estate Green Belt Compensatory Improvements Report.....	84
Appendix 2: Meeting Minutes TWBC and EA 13 April 2022.....	85
Appendix 3: Five Oak Green Bypass Technical Note (JBA)	86
Appendix 4: Detailed Design Five Oak Green Bypass (Stantec).....	87
Appendix 5: Strategic Sites Infrastructure Framework	88

Matter 6 – Strategic Sites (Policies STR/SS1, STR/SS2, STR/SS3, STR/PW1 and STR/CA1)

Issue 1 – Tudeley Village (Policy STR/SS3)

Size, Scale and Location of Development

Inspector’s Question 1: [re. Determination of Site Area and Size of Allocation]

What is the site area based on and how was the size of the allocation and number of new homes established?

TWBC response to Question 1

Introduction

1. The Sustainability Appraisal (SA) [[PS 013](#)] and Strategic Housing and Economic Land Availability Assessment (SHELAA) [[CD 3.77a](#)] formed the basis of how the Council determined the appropriate site area for Tudeley Village, as reflected by the allocation boundary as shown on the Policies Map [[CD 3.59f](#)].
2. The SA and SHELAA were prepared simultaneously. The purpose of the SHELAA is to determine which parcels are suitable and available for development, to inform site allocations in the new Local Plan. The role of the SA is to appraise the social, environmental, and economic effects of the Plan. It is important to read both documents alongside each other to understand the decisions reached by the Council in terms of its strategy. The Council’s Hearing Statement on Matter 5 (Site Selection Methodology) also provides more on this matter [TWLP/021].
3. As detailed in the SHELAA [[CD 3.77a main report](#)], paragraphs 1.7 and 1.8, the Council conducted two specific ‘Call for Sites, as well as considering sites which were submitted to the Council through the Regulation 18 Draft Local Plan consultation (paragraph 1.9).

4. All sites submitted to the Call for Sites have been assessed using the same robust methodology for both the SA and SHELAA, carried out in accordance with the guidance in the [PPG](#) (ref. Paragraph: 005 Reference ID: 3-005-20190722) irrespective of size and location to determine the sites to consider both within the SHELAA and SA.
5. As explained in the Council's response to Question 9 of the Sustainability Appraisal Hearing Statement [[TWLP/003](#)] for Stage 1, three reasonable alternatives for the size of a Garden Village at Tudeley were considered through the SA. Please refer to paragraphs 63-69 of this Stage 1 hearing statement for a description of these three options and their relative merits. This prompted the recommendation for an option of approximately 2,800 dwellings to be allocated on the area broadly reflecting the allocation boundary for Tudeley Village through Policy STR/SS3 of the Plan.
6. Alongside the SA, the Council's SHELAA [[CD 3.77a](#)] assessed the availability, suitability and achievability of the identified sites [see [CD 3.77e](#) for Capel parish sites]. The findings of the SA [[PS 013](#)] have been important in determining whether sites are suitable for allocation. Commentary from the SA is recorded on individual site assessment sheets in the SHELAA and has informed the findings of the SHELAA assessment.
7. The boundary of Tudeley Village was determined based on the sites which were considered available and suitable for the proposed strategic allocation and based on the broad parameters considered through the SA in terms of the reasonable alternatives. As considered in both these documents, this boundary reflects a number of site constraints such as AONB land to the south, and land within Flood Zone 3 to the north.
8. The total site size of the proposed Tudeley Village as assessed through Sustainability Appraisal Option 2 is 170 ha. The land which forms part of the proposed Tudeley Village garden settlement allocation is under the single ownership of the Hadlow Estate. The Hadlow Estate commissioned its own masterplanning work, as detailed in the Tudeley Village Delivery Strategy (submitted as Regulation 19 as part of its consultation response Ref. PSLP_1630).
9. This exercise was led by Turnberry Consulting with input from a consultant team, including CPZ CoDesign, Brook Murray Architects, EnPlan, Applied Ecology, Andrew Cameron & Associates, Orion Heritage and WSP. The Delivery Strategy (submitted by

Hadlow Estate to the Council as part of its Regulation 19 consultation response) sets out the comprehensive approach taken to masterplanning Tudeley Village, along with detailed aspirations for the new settlement and how these can be realised and safeguarded in perpetuity. Information is provided on how the settlement will be delivered on the ground, along with details of phasing.

10. The site capacity assessment undertaken through the comprehensive masterplanning work has identified a developable area of 95 ha. This developable area includes space for housing and the associated uses required to deliver a sustainable new settlement. 2,800 dwellings are proposed to be delivered, applying an average density of just under 30 dph. A mix of dwelling sizes are considered, including 1-bed to 5-bed units. This is in addition to a range of complementary uses to support a garden settlement of this size, including retail, commercial, community, sport, and education uses. Associated uses include a 3FE primary school, 6FE secondary school, over 10,000 sqm commercial floorspace; community floorspace; along with an access road, private gardens, car parking, incidental open space and children's play areas. Importantly, sustainable linkages are full considered and integrated throughout.
11. Accordingly, following the robust SA process which determined the broad appropriate boundary for the new settlement, and the SHELAA which found the site available, suitable and achievable, the number of dwellings which can be provided at Tudeley Village is considered justified, based on a comprehensive masterplanning exercise.

Inspector's Question 2: [re. Alternatives to size and scale of Tudeley Village]

What alternatives to the size and scale of development proposed in the Plan has the Council considered?

TWBC response to Question 2

Introduction

12. As set out in the Council's response to Question 1, the Sustainability Appraisal (SA) [\[PS 013\]](#) and Strategic Housing and Economic Land Availability Assessment (SHELAA) [\[CD 3.77a\]](#) formed the basis of how the Council determined the appropriate scale and size of Tudeley Village. This included an assessment of alternatives to the size (and therefore scale) of the proposed new settlement.
13. With regard to the SA, the Council's response to Question 9 of the Sustainability Appraisal Hearing Statement ([TWLP/003](#), pages 20-21) explains how two further reasonable alternatives for the scale and extent of a Garden Village at Tudeley were considered by the SA [\[PS 013\]](#). Please refer to paragraphs 63-69 of this hearing statement ([TWLP/003](#)) for a description of these three alternatives and their relative merits which prompted the recommendation for an option of approximately 2,800 dwellings for allocation.
14. Alongside the SA, the Council's SHELAA [\[CD 3.77a\]](#) assessed the availability, suitability and achievability of the identified sites. The findings of the SA [\[PS 013\]](#) have been important in determining whether sites are suitable for allocation. Commentary from the SA is recorded on individual site assessment sheets in the SHELAA and has informed the findings of the SHELAA assessment.
15. The SHELAA assessment includes an assessment of the reasonable alternatives identified through the SA [\[PS 013\]](#) (Tudeley Village Reasonable Alternative Options 1, 2 and 3) and the separate parcels of land (site refs. 178, 183, 308, 418, 440, 446, 448, 452 and 453) [\[CD 3.77e\]](#). The findings of the SA fed into the consideration of suitability and these sites were not considered suitable for the development of a new settlement.
16. For completeness, these separate parcels were also considered within the SHELAA and whilst available for development, the sites that do not form part of the allocation

were not considered suitable development. This is for reasons relating to impact on heritage assets within the site (site 183), flood risk constraints (site 178), unsustainable location when considered in isolation (site 178, 440, 452, 453) and Green Belt harm causing coalescence (site 308).

Inspector's Question 3: [re. Allocation boundary for Tudeley Village]

The submission version Policies Map for Tudeley Village shows land beyond the Limits to Built Development forming part of the allocation. What is the reason for this? Is all of the allocation proposed to be removed from the Green Belt?

TWBC response to Question 3

17. The Council confirms that the Tudeley Village allocation as shown on the Policies Map [[CD 3.129eii](#)] (indicated as 'Strategic Sites STR/SS 1-3' on the Inset Map Legend [[CD 3.129a](#)]) reflects the proposed boundary for Tudeley Village. All land within this boundary is to be masterplanned to ensure a comprehensive approach to delivering a new garden settlement.
18. All land within the allocation and some beyond (as explained below) is proposed to be removed from the Green Belt.
19. The Submission Local Plan defines Limits to Built Development (LBD) for each settlement within the borough. The purpose of this designation is to indicate where built development would be acceptable in principle, subject to other Local Plan policies. It excludes areas which should be retained as open space, either as part of a landscaping strategy or if heavily protected (for example, Ancient Woodland).
20. It is considered appropriate that Tudeley Village should have a defined LBD in a similar manner to other settlements in the Plan. However, at this stage the LBD identified is provisional to reflect the status of the draft masterplan. It is proposed to be fixed through the Five-Year Local Plan Review, following greater scrutiny of more detailed masterplanning work which will progress through the preparation of a Supplementary Planning Document (SPD) and planning application. The rationale for this is set out in the Strategic Sites Topic Paper [[CD 3.67](#), pages 36-37) and answered under the Stage 2, Matter 3, Issue 3 questions [TWLP/016].
21. The LBD will exclude certain areas which are not suitable for built development but are required as part of the landscaping strategy for the new settlement. These areas are important to the overall approach to the delivery of a new garden settlement and it is

considered appropriate that this land is included within the allocation so full consideration can be taken to landscaping, etc. in the consideration of proposals.

22. This reflects the approach taken to other LBDs within the Plan, which do in some locations cut across allocated sites if part of the site is not suitable for built development; for example, Mascalls Farm, Policy AL/ PW 1. Further information on the approach to LBDs is provided in the Hearing Statement for Matter 3, Issue 3.
23. The proposed new inset Green Belt boundary extends beyond the allocation and LBD boundaries. To the north the boundary has been set further out so that, in accordance with NPPF paragraph 143 (f), it follows “*physical features that are readily recognisable and likely to be permanent*”. This includes roads and field boundaries. On other boundaries, where the allocation wraps around existing development that is not part of the allocation, the inset Green Belt boundary has been adjusted to include these developments. They will in effect form part of the new settlement and in so doing a stronger, more consistent Green Belt boundary will be drawn that is also consistent with the NPPF paragraph 143 (f) as above. Please see the Council’s response to question 7 for further detail on the approach taken.

Green Belt

Inspector's Question 4: [re. Level of Harm to Green Belt]

The Green Belt Study Stage 2 report concluded that releasing land from the Green Belt between Tonbridge and Paddock Wood (Ref BA4) would cause a 'very high' level of harm to the Green Belt. In the Stage 3 Assessment, a harm rating of 'High' is given for Tudeley Village. What are the reasons for the different scores?

TWBC response to Question 4

24. The “*harm ratings*” in the Stage 2 and Stage 3 Green Belt Studies are not directly comparable. The Stage 3 Study [\[CD 3.93c\]](#) notes the distinction between the harm ratings given within the Stage 2 Study [\[CD 3.93b\(i\)\]](#) and the harm ratings given at Stage 3, with the latter reflecting additional considerations of the impact of the release of land on the remaining Green Belt. It was indicated in paragraph 5.17 of the Stage 2 Study that “*a more refined assessment of harm*”, considering the impact of Green Belt release on the contribution of adjacent retained Green Belt would be the next step. The Stage 3 Study provides that more refined assessment. The harm rating for Tudeley Village (referenced as AL/CA1 in the Stage 3 Study) is consistent with the stated methodology in each case. The methodology for each stage is further explained below.
25. For the Stage 2 Study the methodology used a five-point scale of Very Low to Very High (paragraph 1.4) where the rating “reflected the highest contribution to **any** of the first four Green Belt purposes (all land was considered to make an equal contribution to the fifth Green Belt purpose)” (bold and underlining added).
26. For the Stage 3 Study the scale had the same bottom and top categories but was based on a seven-point scale (paragraph 3.57) that - when considering contribution to the Green Belt purposes - used professional judgement “*in each individual case to consider how much weight to attach to each contributing element*”.
27. The Stage 3 Study sets out the general approach at paragraph 3.5:
- “The assessment of harm in this Stage 3 Study combines consideration of the loss of the contribution of released land, with an assessment of the impact that the release would have on the contribution of remaining adjacent Green Belt land. Although it has*

drawn on the Stage Two Study's assessment of contribution, further analysis has been undertaken to identify any variations between the Stage Two parcels and the proposed development sites".

28. The harm assessment for Tudeley Village concludes at paragraph 4.118 that the release of the Green Belt in this area will have a Moderate overall impact on the adjacent Green Belt land and summarises the overall effect on the Green Belt at paragraph 4.119 as:

"AL/CA1 makes a Strong contribution to the prevention of encroachment on the countryside and a relatively weak contribution to preventing neighbouring towns merging into one another; and the impact of its release on the adjacent Green Belt will be Moderate. Harm resulting from the release of AL/CA1 will be High".

29. It can be seen that the Stage 3 Study provides a more refined assessment and that the conclusions drawn have been fully justified and are consistent with the methodology.

Inspector's Question 5: [re. Extent of harm to Green Belt]

What would be the extent of the harm to the Green Belt if the boundaries were changed in this location as proposed? Are there any ways in which this harm could be minimised or mitigated?

TWBC response to Question 5

Extent of Harm

30. The Stage 3 Green Belt Study [[CD 3.93c](#)] concludes that the release of the Green Belt in this location would result in High harm. It should be noted that this is a relative measure based on the methodology within the Study as there are no standard definitions for levels of Green Belt harm. The rating principally relates to encroachment on countryside, an inevitable consequence of an allocation of this size in this location, but also to the reduction in separation between towns through introduction of a new settlement of a size that can be considered a town in terms of Green Belt Purpose 2 (NPPF, paragraph 138 (b)).
31. The strength of the remaining Green Belt following this release is explained in the Stage 3 Study in section 5 (paragraphs 5.19 to 5.26) and, although it is acknowledged that the release *“will weaken the extent to which the remaining Green Belt land, particularly between Tudeley Village and Five Oak Green, contributes towards safeguarding the countryside from encroachment”*, it also concludes at paragraph 5.21:
- “Whilst the cumulative release of these two allocation sites will significantly weaken the Green Belt separation between Tudeley Village and Paddock Wood, the remaining Green Belt land will continue to play a strategic role in preventing these neighbouring ‘towns’ merging”.*
32. The Stage 3 Study sets out specific measures that would strengthen the remaining Green Belt and thereby minimise the predicted level of harm (paragraph 4.122). These are set out below.

Measures to minimise or mitigate Green Belt harm

33. The Stage 3 Study notes measures within the Regulation 18 Consultation Draft Local Plan that would help mitigate the harm to the Green Belt from the Tudeley Village

allocation (paragraph 4.121). The Study then set out further potential measures at paragraph 4.122. This includes:

- *“Open space and locally characteristic planting within the allocation site to the east to reduce impact on perceived separation between Tudeley Village and Five Oak Green.*
- *Open space and locally characteristic planting within the allocation site to the north to reduce the urbanising influence of development across the flat valley floor.*
- *Strengthen B2017 boundary by enhancing hedgerow planting and introduction of locally characteristic woodland copses and belts.*
- *Reduce the urbanising effect of development when travelling along the B2017 through use of set-back and appropriately designed road infrastructure to maintain the rural character of the road; and gradation in scale of built form, with lower density development to the periphery and in vicinity of railway and B2017.*
- *Introduce a village-like character to reduce the perception of being a ‘town’ in respect to Purpose 2, through the application of ‘garden settlement’ principles.*
- *Reduce urbanising influence on the surrounding landscape by avoiding high-density built development on rising ground to the south and south-west and ensuring new development is designed sensitively with views and local character considered.*
- *Use of sustainable drainage features to define/enhance separation between settlement and countryside, integrating with the existing pattern of dykes and streams”.*

34. The Stage 3 Study (paragraph 4.123) also notes how the abovementioned measures will help integrate the development at Tudeley Village into the landscape *“in accordance with the landscape strategy for LCA 13 ‘Paddock Wood/Five Oak Green’ (Low Weald Farmland) and LCA 17 ‘Medway valley’ (River Valley)”* which is a reference to the Local Landscape Character areas of the Council’s Landscape Character Assessment Supplementary Planning Document 2017 [[PS 019](#)].

35. These measures have been considered by the Council in the formation of the Policy. This includes Part 3(f) which requires design to incorporate means to ensure there is appropriate visual separation between Tudeley Village and Five Oak Green, including

the potential use of structural planting on land outside of the allocation (which is within the ownership of Hadlow Estate, so deliverable).

36. It has also informed discussions on the draft Masterplan as included within the Hadlow Estate Delivery Strategy (submitted as part of the Hadlow Estate's Regulation 19 consultation). Indeed, the Stage 3 Study reviewed the draft Tudeley Village Masterplan (Appendix A [CD 93c](#)) and noted that the measures it contains will "*help to minimise harm*" if implemented (paragraph 4.125) but raises some concerns about the development fronting Five Oak Green Road (B2017), and in doing so suggests how this can be addressed (paragraph 4.126). These measures have to some extent been taken on board by subsequent iterations of the Masterplan. The most recent Masterplan is within the Tudeley Village Delivery Strategy, submitted as part of Hadlow Estate's Regulation 19 Consultation Ref. PSLP_1630); this shows a greater set back along the western boundary along Five Oak Green Road, but these will be considered and developed further by the Council in providing advice on as the Masterplan as it progresses to inform the future Framework Masterplan SPD and future planning applications.
37. Measures to minimise and mitigate the harm to the Green Belt have been given careful consideration through the development of the Plan. Mitigation measures as identified through the Council's evidence base, as highlighted above, have been incorporated into Policy STR/SS3. This is actively being considered in the ongoing work being undertaken by Hadlow Estate. It is clear that mitigation must be provided as the scheme is brought forward. Ongoing masterplanning, including through the preparation of the Framework Masterplan SPD, will allow for the mitigation to be incorporated and set out to be effective in reducing the harm. At planning application stage, such measures will be secured via conditions and legal agreements.

Inspector's Question 6: [re. Compensatory Improvements to Green Belt]

Where it has been concluded that it is necessary to release Green Belt land for development, paragraph 142 of the Framework states that Plans should set out ways in which the impact of removing land from the Green Belt can be offset through compensatory improvements to the environmental quality and accessibility of remaining Green Belt land. How will this be achieved?

TWBC response to Question 6

Introduction

38. The Council has identified the need for compensatory improvements to the remaining Green Belt land at an early stage in plan making (Green Belt Study Stage 2 2017 paragraph 6.4 [\[CD 3.93b\(i\)\]](#)). It is a requirement of Policy STR/SS3 (Part 8) that compensatory improvements to the remaining Green Belt are to be provided reflecting the guidance in paragraph 142 of the NPPF.
39. For Tudeley Village, delivery of compensatory improvements to the remaining Green Belt is assisted by significant areas of land around the allocation being in the same ownership as the allocation site, the Hadlow Estate. Accordingly, enhancements can be secured by legal agreement attached to future planning permissions.
40. Policy STR/SS3 also requires the development to be "*delivered through the production of a Framework Masterplan Supplementary Planning Document (SPD)*". This provides the Council with the opportunity to detail the requisite compensatory improvements within the SPD. The SPD will be a material consideration in the determination of planning applications at the site, which will facilitate the delivery of these improvements (please also see response to Question 21 of this Hearing Statement). It is not considered appropriate or necessary to set these out within the policy itself, to provide flexibility in the provision of these improvements in the delivery of the settlement and as the Masterplan progresses.
41. The Council's approach is reflected in the Tudeley Village Delivery Strategy 2020 [submitted to the Council as part of Hadlow Estate's Regulation 19 consultation, Ref. PSLP_1630]. This identifies (page 30) the Green Belt issues and lists a range of

compensatory improvements which the Estate is proposing to deliver, subject to the release of land from the Green Belt.

42. This information has been further developed by Hadlow Estate through discussions with the Borough Council since submission of the Plan. Attached at Appendix 1 is the 'Green Belt Compensatory Improvements Report' prepared by Hadlow Estate in close discussions with the Council.
43. This Compensatory Improvements Report has developed the Estate's proposals as set out in the Tudeley Village Delivery Strategy and reflects the Hadlow Estate's commitment to delivering these measures as part of the Tudeley Village proposals. It is considered that these measures will help offset the impact of removing land from the Green Belt by improving the environmental quality and accessibility of remaining Green Belt land, through improvement in terms of landscape, ecology, heritage, and flooding.
44. Set out below are the potential improvements in terms of measures to enhance the environmental quality of the remaining Green Belt are identified, and measures that enhances it accessibility:

Environmental Quality Measures

- a. Conversion of fields within the ownership of Hadlow Estate to the west of the site between Tudeley Village and Tonbridge, north of B2017 and south of the rail line, from arable to permanent grassland.
- b. Landscape and visual mitigation comprising a range of measures, including setting back certain edges of development along the B2017 and for the landscape treatment of these set back edges; multiple scattered individual trees and copses within the Medway Valley to the north of the allocated sites; and the provision of a community woodland between the proposed secondary school site, within the allocation, and Capel Primary School.
- c. Green Belt, landscape, visual amenity, and biodiversity enhancements including planting to the south, south-east and south-west of the B2017 on land owned by Hadlow Estate. This includes potential to convert fields from arable to meadow grass, scrub, traditional orchard, and wildflower meadow, aligned with the Kent Biodiversity Action Plan habitat targets; and hedges with scattered hedgerow trees

and copses that either reinforce existing hedgerows or are planted on the alignment of former hedgerows that reinstate historic field patterns to the south of the AONB.

- d. Reinstatement of ditch to the south of the B2017 and enhancement to create SUDs basin to reduce flooding risk to Five Oak Green.
 - e. Long term commitment to preservation and management of Tudeley Woods Reserve.
 - f. Development of SUDs features and Natural Flood Management to alleviate flood risk and enhance biodiversity. Significant additional detail is provided in relation to flooding in response to Question 8.
 - g. Improvements to existing permanent ponds across the estate (on AONB Southern Field Boundaries and on Medway and Mill Stream as part of the Estate Ecology Strategy).
45. Expanding on e), the wider Hadlow Estate contains of a large tract of woodland known as the RSPB Tudeley Woods Nature Reserve. This is currently on a short-term rolling lease to the RSPB. As part of this proposal, as set out on Page 10 of the Green Belt Compensatory Improvements Report (Appendix 1), the Estate is prepared to make a long-term commitment to “*preservation and management of the Tudeley Woods Reserve*” which is in the Green Belt and High Weald AONB. This explains that the Estate will commit to a 30-year lease which will secure its future and enable longer term planning for the reserve. This is considered to be a significant contribution; it is such a large tract of land and the 30-year commitment goes beyond the plan period, mirroring the timescale within the Environment Act required for sites provided for biodiversity net gain. This will be set out within the Framework Masterplan SPD and secured through a legal agreement on future planning permissions. Not only do the above measures align with wider general landscape and biodiversity objectives, but they also include measures that will contribute specific localised objectives such as the RSPB Turtle Dove Friendly Zones and the High Weald AONB Management Plan objectives for the restoration of historical field patterns. The release of the Green Belt at Tudeley and consequent development provides the impetus and security and for the Hadlow Estate to enable it to fund these wider projects and commitments.

Public Accessibility Measures

- a. New Pedestrian and Cycle Path between Tudeley Village and Tonbridge.
 - b. New and enhanced pedestrian routes within defined areas to the south of the site.
46. With regard to a), the Council refers the Inspector to the Council's response to Question 15 for more detail on this route.
47. Expanding on b), page 6 of the Green Belt Compensatory Improvements Report (Appendix 1) includes a map with the opportunities identified by Hadlow Estate for the establishment of new or enhanced pedestrian routes extending from Tudeley Village, on land owned by the Estate. These include a new route from the south of the settlement, connected to existing footpaths, plus the connection of two routes which run parallel westward from the site towards Tonbridge. Access to safe pedestrian and cycle routes encourages sustainable travel choices and improves access to Green Belt land, including existing routes such as the 13-mile Pembury Circular Walk.
48. Further, as set out above, the commitment by the Estate to the preservation of Tudeley Woods as a nature reserve will secure public access to 4.5 miles of footpaths within that woodland.
49. These measures are set out in the Signed Statement of Common Ground with the Hadlow Estate [[CD 3.139](#)], including at paragraphs 2.37 to 2.39. The footpath improvements will provide greater access to the Green Belt and the SUDS measures will contribute to the relieving of flooding in the local and wider catchment.
50. It is therefore clear that there are significant opportunities for the provision of compensatory improvements to the remaining Green Belt, all on land which is under the control of Hadlow Estate which is looking to deliver Tudeley Village. This single ownership facilitates such significant opportunities and provides very strong prospects of delivery. Accordingly, prospects of delivering these improvements are extremely strong. These measures will be set out within the Framework SPD detailing what is required. Details will be required at planning application stage, and likely to be secured via a legal agreement or condition, in close association with agreed phasing timeframes.

Inspector's Question 7: [re. Defining Green Belt Boundaries]

When defining Green Belt boundaries, paragraph 143 of the Framework states that plans should, amongst other things, define boundaries clearly, using physical features that are readily recognisable and likely to be permanent. How does the Plan meet this requirement for Tudeley Village?

TWBC response to Question 7

Introduction

51. The proposed new inset Green Belt boundary extends beyond the proposed allocation and Limits to Built Development boundaries to ensure that it follows "*physical features that are readily recognisable and likely to be permanent*" in accordance with NPPF paragraph 143(f). To the north, the Green Belt boundary has been set further out than the allocation boundary (which represents the intended developable area avoiding flood zones) to field boundaries and roads. To the east, the allocation and Green Belt boundary align following road and railway and some field boundaries.
52. To the south, the Green Belt boundary follows the B2017 Five Oak Green Road and to the west, Hartlake Road and on these boundaries encompasses some existing isolated development that is outside of the allocation, but which has been incorporated into the release to provide a strong new Green Belt boundary that follows readily recognisable boundaries that are likely to endure.

Inspector's Question 8: [re. Exceptional Circumstances for Green Belt release]

Taking into account the answers provided under Matter 4, do the exceptional circumstances exist at site specific level to justify amending the Green Belt boundary in this location?

TWBC response to Question 8

Strategic exceptional circumstances

53. As referred to in the Question, the exceptional circumstances that exist at a strategic level are dealt with under the Matter 4 questions. This detail is not repeated here. However, it is noted that the factors identified together provide a basis for establishing exceptional circumstances to alter the boundaries of the Green Belt and removing land from it in order to deliver the extent and quantity of development in the Local Plan. In particular, these factors support the proposals for strategic development in the Green Belt of land at Paddock Wood and east Capel, and at Tudeley (also located within Capel parish) for a wide range of land uses, including built development, to deliver strategic development opportunities. Please see below for the site specific exceptional circumstances.

Flooding at Five Oak Green

54. The Council considers it of assistance at this point to outline the situation in relation to flooding at Five Oak Green, as the ability to reduce flood risk to this settlement is a key contributory factor in the site-specific exceptional circumstances. Five Oak Green is a village which experiences flooding from various sources, including from surface water flooding and from watercourses – principally the Alders Stream (please see paragraph 6.4 of the Strategic Flood Risk Assessment (SFRA) [CD 3.44] for more information on the Alders Stream). This is demonstrated by the fact that there is a Location Specific Action Plan in the Surface Water Management Plan for Five Oak Green (paragraph 2.4.1 of the SFRA), and through the historical flood events that have affected Five Oak Green (paragraph 6.3 of the SFRA). For these reasons a Five Oak Green Flood Alleviation Scheme has been developed this is set out at paragraph 7.5.1 of the SFRA, and is repeated here for clarity:

“Since the flooding of December 2013, several measures have been implemented to reduce the risk of flooding to the properties within the village of Five Oak Green. Such measures include:

- Bi-annual public meetings have been held by the Parish Council to allow residents to make any flooding concerns clear to the relevant authorities.*
- The drains in the centre of the village have been surveyed using CCTV systems and blockages have been cleared⁴⁵,*
- The Environment Agency realigned the culverted section of the river in the summer of 2014 to provide a better level of protection of 166 properties located along Norton’s Way and Five Oak Green.*

In order to further reduce the risk of fluvial flooding from the Alder Stream, a Five Oak Flood Alleviation Scheme has been proposed. Initially, the scheme concept was to design and construct a flood diversion and storage area near Capel to provide a better level of protection to 265 properties at risk of fluvial flooding between Capel and Five Oak Green. The Environment Agency are still investigating options for Five Oak Green. Recently an Initial Assessment into potential flood risk management options was completed for the Alder Stream catchment to improve understanding of what may be feasible to reduce fluvial flood risk. Further investigation is needed into the viability of options. The project remains on the Environment Agency’s register of potential schemes, but no date for taking additional work forward is known at this time.”

55. However, the Environment Agency (EA) has not been able to take forward the Alleviation Scheme. The EA has relayed that whilst locations for flood storage had been identified, the benefits of the scheme did not outweigh the cost. Minutes of a meeting between the Council and the EA are attached at Appendix 2 where this was explained.
56. The allocation at Tudeley provides significant opportunity to reduce flood risk to the existing residents at Five Oak Green, through both natural measures on land within the Hadlow Estate and through the provision of the link road between the B2017 and the A228 being constructed in such a way to ‘throttle’ the flow of water through the Alders Stream and store excess water back to significantly reduce the likelihood of flooding to residents in Five Oak Green.

Site Specific Exceptional Circumstances

57. With regard to the exceptional circumstances that exist to justify the release of the Green Belt at Tudeley Village, the Council refers the Inspector to paragraph 6.186 of the Development Strategy Topic Paper [\[CD 3.64\]](#). This identifies further exceptional circumstances which exist at a site and development specific level which are considered to contribute to exceptional circumstances.
58. For Tudeley Village, this includes the following:
- a. Through the development of the site, and the provision of flood mitigation measures on the wider landholding of the site owner and elsewhere the existing flood risk to areas within Five Oak Green will be reduced. This requirement is specifically included in Policy STR/SS3 (Part 10), and contributes to the exceptional circumstances for the release of this land from the Green Belt. Please see paragraph 66 onwards below.
 - b. The proposal represents an opportunity to deliver development of exemplar design quality, with exceptional permeability and low levels of private car use within the settlement which will be delivered against the garden settlement principles. Such aspirations have been informed through masterplanning work (see Stantec Access and Movement Report [\[CD 3.66e\(i\), 3.66e\(ii\) and 3.66\(v\)\]](#)) and the Local Cycling and Walking Infrastructure Plan (LCWIP) Stage 2 [\[CD 3.115b\(i\)\]](#). This requirement is again specifically included in the policy (Part 7) and is considered to make a significant contribution to the exceptional circumstances for the release of this land from the Green Belt.
 - c. The development provides a site for a secondary school to meet the needs of the wider area, including the growth at Paddock Wood and east Capel.
 - d. The site and surrounding land, being largely in single ownership, enables the scheme to offer a new green route into Tonbridge and improvements to the landscape and accessibility of the countryside beyond the allocation boundary. Full consideration has been given to links both within the allocation boundary, and beyond, with inter-urban pedestrian and cycle links fully considered, as set out in the LCWIP Stage 2 [\[CD 3.115b\(i\)\]](#).

- e. Taken together with the expansion of Paddock Wood including in land in Capel parish, there are opportunities to provide significant new highway infrastructure and localised highways improvements. This includes the works to the A228, including a new offline bypass and the provision of a new link road around Five Oak Green [[CD 3.66](#)].

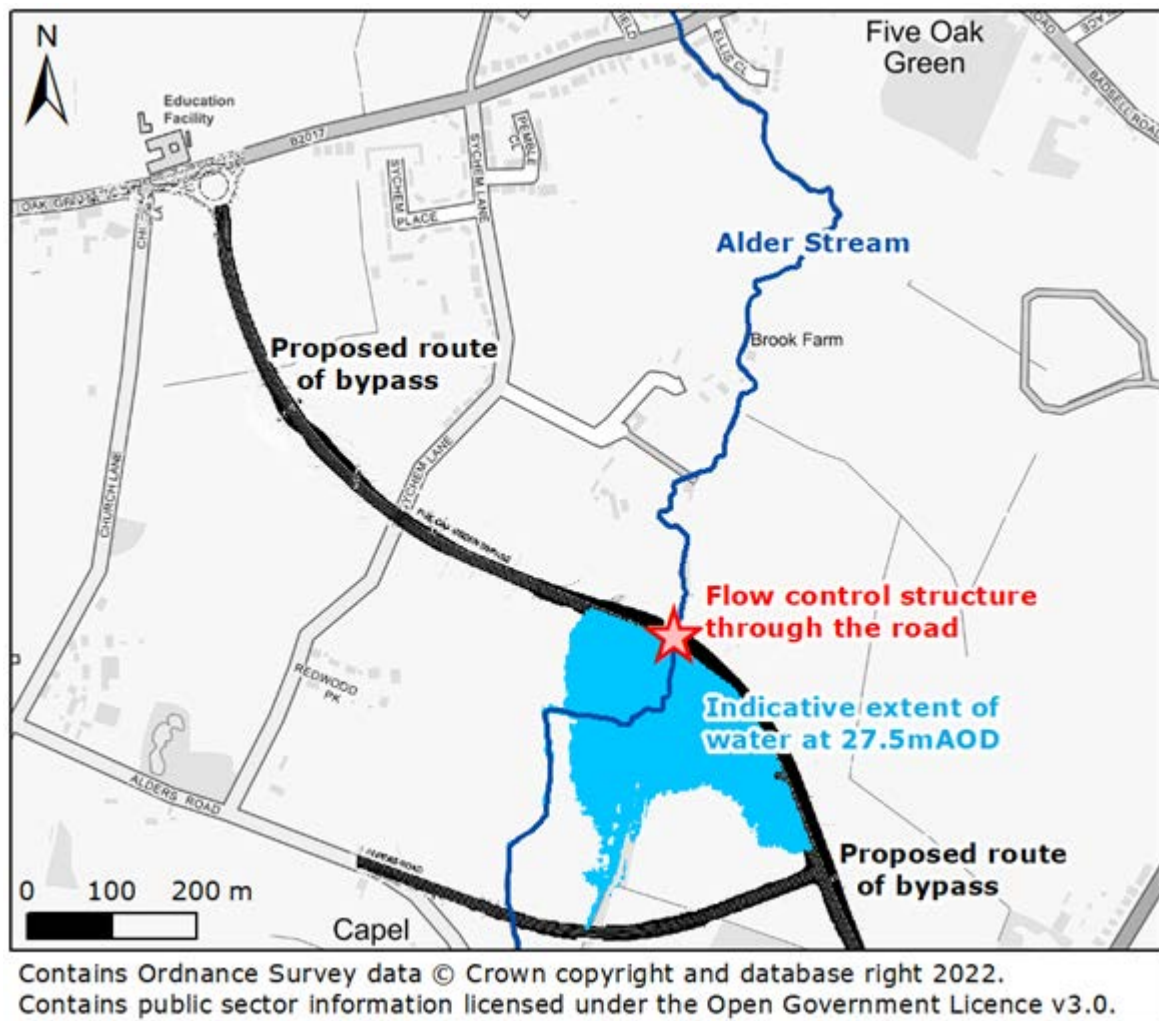
Reduction of flood risk to Five Oak Green

- 59. There are three chief ways that the delivery of the strategic site at Tudeley will reduce flood risk to Five Oak Green.
- 60. Firstly, at present, surface water flows downslope from the south to a residential area at the western side of Five Oak Green, known as Sychem Place. Hadlow Estate owns the fields to the west and south of Sychem Place, and has the ability to install measures here to intercept this surface flow – including potentially through the construction of the Five Oak Green Bypass which would run through these fields, thereby reducing the risk of this affecting Sychem Place. This is indicated in the Green Belt Compensatory Improvements Report by the Hadlow Estate at Appendix 1. The installation of such measures can be enshrined through a legal agreement attached to a grant of planning permission.
- 61. Secondly, through the installation of natural flood storage measures in the upper reaches of the Alders Stream, again on land owned by the Hadlow Estate. Some have already been installed, under the South East Rivers Trust. These reduce and delay the peak river flows within the Alder Stream to reduce the likelihood of flows overtopping the banks and affecting properties. Those which have been installed already have been found to be operating well during the flood event as reported by the South East Rivers Trust. The installation of further such measures can be enshrined through a legal agreement attached to a grant of planning permission.
- 62. Thirdly through the potential for the Five Oak Green Bypass – please see responses to questions 16 – 18 of this Hearing Statement - to provide additional flood storage. The by-pass is a direct requirement as a result of the development at Tudeley.
- 63. Additional work has been undertaken since the submission of the Local Plan on this. As explained above, a meeting was held with the Environment Agency (EA) to discuss this potential opportunity on 13 April 2022 (Appendix 2). The EA confirmed that the Five

Oak Green Flood Alleviation Scheme (please see paragraph 54 above) paragraph had not been able to be progressed as costs outweighed the benefits.

64. The 'Alder Stream flood storage at proposed Five Oak Green Bypass Technical Note' has been prepared by JBA and is attached at Appendix 3. This note confirms that there is potential to provide flood storage in this location that could provide a material benefit in reduced flood risk downstream at Five Oak Green. Essentially water would be stored upstream of Five Oak Green, with the bypass acting as the northern bund to a flood storage area, with the Alder Stream passing under it, at which point it would act as a "throttle" to the amount of water moving through it. The plan below (Plan 1) shows the extent of land that would be required to store flood water for Scenario 2 shown in Table 5-4.

Plan 1: Extent of land required to store flood water for Scenario 2



65. The note is rather technical, but it confirms that the economic benefits of providing such storage are significant. Again, taking Scenario 2 as an example, in assessing the benefits of flood mitigation in purely economic terms this could avoid over £2.5 million pounds of damages to property over a 100-year period. This could increase to around £4 million of damages to property being avoided when looked at Scenario 5 (the full extent of storage shown). Flooding of course has significant detrimental social and personal impacts as well: the note also confirms that using Scenario 2 as an example, up to 223 properties at risk of flooding could move to a lower flood risk band category as defined by the Flood and Coastal Erosion Risk Management (FCERM) appraisal guidance. This would provide a real benefit to those residents living in Five Oak Green in terms of reducing flood risk.
66. The Five Oak Green bypass will be provided by the development at Tudeley Village. Please see response to Question 17. The cost associated with the bypass, if it is to be delivered with the benefit of flood storage to the full extent possible as shown at Appendix 3, is around £11.3 million including 10% preliminaries and 20% contingency. This adds £2.4 million to the cost of constructing the bypass as a link road only; and it is noted that this additional cost has not been included within the Infrastructure Framework [\[CD 3.66\]](#) or Stage 2 Viability Assessment [\[CD 3.65\]](#). If the bypass is constructed just to store water under scenario 2, continuing with this example, this additional cost will be reduced. An updated figure can be provided at the examination if requested.
67. The EA has confirmed at the April 2022 meeting that it is an “*exciting opportunity*” to reduce flood risk to Five Oak Green and would potentially mean that the benefits would outweigh the costs. Construction of flood storage with the bypass would also provide carbon savings and efficiency savings. The EA has confirmed that it has funding for such schemes, and whilst the £2.4million cost of providing may sound significant that must be assessed against the EA’s national budget for flood defence of £430 million.
68. Accordingly, this significant opportunity that the Five Oak Green bypass could deliver in terms of flood risk improvements is one the Council is exploring further ahead of the delivery of Tudeley Village with the site promoter and other stakeholders, including with the EA. This will include consideration of whether the additional cost can be absorbed by the development without having a materially detrimental impact on viability, given the scale of contributions required.

69. In combination, the ability to reduce flood risk to Five Oak Green, which is one of the settlements in the borough most affected by flooding, through the first and second measures outline above are significant contributors to the site-specific exceptional circumstances. The exciting opportunity to deliver the substantial benefits through the use of the Five Oak Green By-pass as a flood storage, attenuation and mitigation measure is also a significant contributor to these exceptional circumstances.

Conclusions

70. The above demonstrates strong exceptional circumstances at a site-specific level, which when considered against the strategic local plan exceptional circumstances, provide justification for the release of Green Belt land in this location in line with paragraph 140 of the NPPF.

Mix of Uses and Infrastructure Requirements

Inspector's Question 9: [re. Clarity on type and quantum of different uses]

Is it clear to users of the Plan what is meant by the 'provision of employment space' and 'community and leisure facilities'? What is expected of applications for planning permission?

TWBC response to Question 9

71. The Council considers it is clear to users of the Plan what is meant by the terms 'employment space', and 'community and leisure' facilities.
72. These terms are included throughout the NPPF, and specifically in the guidance for defining Strategic Policies (paragraph 20). It is therefore considered appropriate to use the same terms within the Strategic Policy for Tudeley Village (Policy STR/SS3).
73. These terms have also been applied in light of the guidance set out by the Town and Country Planning Association (TCPA) in the delivery of garden settlements. For example, 'employment space' in the policy refers to uses that are employment generating. One of the key principles from the TCPA is providing a framework that includes a wide range of local jobs in the garden settlement within easy commuting distance of homes (see paragraph 5.226 of the Plan).
74. Further, integral to the formation of a garden settlement is the creation of a community. It is a term used throughout the TCPA guidance. These are uses that facilitate the bringing together of the local residents/employees, etc., such as community halls, libraries etc., broadly commensurate with Use Class F2 of the Use Classes Order.
75. Leisure uses are typically those uses previously covered by the former Use Class D2, i.e. uses which provide for general enjoyment and entertainment, but can also relate to local sports facilities.
76. It is drawn to the Inspector's attention that further explanation of these uses is set out within the supporting text to Policy STR/SS3. At paragraph 5.223, the Council indicates that employment opportunities will include the provision of workspaces, along with offices and workshops. Such uses fall within Use Class E(g).

77. Paragraph 5.224 sets out that community facilities including the provision of both a primary and secondary school, community hall, village green, health facilities and playing fields.
78. The use of these terms is considered clear in relation to what is anticipated at Tudeley Village. However, if the Inspector is minded to seek greater clarity within Policy STR/SS3 the Council would work positively to agree a suitable modification to the wording and could look to include detail on the anticipated employment, community and leisure facilities are outlined above at part 2b, 2c and 2f.
79. Turning to the second part of the question, and subject to the Inspector's view on the need for modifications, the Council considers that it is clear what is expected from planning permissions for the new settlement.
80. The vision for Tudeley Village is clearly set out at paragraph 5.222 of the Submission Local Plan, which is to create a sustainable and vibrant settlement.
81. The policy itself sets out clearly the requirements for the settlement insofar as it is necessary to do so. This approach reflects the recognition by the TCPA that "*a masterplan should be used as a flexible strategic framework on which a new community can grow over time*". The policy for Tudeley Village has taken this approach, setting out the key parameters for the delivery of a successful development but allowing this to evolve through more detailed masterplanning at SPD and planning application stage.
82. For example, it defines the range of uses expected to be delivered on the site to successfully support a new garden settlement, including residential, educational, sports and leisure. It also defines the scale (i.e. 3FE primary school, 6FE secondary school) or provides the necessary parameters for the scale of certain uses, i.e. the policy sets out the requirement for one main village centre and up to three neighbourhood parades comprising a range of shops, service, employment, community and leisure uses. These should be of an appropriate scale to serve the new settlement (Policy STR/SS3 part 2), rather than draw trade from elsewhere and requires evidence to demonstrate that the floorspace sought does not detract from the vitality and viability of other nearby centres (paragraph 5.222 of the Local Plan).
83. Prior to planning application(s) being submitted, Policy STR/SS3 requires a Framework Masterplan SPD to be in place. The purpose of this SPD will be to guide the preparation

of planning applications, building on the requirements of Policy STR/SS3, so they adhere to garden settlement principles and create a new community . It is anticipated that this will provide further guidance on the type and quantum of uses building upon the requirements of Policy STR/SS3.

84. Policy STR/SS3 also makes clear that development should adhere to the garden settlement principles, as set out in paragraph 5.226. This includes development being of a sustainable scale, which allows development to be self-sufficient on a day-to-day basis. It is considered the policy is therefore appropriate and clear on what to expect, and to facilitate further detail to be provided at planning application and SPD stage.

Inspector's Question 10: [re. Appropriate mix of uses to encourage internalisation of trips]

Does the Plan support an appropriate mix of uses across the site to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities, as required by paragraph 106 of the Framework?

TWBC response to Question 10

Introduction

85. Paragraph 106(a) of the NPPF sets out that planning policies should support an appropriate mix of uses within larger scale sites to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities.
86. As noted at paragraph 8.5 of the Strategic Sites Topic Paper [[CD 3.87](#)], the growth at Tudeley Village has been planned with the garden settlement principles embedded, and this expectation is set firmly within Policy STR/SS3 (Part 5). The Council's commitment to ensuring the growth is delivered on these principles has been made clear to Hadlow Estate (which is promoting Tudeley Village) from the outset, and was detailed in the original communication to all site promoters upon the formation of the Strategic Sites Working Group.
87. This objective is committed to fully by Hadlow Estate. The Inspector will note from the Estate's Delivery Strategy (December 2020, submitted as part of its Regulation 19 consultation response), that Hadlow Estate's approach reflects the 10 key garden settlement principles as set out by the TCPA (as set out at paragraph 5.226 of the Plan).
88. It is relevant to make reference to these garden settlement principles because, in line with paragraph 106 of the NPPF, to shape a new garden community one of the principles is that the new settlement should be easy to navigate and facilitate simple and sustainable access to jobs and services.
89. Policy STR/SS3 requires a number of different uses to be provided within Tudeley Village to allow for internalisation of trips. This includes a 3FE primary school, up to 10,000 sqm commercial and employment uses within a main village centre, community

and leisure uses, and outdoor sports facilities. In addition, it will provide a 6FE secondary school to serve the growth at both Tudeley Village and Paddock Wood (including land in east Capel). It is considered that these facilities will contribute significantly to the increased nature of internalised trips by non-car modes.

90. In the Access and Movement Report for the Strategic Sites, prepared by Stantec [[CD 3.66e](#)], it is assumed that the above mentioned facilities will provide for internalised trips, including 80% of all trips being internal to the primary school to 75% of trips to the local shops. We note that Hadlow Estate has even higher ambitions for the internalisation of trips, and whilst this has not been included in the Council's evidence base for robustness, the commitment to secure these higher levels is welcomed and supported.
91. Not only does the Plan require an appropriate mix of uses to provide a framework for a new settlement to support a new community, it also requires a comprehensive network of pedestrian, cycle and bus routes to be provided within the settlement (part 7a). The draft Masterplan within the Hadlow Estate's Delivery Strategy shows how this could be provided, and the Policy requires this. This is to ensure that all residents within the new settlement are able to access easily the facilities by non-car modes, further supporting an internalisation of trips.
92. A combination of these measures will ensure that, in line with paragraph 106 of the NPPF, there is an appropriate mix of uses across the site to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities.

Inspector's Question 11: [re. Phasing and Delivery of Infrastructure]

How will the phasing of development be controlled and is it clear to users of the Plan what new infrastructure will come forward and when? Is it necessary for such information to be contained in the Plan?

TWBC response to Question 11

Introduction

93. Taking the second part of this question first, the Council considers the approach to infrastructure delivery clearly sets out what will come forward as part of the Tudeley Village proposals, and broad timeframes for when this is likely to be required. This approach is considered appropriate for the Local Plan stage, based on the long-term timescales of delivering strategic sites as discussed below.
94. The Inspector will note that an Infrastructure Framework has been prepared by David Lock Associates (DLA), with Stantec, for Tudeley Village as set out in the Strategic Sites Masterplanning and Infrastructure Study [\[CD 3.66a\]](#). This provides a comprehensive schedule of the infrastructure required to accommodate the growth; not only to mitigate against the impacts on existing areas of development, but also to ensure the new development meets the Plan's policy objectives and the garden settlement principles. Three schedules have been provided: the first setting out the infrastructure requirements if both Paddock Wood and east Capel and Tudeley Village come forward (Table 11, page 132); and the second and third if just Paddock Wood and east Capel (Table 13, page 138), and Tudeley Village (Table 15, Page 142) are delivered respectively.
95. This Framework has stemmed from discussions with key infrastructure providers. The approach taken is detailed within the Strategic Sites Masterplanning and Infrastructure Study (page 106 onwards) [\[CD 3.66a\]](#) and on pages 23-27 of the Strategic Sites Topic Paper [\[CD 3.67\]](#).
96. DLA has assigned cost estimates to each infrastructure item from a range of information sources and through discussions with the Hadlow Estate in terms of on-site provision. It has also applied broad assumptions to the phasing of key items of infrastructure. It also sets out who will deliver each item of infrastructure. Please see Table 10 (page 130) of

the Strategic Sites Masterplanning and Infrastructure Study [[CD 3.66a](#)] for these broad phasing and delivery categories.

97. These costs and phasing assumptions have then been applied to the viability testing undertaken by Dixon Searle in its Local Plan Viability Assessment Stage 2 report [[CD 3.65a](#)]. As summarised in the Strategic Sites Topic Paper (paragraph. 7.4) [[CD 3.67](#)], as with all viability assessments to inform the Local Plan process, the viability model is high level. The assumptions reflect assumptions known at the time but long timescales in local plan development and implementation are likely to vary. The conclusions of this viability modelling are that the delivery of Tudeley Village is viable in line with the policy requirements in the Submission Plan (please see the Council's response to question 22 for more detail on this). Accordingly, it is considered there are reasonable prospects that the development and all associated infrastructure can be delivered through developer contributions and is not reliant on external funding – although the costs of the potential provision of flood storage to the south of the new link road has not been included, but discussions with the Environment Agency (please see response to Question 22) have indicated that it is highly likely that grant funding would be available for this. This level of information is considered appropriate for the Local Plan stage, reflecting the guidance within the Planning Practice Guidance in respect of the “*Delivery of Strategic Matters*” (paragraph 059). In line with this guidance as set out, the Plan identifies what infrastructure is required, and how it can be funded and brought forward. This position will form the basis for more refined phasing and delivery plans at the SPD and planning application stages.
98. The Council advises that the information set out in the Strategic Sites Masterplanning and Infrastructure Study is also reflected in the Council's Infrastructure Delivery Plan [[CD 3.71](#)].
99. Broad assumptions are applied to phasing (Table 10 in the Strategic Sites Masterplanning and Infrastructure Study) which includes the short term (before 2024), medium term (2025 to 2031) and longer term (2032 onwards). However, it is recognised that the delivery of Tudeley Village will be over the lifetime of the Plan and beyond. Over such a long timeframe it would be very difficult to determine precise timetables for delivery and doing so at this point in time at Local Plan stage would not be justified.

100. Notwithstanding this, in seeking to demonstrate the deliverability of Tudeley Village to the Council, Hadlow Estate has prepared a Delivery Strategy which includes a suggested Phasing Strategy for the provision of the new settlement at Tudeley Village (submitted as part of the Hadlow Estate's Regulation 19 consultation response). This anticipates that the new settlement will be delivered in six phases with a proposed approach to the delivery of infrastructure that is commensurate with the growth of community.
101. It is anticipated that this Phasing Strategy will be further considered and refined as part of the production of the Framework Masterplan SPD as required through Policy STR/SS3. This will stem from ongoing discussions with the key infrastructure providers to understand appropriate trigger points for new schools, etc. These discussions have already commenced, and the Council is developing more detailed understanding of the key trigger points for the delivery of the infrastructure in light of the anticipated housing trajectory. These discussions will remain ongoing given the long-term nature of the delivery of the strategic sites. The Council considers this is appropriate in line with the guidance in the PPG which recognises that when plans are looking for longer term growth, through inter alia, new settlements, it is recognised that there might not be certainty and / or funding for necessary strategic infrastructure at the time the plan is produced (Paragraph: 059 Reference ID: 61-059-20190315); and authorities will need to demonstrate they have engaged with infrastructure providers, ensuring that they are aware of the nature and scale of such proposals, and work collaboratively to ensure that the infrastructure requirements are not beyond what could reasonably be considered to be achievable within the planning timescales (paragraph 060 Reference ID: 61-060-20190315). Please see the signed Statement of Common Grounds with the relevant infrastructure providers (KCC, Network Rail, Southern Water, Environment Agency, NHS CCG for evidence of this [\[CD 3.68\(iv\)\]](#)).
102. However, in terms of securing this Phasing, this will be through the planning application process and secured via a planning permission and a Section 106 Agreement. This is considered the most appropriate point in the planning process to secure this detail.

Highways and Transport

Inspector's Question 12: [re. Transport Impacts along B2017]

What impacts will the cumulative level of growth proposed in the Plan have on the B2017 between Tudeley and Tonbridge?

TWBC response to Question 12

Introduction

103. The overall impact of the cumulative level of growth proposed in the Plan is an 18% increase in vehicle trips in the morning peak period (am) and 17% in in the evening (pm). This is set out on Page 7 of the Transport Assessment Report Update for the Pre-submission Local Plan 'Transport Modelling Report' (dated March 2021) (referred to hereon in these questions as the Transport Assessment (March 2021) [[CD 3.114](#)]).
104. The biggest increases in link and junction demand are along the B2017 corridor, which reflects the locations of the strategic site allocations within the Local Plan: Tudeley Village; and land at Paddock Wood and east Capel. The new trip demand stemming from the cumulative growth of all development in the Plan (but mainly the allocation at Tudeley Village) along the B2017 corridor results in a volume of additional traffic that is greater than the available capacity. Without mitigation, this has an impact on the capacity and operation of the junctions between Tudeley and Tonbridge.
105. As detailed within the Transport Assessment (March 2021), and the Local Junction Capacity Sensitivity Testing Technical Note [[PS 023](#)], the impacts are:
- a. A26 Woodgate Way/B2017 Tudeley Road/Tudeley Lane would be operating over the practical capacity (>95% capacity) in the Local Plan Scenario in both the am and pm peaks (reference Tables 9-10 and 9-12 respectively). A localised ARCADY model of this junction showed that the B2017 Tudeley Road approach arm would be operating close to theoretical capacity in the am peak reference case scenario and over practical capacity in the Local Plan Scenario. However, the junction would be operating within capacity on all other arms in all scenarios. No capacity issues were identified in the pm peak (reference Section 3 [[CD/PS024](#)- March 2022]);
 - b. Additional traffic on Hartlake Road has safety impacts along this unclassified rural link road. The junction of B2017 Crockhurst Street/Tudeley Road/Hartlake Road

would also be operating over the practical capacity (>95% capacity) in the Local Plan Scenario in the am peak (reference Tables 9-10).

- c. Additional traffic and congestion around Five Oak Green causing safety and congestion impacts, as well as impacting upon the operation of bus services.

106. These identified impacts stem from the cumulative level of growth from the Local Plan without mitigation. The mitigations required to address these impacts are addressed at Question 13.

Inspector's Question 13: [re. Mitigation of Transport Impacts along B2017]

How will the impacts of development be mitigated along the B2017 up to and including the junction with the A26? Are the measures proposed deliverable and will they be effective?

TWBC response to Question 13

Introduction

107. To address the transport impacts along the B2017 corridor between Tudeley Village and Tonbridge, the Transport Assessment (March 2021) [\[CD 3.114\]](#) has identified the following mitigation measures. In each case, the analysis has shown that the measures proposed will be effective in reducing congestion and delay, as well as improving safety.
108. Before identifying these measures, it is prudent to highlight the very significant investment identified through the delivery of the Strategic Sites for new sustainable infrastructure to achieve a modal shift away from the car and to reduce highway trip impact in the local area. As set out in the Strategic Sites Masterplanning and Infrastructure Study [\[CD 3.66a\]](#), around £40 million in new sustainable infrastructure is identified to deliver the growth at Tudeley Village and Paddock Wood and east Capel. This is in addition to further investment elsewhere in the borough as outlined in the Infrastructure Delivery Plan [\[CD 3.47\]](#). This stems from the Masterplanning work undertaken by DLA [\[CD 3.66a\]](#) as informed by the Local Cycling and Walking Infrastructure Plan [\[CD 3.115b\]](#) and the [Bus Service Improvement Plan](#). This investment, coupled with the bus and cycling links through development as required by both policies for the Strategic Sites (STR/SS1 and STR/SS3), demonstrates a commitment to achieve a modal shift from car and reduce highway trip impact on the local plan area ('Local Plan – Transport Assessment Addendum 2' (October 2021) Reference Sections 2.3 and 2.4 [\[CD PS 023\]](#)). This approach is considered entirely appropriate when planning for the delivery of a new garden settlement; the garden settlement principles as advocated by the TCPA include the promotion of public transport, walking, and cycling. The Government is clearly committed to encouraging a shift towards more active travel modes, most recently demonstrated by the establishment of Active Travel England, which will be a statutory consultee on all major planning applications: the Council is part of the first tranche of local planning authorities

working with Active Travel England. This step change in approach by the Government was in 2020, with the DfT's publication of 'Gear Change' and the Local Transport Note 1/20 'Cycle Infrastructure Design'. These two policies signalled significant change for the future of transport planning and design in the UK and the prioritisation of measures that increase cycling and walking.

109. At the outset it is also noted that these mitigation measures have been discussed in detail with both KCC Highways and National Highways. KCC Highways & Transportation agrees these are adequate to mitigate the transport impacts along this corridor. KCC also fully supports the Council's commitment to seeking to achieve a modal shift away from private car use over the plan period. For example, since the submission of the Local Plan, the Council has worked with KCC Highways & Transportation (with Tonbridge & Malling Borough council also part of these discussions) to commission a Bus Study to look at the delivery of improved bus services from Paddock Wood-Tudeley- Tonbridge. The appointed consultant has commenced work on this Study, informed through discussions with both TMBC, bus operators and KCC Public Transport team. The Council can provide a further update on this at the examination hearing.
110. Alongside the above approach, the identified mitigation measures along the B2017 corridor are:
- Highway improvements at the A26 Woodgate Way / B2017 Tudeley Road / Tudeley Lane (Reference Section 3 'Tonbridge Wells Local Plan - Local Junction Capacity Modelling Tech Note', March 2022 [[PS 024](#)], digital pages 6 – 10):
111. The mitigation at this junction has been designed to provide extra capacity on the B2017 Tudeley Road approach arm through the provision of an additional approach lane over a distance of 65m. This mitigation would achieve a significant reduction in queueing and delay on the B2017 arm to below reference case levels.
112. This mitigation can be accommodated within the extents of existing highway boundary; the land is therefore available. The provision of walking and cycling improvements will require and is under the ownership of the Hadlow Estate: the Estate has confirmed that this land would be available for the improvements.
113. This mitigation is included within the Infrastructure Framework for the Strategic Sites (Table 11, page 132 [CD 3.66a](#), A26/B2017 Roundabout), identified as an item of off-site

infrastructure required to serve Tudeley Village. £1 million has been identified within this Framework to deliver this mitigation. However, in more detailed modelling undertaken by Sweco, the cost estimate has been revised down to £500,000 to facilitate these junction works¹ [page 10 CD [PS_024](#)]. This is well within the budgeted costs which have been considered through the viability model undertaken by Dixon Searle [[CD 3.65](#)].

- Close Hartlake Road to through traffic to prevent it from becoming a significant through road, which it is not fit to be on safety grounds, as outlined above. Traffic would be rerouted via the A26, Five Oak Green/Colts Hill Bypass and the A228. (reference Table 11-7 "Key Findings from Mitigation Analysis" in the Local Plan Transport Evidence Base: Transport Assessment Report Update for the Pre-submission Local Plan' (March 2021) report [[CD 3.114](#)]. This is costed as £100,000, which, whilst not included in the Infrastructure Framework for the Strategic Sites, Dixon Searle has subsequently confirmed that this additional cost would not have a material effect of the viability of the development at Tudeley Village given the overall infrastructure costs associated with this allocation is c. £300 million.
- A new link road connecting the B2017 with the Colts Hill By-pass south of Five Oak Green (referred to as the Five Oak Green Bypass). This link road would mitigate impacts on Five Oak Green by removing through traffic on the B2017. Please see responses to Questions 16 and 17 for the justification for this new road and commentary on its deliverability.
- Localised widening of the B2017 from the south-east corner of Tudeley Village to the A26 is identified as being required in the Access and Movement Report for Tudeley [[CD 3.66e](#), paragraph 7.9.10]. The current road is around 6.3-6.4m wide. It is considered that a width of 6.75m is needed to ensure the road is safer and more resilient operationally for the volume of traffic that would be using the road and to facilitate two-way bus movements (in line with the Kent Design Local Distributor standard). This mitigation is included within the Infrastructure Framework for the

¹ It should be noted that Table 10-3 in CD [3.114](#) suggests that an additional £500,000 is required to facilitate these works in addition to Strategic Sites Infrastructure Framework sum which was identified at £1million i.e. £1.5 million in total. Accordingly, the figure in the IDP was updated to £1.5million. This is an error. The total cost is expected to be £500,000 as set out in more recent work by Sweco [Page 10 of CD [PS_024](#)] and therefore the cost identified in the Strategic Sites Infrastructure Framework which is £1million is robust.

Strategic Sites (Table 11, page 132 [CD 3.66](#), widening of B2017), identified as an item of off-site infrastructure required to serve Tudeley Village. The land required to facilitate this widening is under the ownership of Hadlow Estate which has confirmed in principle the land will be made available to facilitate this widening. This mitigation has not been included within the transport modelling undertaken by Sweco because the model indicates that the operational performance of the B2017 Tudeley Road is mainly controlled by the saturation flow of the approach at the A26/B2017 junction, rather than the link capacity. Therefore, widening the main section of the B2017 Tudeley Road will not have any significant material effect on link capacity, although it should improve the safety performance of this road.

- Mitigation in this area also includes the provision of a Five Oak Green bus gate and traffic calming through Five Oak Green. These measures will help to enhance bus services operating along the B2017 and support a modal shift (Table 10-4 in Transport Assessment (March 2021) [\[CD 3.114\]](#)). These works are included within the Infrastructure Framework for the Strategic Sites (Table 11, page 132 [CD 3.66](#)), traffic management in Five Oak Green), identified as an item of off-site infrastructure required to serve Tudeley Village

114. The abovementioned mitigation measures will be able to effectively mitigate the impacts of the Local Plan growth, as identified at Question 12, as agreed by KCC Highways & Transportation. As set out above, the costs for these measures have been identified through the Strategic Sites Masterplanning and Infrastructure Study. This forms the basis of the viability assessment undertaken by Dixon Searle which concludes that these measures can be delivered through developer contributions associated with the delivery of Tudeley Village.

Inspector's Question 1: [re. Transport projections]

Are the projections regarding future transport patterns reliable and are the conclusions robust? Do they justify the proposed allocation Tudeley?

TWBC response to Question 14

Introduction

115. The Council considers that the transport evidence base which underpins its Local Plan is reliable and robust.
116. The transport assessment applied the SATURN highway model which was developed using survey data from 2018 and 2019 (pre-Covid). The calibration and validation process, as set out in Chapters 6, 7 and 8 of the Transport Assessment (March 2021) [\[CD 3.114\]](#) report, has delivered a model that is within DfT TAG acceptability criteria. Indeed, a high level of model calibration and validation performance has been achieved, and on this basis, it is considered that the model is fit for the purpose of forecasting reliable future transport patterns (Section 8.4, page 51).
117. The methodology adopted for demand forecasting in the Transport Assessment (March 2021) [\[CD 3.114\]](#) was based on TemPRO as suggested in Government TAG guidance as the appropriate tool for such models at Regulation 19 stage and adopted within other Local Plans. Following consultation with the highway authorities (Kent County Council (KCC) and National Highways (NH, formally formerly Highways England) further analysis was undertaken using agreed TRICS trip rates. The purpose of this additional sensitivity testing was to provide all parties with confidence that highly robust traffic modelling was undertaken (reference 'TW Local Plan Sensitivity Test Addendum Report, October 2021) [\[PS 023\]](#).
118. In the TRICS analysis, all sites are assessed individually. This assumes limitless population growth and, in a strategic model, can significantly overestimate the number of new car trips generated, as it does not take into account 'pass by', 'diverted' trips or internalised trips. TRICS guidance outlines a need to consider wider issues around internalisation and local trips, modal shift and change in trip rates. Whilst the agreed trip rates included a 10% reduction in car trips for masterplan sites for the LPMS (Local Plan scenario including highways mitigation measures and mode shift from Sustainable

Transport Zone) scenario to take account of modal shift potential from investment in sustainable transport in the area, they excluded trip internalisation. Furthermore, the demand forecasting in all other modelled scenarios (RC, LP and LPH – Local Plan scenario including highways mitigation measures only) assume all development car trips are new to the area, exclude trip internalisation and exclude wider modal shift benefits of investments in masterplan areas and are therefore considered to represent a pessimistic worst case for car trip demand.

119. With reference to Table 1-2 of the October 2021 report, the results of the TRICS based analysis for the Local Plan scenarios resulted in a marginal increase in vehicles compared to the 2021 Regulation 19 Transport Assessment (reference Table 1-2). However, the analysis set out in the October 2021 report demonstrated that the change in demand did not change the overall mitigation package proposed in the March 2021 report.
120. Accordingly, the conclusions presented at the Regulation 19 stage and within the October 2021 sensitivity testing can be considered to be very robust.
121. Therefore, the transport effects of the proposed allocation at Tudeley Village are mitigated by the packages of measures set out in the Plan. In transport terms, the allocation of Tudeley Village is mitigated. It is therefore justified in transport terms to include as an allocation.
122. The Statement of Common Ground with KCC Highways & Transport [[PS 025](#)] sets out the following, demonstrating the Highway Authority's conclusions that the projections regarding future transport patterns are reliable and that the conclusions are robust:
“3.20 KCC and TWBC agree that the sensitivity testing, using TRICS combined with ARCADY and LinSig modelling of individual junctions, has confirmed that the original strategic modelling undertaken and the mitigations identified in the Local Plan Evidence Base: Transport Assessment Report Update for the Pre-Submission Local Plan (Transport Modelling report) can effectively mitigate any significant impacts from the development on the transport network in terms of capacity and congestion, or on highway safety, to an acceptable degree. These mitigations are reflected in the Infrastructure Delivery Plan”.

“3.21 KCC is satisfied that, in terms of the level of detail that is required at the Local Plan stage, the evidence is proportionate and demonstrates that the highway mitigations are deliverable. Both TWBC and KCC recognise that the transport impacts of each of the Local Plan developments will still have to be assessed through the relevant transport assessments accompanying planning applications, in accordance with the NPPF”.

“3.32 KCC and TWBC agree that the evidence base for the local plan has been subject to robust sensitivity testing, and the conclusions of this testing demonstrate that the approach taken and mitigation measures identified are – at the plan making stage - proportionate, appropriate, deliverable and accord with the NPPF. KCC considers that the transport strategy set out in the Submission Local Plan, and mitigation measures proposed, are acceptable”.

Inspector's Question 15: [re. Connectivity to Tonbridge]

How will connectivity with Tonbridge be provided for non-car modes of transport?

TWBC response to Question 15

Introduction

123. Full consideration to the provision of travel routes for non-car modes of transport between Tudeley Village and Tonbridge has been taken into account through the evidence base documents to the Local Plan.
124. Before summarising the position, the Council recognises that residents of the new settlement at Tudeley Village are likely to look to Tonbridge town centre for certain higher order facilities, and the railway station for those looking to make rail journeys towards London or possibly the Medway Towns. The Tudeley Village trip distributions for external trips are set out in Table 7.4 of the Access and Movement Report [[CD 3.66e](#)] and these indicate 11% of all external trips would be to Tonbridge centre. The Council has and will continue to proactively work with Tonbridge & Malling Borough Council in this regard as set out in the Stage 1 Matter 1 Issue 1 Hearing Statement ([TWLP_001](#)).
125. In line with paragraph 73 of the NPPF, the Council understands that, in order for new settlements to provide for a sustainable new community, it should, inter alia, be supported by the necessary infrastructure to provide a genuine choice of transport modes.
126. As set out in section 7 of the Access and Movement Report [[CD 3.66e](#)], the creation of a garden village community at Tudeley offers the chance to adopt a forward thinking approach to movement by combining transport and planning innovation to create a development where preferred travel options are to walk, cycle or choose public transport. The objective is not to promote a 'car first' attitude to development planning and instead seek to change attitudes by promoting a land planning vision that ensures the private car sits below walking, cycling and public transport in the hierarchy. This will allow the development promoter to influence how people travel externally, particularly

for short journeys to Tonbridge and Paddock Wood. It is reflective of the Council's transport and parking strategy, as set out in Policy STR6.

127. Accordingly, the Plan makes provision for both a new and improved cycle and walking link to Tonbridge town centre, along with the provision of a new and improved bus route providing fast and regular services Tonbridge, Tudeley Village and onwards to Paddock Wood (in response to the proposed growth planned in that location through Policy STR/SS1). It is a requirement of Policy STR/SS3 that the development at Tudeley Village provides good levels of permeability to encourage more sustainable modes of transport: walking and cycling linkages to be provided within the site, together with links to Tonbridge (Part 7a).

128. Each is dealt with in turn below.

Walking and Cycling Routes

129. Firstly, with regard to a cycle and walking route, the Council has a Local Cycling and Walking Infrastructure Plan (LCWIP), prepared by Phil Jones Associates [[CD 3.115b](#)]. LCWIPs are a strategic approach to identifying cycling and walking improvements required at the local level.

130. The Phase 2 LCWIP was published in March 2021 [[CD 3.115b](#)] to further develop measures to support the Council's ambitions for a shift to sustainable transport modes. This provides a full suite of measures to promote and facilitate walking and cycling.

131. Of relevance to this question is the identification and assessment of inter-urban routes. To facilitate modal shift away from the private car, it is necessary to improve and increase the availability of key routes between main settlements. Inter-urban routes are defined as "*cycling routes connecting the borough's main settlements using consistent, safe and intuitive designs to ensure that cyclists can follow the route throughout*" [[CD 3.115b](#), paragraph 5.2].

132. The methodology for identifying the key routes and undertaking a review of the routes' appropriateness for cycling and walking is set out in the LCWIP Phase 2 [[CD 3.115b](#)]. Please see section 5.3. Whilst the detail is not repeated here, the starting point in identifying a proposed network of inter-urban routes was using a combination of Propensity to Cycle Tool (PCT) outputs, the Council's previously identified routes, and

existing walking and cycling routes in the borough. The review applied the growth identified through the Local Plan and existing walking and cycling routes in the borough. The PCT E-Bike scenario was used as this provides the most ambitious scenario in terms of cycle ambition (c. 22% of all commuting trips by bicycle); improved access to e-bikes is an important consideration in the development of an inter-urban network and overcoming distance and gradient as barriers to propensity to cycle. Future development trip demand was factored into the PCT calculations to ensure that the plans reflect the anticipated increase in demand generated by these developments.

133. The PCT network focuses on the main road network. Therefore, in addition, 'non-public highway routes' were mapped including Public Rights of Way, bridleways, existing cycle routes and private roads. These routes were identified to provide alternatives to the main road network.
134. Both these outputs (PCT network and the non-public highway routes) were then mapped to provide a complete indication of the potential interurban network. See Figure 5.6, page 56 of [CD 3.115b](#). These routes then formed the basis of the site audits of the potential routes to inform PJA's recommendations. This enabled a full understanding of the on-site conditions and feasibility of progressing future routes.
135. From the above, PJA identified seven route alignments to further development to help concentrate the network. This approach will form the basis of the Inter Urban Route network, with clearly defined routes anchored by key origins and destinations in the borough [[CD 3.115b](#), figure 5.8 page 63].
136. Route D shows the proposed route between Tonbridge and Five Oak Green, through the centre of Tudeley Village. This route provides an alternative east-west link to the B2017. The proposed alignment would follow Postern Lane/Hartlake Road/Sherenden Road and Public Right of Way routes towards Tudeley Village and beyond to Five Oak Green. This is the key cycle and walking link between Tudeley Village and Tonbridge. The whole length of the route is 3.7 miles, albeit this is through to the centre of Five Oak Green which lies beyond Tudeley Village. This is within the easy cycle distance of five miles as set out in government guidance [[Gear Change A bold vision for cycling and walking – DfT, 2020](#)].

137. This comprises a series of different route typologies, including a combination of on-carriageway (Minor Roads), private routes and Public Rights of Way. It is acknowledged that access will need to be secured on the private routes, and the Public Rights of Way will require a 'Creation Agreement'. In terms of delivery, it is noted that the vast majority of the private route runs through land owned by the Hadlow Estate). The Council has also engaged with KCC's Public Rights of Way team which has confirmed its intention to help support and facilitate active and recreational travel routes in this part of the borough in response to the growth.
138. Whilst the route currently would not perform very well as a cycle and walking route, design recommendations are included to help bring this route through to delivery. The costs to do this forms part of the Infrastructure Framework which has been prepared by David Lock Associates (Table 11, page 132, cycle route west to A26) [[CD 3.66a](#)], identified as an item of off-site infrastructure required to serve Tudeley Village.
139. Alongside this route, the Hadlow Estate has identified a route which would be wholly on land in its control from Tudeley Village to Tonbridge. This would be a fall-back option if the abovementioned route could not be delivered. This is shown on Page 45 of the Delivery Strategy which was submitted as part of the Hadlow Estate Consultation Response at Regulation 19 stage. This route, which is around 2.3 km, would take around 22 minutes by bicycle.
140. It is worth noting that TWBC and Tonbridge & Malling Borough Council (TMBC) have worked closely together on the preparation of their respective LCWIPS, to ensure the proposed routes connect into the adjoining authorities and do not stop at the borough boundary. TMBC is currently consulting on its proposal for Tonbridge town centre and the routes proposed have considered the linkages onwards into Tunbridge Wells borough connecting to the linkages as shown. TWBC and TMBC remain committed to working together moving forward (paragraph 5.12 of the SoCG between TMBC and TWBC (October 2021) [[Appendix A4 of CD 3.1132c \(ii\)](#)]).

Bus Route

141. The requirement to provide high quality and high frequency bus services between Tudeley and Tonbridge is set out in the Transport Assessment (March 2021) prepared by Sweco (page 8), Table 10-4 (page 99) and Figure 10-4 (page 104) [[CD 3.114](#)].

Specific reference is made to building on the existing service 205 that links Paddock Wood, Tudeley and Tonbridge, using a mix of existing and new routing. The Infrastructure Framework [CD 3.66a] identifies that contributions will be required to deliver a rapid bus link between Tudeley Village and Tonbridge. This is identified as a general contribution to external funds that does not require physical infrastructure (Table 11, CD 3.66a). As set out above, the B2017 will be widened to facilitate buses and other such vehicles passing one another.

142. A Public Transport Strategy has been prepared by WSP on behalf of the Hadlow Estate for Tudeley Garden Village (submitted by Hadlow Estate as part of its Regulation 19 consultation response). This document presents evidence for the “*delivery of a viable scheme that offers a high quality and frequent bus service*” (paragraph 2.1.1) linking the proposed development to key locations, including Tonbridge town centre. The conclusions of this report are endorsed at a high level by KCC, and on this basis KCC has asked WSP to undertake some additional work to deliver this further.
143. TWBC and Kent County Council (KCC) (both the Strategic Planning and Public Transport teams) have been working proactively together to progress consideration of an appropriate bus link during the preparation of the Local Plan. TWBC, in partnership with KCC, has recently commissioned Jacobs to draw together more detailed proposals for sustainable bus services between key locations in the borough and in particular between Paddock Wood-Tudeley-Tonbridge town centre.
144. This work is ascertaining options for faster and more frequent bus services along the transport corridor between the Strategic Sites and Tonbridge . Use is being made of the Kent Transport Model Public Transport module to simulate high-level proposals for the routing and operation of these services. As noted above, a Bus Study has been commissioned by KCC to explore an improved route between Paddock Wood, Tudeley and Tonbridge.
145. A route into Tonbridge is being actively explored from the Tudeley Lane Roundabout (B2017/A26), which uses Tudeley Lane (presently closed to traffic) with a bus gate, Lodge Oak Road, Hectorage Road, Goldsmid Road and Priory Road with a stop for Tonbridge Station and then a return journey via Pembury Road. This is a route proposed by KCC and is intended to avoid traffic congestion on Pembury Road (into the town centre).

146. Discussions have also taken place at officer level with TMBC at a meeting on 3 March 2022. This was received positively. TWBC and KCC are keeping in close contact with TMBC colleagues about this work.
147. The work commissioned will build on the Tudeley Public Transport Strategy report which will be updated by WSP (commissioned by KCC and TWBC) to provide further assurance about the deliverability of proposed improvements.
148. In addition, TWBC has engaged fully with KCC's preparation for the [Bus Service Improvement Plan](#) for Kent and submitted details of improvements to bus infrastructure and services as set out in the IDP at paragraph 3.50 (page 30). KCC is currently awaiting a response from DfT on its BSIP submission.
149. Finally, demonstrative of the Council's commitment to working with TMBC on the impacts of Tudeley (and growth at Paddock Wood including land in east Capel) in Tonbridge – together with TMBC undertaking modelling for its own new Local Plan – the Council has contributed (together with TMBC and KCC) to the funding of a VISSIM transport model for Tonbridge. Work on this has started.

Inspector's Question 16: [re. Justification for Five Oak Green Bypass]

What is the justification for the proposed link-road to the east of the allocated site, running from the B2017 to the proposed Colts Hill bypass?

TWBC response to Question 16

Introduction

150. The need for a potential route around Five Oak Green to the A228 was identified in the Transport Evidence Report (September 2019) which informed the Draft Local Plan [\[CD 3.48\]](#), and was indicated in the Draft Local Plan (see, for example, Figure 4 Key Diagram (digital page 43 and paginated page 41) and requirement 9 of Policy AL/CA1 (digital page 163 and paginated page 162) [\[CD 3.9\]](#). At the time there two potential routes identified – one to the north and one to the south-east.
151. Following this, Stantec undertook transport work as part of the Masterplanning and Infrastructure Framework assessing the growth at both Paddock Wood including land at east Capel and Tudeley Village, from which the justification for the proposed link road to the south east of Tudeley Village, running from the B2017 to the proposed Colts Hill Bypass (referred to as the 'Five Oak Green' bypass) stemmed. Stantec prepared a two-stage access and movement assessment to inform the Local Plan. Part 1 [\[CD 3.66c\]](#) provides a Baseline Review Report for Tudeley Village, considering the key constraints and opportunities associated with future development at Tudeley. Part 2 [\(CD 3.66e\)](#) sets out the transport methodology used to assess the sites, including a forecast of trip generation and distribution of people movements expected to arise from the development, and explores how a sustainable transport vision for the site, comprising potential transport infrastructure can be delivered in a robust manner.
152. It is acknowledged that transport evidence supporting Local Plans is, by its very nature, at a higher level than at planning application stages. The Access and Movement Report acknowledges this and makes reference to the Transport Assessment carried out by SWECO which includes a detailed approach to traffic network modelling, and work by other consultants supporting the Council on matters such as walking and cycling.
153. Paragraph 2.4.6 of the Tudeley Village Baseline Review Report [\[CD 3.66c\]](#) assesses the B2017, particularly the section through Five Oak Green which it is noted is

constrained in the centre of the village. The historic nature of Five Oak Green village means that some residents are reliant on on-street parking, which narrows the carriageway to around 4.5 metres in width and this can affect the free flow of traffic along the east/west direction of the B2017 and create vehicle conflict. Furthermore, it is observed that parts of the footway network alongside the B2017 are as narrow as 0.5 metres in width, which is below the absolute minimum width for a pedestrian footway prescribed in the adopted and emerging Kent Design Guide. Finally, a number of slight and serious personal injury accidents are reported within and around Five Oak Green village, thereby emphasising the potential risk to the safety of vulnerable and vehicle users from increased traffic flows from development.

154. The increase in development traffic flow along the B2017 from the Strategic Sites will exacerbate existing constraints within Five Oak Green village, to a degree that would be considered to result in unacceptable impacts upon highway safety, capacity and amenity of Five Oak Green residents.
155. Built constraints within the village of Five Oak Green would render any 'online' improvement to the B2017 through the village, to the degree likely to be required to mitigate the adverse effects of Local Plan development, as unfeasible. Therefore, alternative routes avoiding Five Oak Green village have been explored. A scheme linking the B2017 in the vicinity of Capel Primary School with the Colts Hill bypass route was investigated, taking the form of a local distributor class route suitable to allow free flow of traffic, including buses, alongside a pedestrian and cycle route joining the same, running along the proposed Colts Hill route options. The works could also potentially include safeguards to access to Capel Primary School, which would benefit from slower traffic speeds through implementation of a roundabout junction. Further works to 'traffic calm' or restrict through traffic from using the route through Five Oak Green village, on completion of the link road, would also be necessary and these are noted within the Access and Movement Report [[CD 3.66e](#)] and included within the Infrastructure Framework [[CD 3.66a](#)].
156. In summary, it is the Council's view that the proposed link road as set out in the Access and Movement Report is justified as necessary to support the Local Plan allocation at Tudeley.

Inspector's Question 17: [re. Deliverability of the Five Oak Green Bypass]

How will the link road be delivered and is it viable? Is it required for the strategic site at Tudeley alone, or, as a result of cumulative growth with sites at Paddock Wood and east Capel?

TWBC response to Question 17

Introduction

157. It is anticipated that the link road joining the B2017 west of Five Oak Green with the Colts Hill bypass route will be delivered by Kent County Council. It is envisaged that the Council will play a role in the assembly of land for this route and will use its CPO powers if necessary. The CPO would if needed have ample justification in the public interest Paragraph 3.32 of the SoCG with KCC Highways & Transportation [\[PS 025\]](#) sets out that “*TWBC and KCC agree to the principle of working cooperatively on Compulsory Purchase Orders, if considered necessary*”. The Council has factored in the timescales for CPO into the delivery of the link road.
158. The justification for the link road is set out in Question 16. Without the link, the likely safety and environmental impacts of traffic on the centre of Five Oak Green would be significant. The link road is necessary to support the Tudeley Village allocation given no suitable alternative or logical routes exist between Tudeley and Paddock Wood/Tunbridge Wells. The potential route to the north of the B2017 was dismissed at an early stage of the masterplanning process. This was largely down to cost and engineering constraints given the bypass running to the north would need to span the railway line. A route running to the south of the B2017, as proposed, also provides the opportunity to connect to the proposed offline bypass of the A228.
159. This scheme is identified within the Infrastructure Framework as set out in the Strategic Sites Masterplanning and Infrastructure Study [\[CD 3.66a; Table 11 page 132\]](#). It is an item of off-site infrastructure intended to serve the Tudeley Village allocation. The cost of the scheme has been estimated based on outturn costs for recent similar schemes completed by Stantec UK Ltd, for a combination of National Highways and other local authority and developer schemes. The scheme is considered technically feasible, with the scheme costs being fed into the wider viability assessment carried out by Dixon

Searle [[CD 3.65a](#)]. As set out in responses to questions 11 and 22, the conclusions of the wider viability assessment are that all the infrastructure associated with the strategic sites – including the link road (as a road)– is viable.

160. For the Paddock Wood and east Capel sites (allocated through Policy STR/SS1) the link road would not be an essential requirement as other routes would exist to gain access to the A21 and Tonbridge, e.g. the A228 which would be upgraded along the Colts Hill section and onwards via Pembury. However, there is still the potential for the Paddock Wood and east Capel development to cause traffic harm on the B2017 in the centre of Five Oak Green. These developments will be expected to contribute towards the traffic control/traffic calming measures through the village of Five Oak Green to significantly dissuade traffic from using the route. It is noted that this item of infrastructure is within the Infrastructure Framework as an item of infrastructure to be met by the Tudeley Village scheme. This is an error and the Council confirms this infrastructure should be shared by both allocations (Category 10 as set out in Table 10, page 130, of the Strategic Sites Masterplanning and Infrastructure Study [[CD 3.66a](#)]). The cost associated with these measures is £200,000. This is nominal in the context of the scale of contributions sought and will not have a material impact on the viability conclusions set out in the Stage 2 Viability Assessment [[CD 3.65a](#)].

Inspector's Question 18: [re. Justification of the Five Oak Green Bypass location]

Is the location of the proposed link road justified, taking into account land use constraints, flooding, the character and appearance of the area and proximity to the Capel Primary School?

TWBC response to Question 18

Introduction

161. In transport terms, the location and route taken by the proposed link road can be justified on the basis of availability of undeveloped land, topography and minimising the length of the route.
162. The existing B2017 from the point where it joins the A228 initially takes an approximate northwest alignment, before then heading in an approximate southwest direction from the centre of Five Oak Green village towards Capel Primary School.
163. The proposed A228 Colts Hill offline bypass route, as shown at Figure 22 of the Strategic Sites Masterplanning and Infrastructure Study [[CD 3.66a](#)], passing along the west side of the Colts Hill settlement, would allow for a connection to be made to the link road route in the vicinity of Alders Road, which is logical given junctions would be necessary to link with both Alders Road and Crittenden Road/Colts Hill area. Such a link route at the location shown would be at around 1.3 kilometres long and would take advantage of the route alignment of the B2017 in shortening the link road direction by creating what on plan would appear as a four-sided square made up of the link road, the A228 Colts Hill route and two parts of the B2017 centred around Five Oak Green village. In essence, this would present the most efficient use of land and resources thereby minimising cost, energy and carbon emissions in construction and route length in operation.
164. Capel Primary School is currently located outside the confines of Five Oak Green village, on a straight section of the B2017 which experiences vehicle speed issues. The introduction of a roundabout in the vicinity of the school, as indicated on Figure 24 , page 121 of the Strategic Sites Masterplanning and Infrastructure Study [[CD 3.66a](#)] would have a slowing effect on traffic speeds and the ability to make separate access provisions for the school in a lower speed environment. Therefore, a roundabout at this

location would be seen as beneficial and not detrimental to the safety of the school staff, pupils and parents.

165. Following submission of the Local Plan, Stantec has undertaken further work to understand a more detailed route alignment based on site constraints, particularly looking at how this will connect to the B2017, proposed A228 bypass and at the Alders Road junction. This is appended to this hearing statement for reference (Appendix 4). The horizontal alignment of the proposed route avoids local Ancient Woodland. The vertical alignment between Ch0 and Ch600 (commencing at Five Oak Green and travelling south) sits close to the existing topography to reduce its visual impact. South of Ch600, the route will be constructed on a bund, which will create the north-eastern boundary of the proposed flood storage area – as set out in response to Question 8. This bund could feasibly include a landscaping scheme, as is typical for highway schemes to reduce any visual impact of the road and passing traffic.

Inspector's Question 19: [re. Robustness of Transport Evidence]

Is the evidence supporting the Plan reliable and robust? Does it take into account the indicative location of the proposed secondary school?

TWBC response to Question 19

Introduction

166. As discussed in the responses to Questions 12-14, the transport assessment and modelling evidence supporting the Plan is reliable and robust. It has consistently adopted and complied with government guidance and considered very robust trip forecasting methodology as discussed and agreed with the highways authorities. The work has been scrutinised by both Kent County Council and National Highways. The calibration and validation of the base model has been agreed with by both key stakeholders as robust enough to use in Local Plan modelling.
167. As set out in response to Question 14 the Statement of Common Ground with KCC Highways & Transport [[PS 025](#)] confirms the Highway Authority's confirmation that the evidence has been subject to extensive robust testing is reliable the "conclusions of this testing demonstrate that the approach taken and mitigation measures identified are – at the plan making stage - proportionate, appropriate, deliverable and accord with the NPPF" (paragraph 3.32).
168. In relation to education trips in the model for Local Plans scenarios, the household car trip rates set out in section 1 of 'TW Local Plan Sensitivity Test Addendum Report, October 2021) [[PS 023](#)] were derived from the TRICs which captured the education trips made by the household in am peak as the origin. Therefore, the impact of the education trips in the wider network was taken into account. The model does not look at the proposed location of the secondary school which is considered necessary at the Local Plan stage. The strategic model is not the best tool to analyse one site, such as the secondary school, in isolation. The model is made up of a small number of centroids that encompass a number of locations within them. The trip rates adopted for residential trips from TRICS reflect the different trip purposes, including education. Given the proposed site exists within an area where there is already a centroid available to represent, to create a specific school site in the model would bring little value. This level

of analysis is usually carried out as part of a transport assessment during the detailed site-specific planning stage.

Viability and Deliverability

Inspector's Question 20: [re. Infrastructure Delivery]

Is it clear to decision-makers, developers and local communities what infrastructure will be delivered, by whom and when?

TWBC response to Question 20

Introduction

169. The Strategic Sites Masterplanning and Infrastructure Study [Table 11, [CD 3.66a](#)] includes an Infrastructure Framework which sets out a full schedule of infrastructure required to deliver Tudeley Village: both in isolation or together with Paddock Wood and east Capel if the Inspector agrees that the approach to including both allocations is sound. This document is publicly available to all, including the community.

170. The Framework has been developed from a more detailed matrix which identifies the following:

- a. The anticipated phasing and dwelling delivery rate for both the proposed allocations in Paddock Wood and east Capel, and at Tudeley Village. This is further refined to identify:
 - i. Paddock Wood and east Capel only;
 - ii. Tudeley Village only;
 - iii. For Paddock Wood and east Capel, which elements of infrastructure fall solely on which developer; and
 - iv. Which infrastructure is shared and by whom?;
- b. Those infrastructure requirements that are on-site;
- c. Those infrastructure requirements that are off-site;
- d. An indication of who is expected to pay and where appropriate via what mechanism (such as s.106 /278 agreement, development costs etc).

171. This matrix has been shared with the key developers and site promoters, including Hadlow Estate in respect of Tudeley Village, and has been used to inform the viability

assessment undertaken by Dixon Searle [[CD 3.65a](#)]. This is enclosed at Appendix 5. This provides clarity to both the decision makers and developers as to what is expected of them, both individually and on a shared basis, and when it is anticipated that key strategic infrastructure will be delivered.

172. With regard to shared infrastructure, it is recognised by both the Council and the developers that there will need to be a mechanism to enable the costs to be shared on an equitable basis. Active discussions are underway with all the key site developers and site promoters to establish the principles for cost sharing to enable this to be incorporated into relevant planning agreements at the planning application stage. Please see the signed Position Statement between the principal site promoters at Paddock Wood and east Capel; and Tudeley Village. This Statement demonstrates the large measure of consensus that exists between those parties on the delivery and shared funding of the infrastructure requirement aspects of the proposed strategic site allocations. This consensus underpins the soundness of the proposed allocations and sets out a number of principles as the foundations for the funding and delivery of shared infrastructure. This is appended to the Matter 6, Issue 3 Hearing Statement (Appendix 1) [TWLP/024].
173. The matrix and the Framework both apply broad phasing assumptions. As set out in the Council's response to Question 11, this is considered to be an acceptable approach for the Local Plan. The Planning Practice Guidance (paragraph 059) acknowledges that where plans are looking to plan for longer term growth through new settlements, it is recognised that there may not be certainty and/or the funding secured for necessary strategic infrastructure at the time the plan is produced. In these circumstances strategic policy-making authorities will be expected to demonstrate that there is a reasonable prospect that the proposals can be developed within the timescales envisaged. The Viability Assessment prepared by Dixon Searle referred to above [[CD 3.65a](#)] provides this confidence that the infrastructure and broad phasing assumptions can be delivered.
174. The Infrastructure Framework is explicitly referred to in Policy STR/SS3 (Part 12). This states that developer contributions will be sought as set out in the Strategic Sites Masterplanning and Infrastructure Study [[CD 3.66a](#)]. It is therefore clear to all parties and the community what infrastructure is required.

175. The Strategic Sites Infrastructure Schedule has fed into the Infrastructure Delivery Plan. This sets out who is responsible for delivering each item of infrastructure [, Appendix A pages 120-128, and 132-136, [CD 3.47](#)].
176. It is therefore the Council's view that it is clear to decision makers, developers and local communities what infrastructure will be delivered, by whom and in broad terms, when. It is considered appropriate for the latter point (when) to be refined at SPD, and then planning application stages given the long-term nature of the delivery of this new settlement.

Inspector's Question 21: [re. the need for a SPD]

What is the justification for requiring a Supplementary Planning Document ('SPD')?

TWBC response to Question 21

177. A Framework Masterplan for Tudeley Village, to be taken forward as a Supplementary Planning Document (SPD), is considered to be justified.
178. Policy STR/SS3 sets out the parameters and principles for development at Tudeley Village. The SPD will be expected to build upon and provide more detailed advice and guidance to show how the policy requirements will be delivered. This reflects the guidance within the Planning Practice Guidance on the role of SPDs ([paragraph 008 Reference ID: 61-008-20190315](#)). Such guidance will include details on design (including production of Design Codes as advocated by the NPPF, paragraph 129), phasing and connectivity and movement, for example.
179. SPDs are considered an important element in delivering the growth against garden settlement principles and developing detail on a number of measures as set out in the policy. These will be delivered in close conjunction with Hadlow Estate, to reflect ongoing detailed technical studies which it will carry out, and to facilitate further engagement with the local community.
180. As set out in the Strategic Sites Topic Paper [[CD 3.67](#)], Policy STR/SS3 has been formulated to identify the broad parameters of development and the key infrastructure requirements. It does not seek to stipulate a fixed blueprint for the settlement to come forward, recognising the policy needs to be effectively applied to facilitate planning applications to come forward. More detailed guidance is considered appropriate through an SPD, which will be a material consideration in the determination of planning applications.
181. The SPD will also provide an opportunity for the consideration of how the development will relate to the neighbourhood development plan being produced by Capel Parish Council. The Council has been liaising heavily with the Parish Council on the initial stages of the neighbourhood development plan.

182. The purpose of the SPD is set out in the LDS (pages 29 – 31) [[CD 3.143](#)]. The Council is in early discussions over the form and scope of the SPD for the delivery of a new settlement at Tudeley Village. As set out in the Statement of Common Ground between the Council and Hadlow Estate [[CD 3.139](#), paragraph 2.52] both parties are committed to working proactively to bring forward a SPD in accordance with the parameters of Policy STR/SS3.

Inspector's Question 22: [re. Viability of Tudeley Village]

Based on the necessary infrastructure requirements, is the allocation viable?

TWBC response to Question 22

Introduction

183. Yes, the evidence base confirms that the Tudeley Village allocation is viable and accordingly can be delivered along with all the required mitigation within the plan period.
184. Highly experienced consultancy Dixon Searle Partnership (DSP) was commissioned by TWBC to prepare a two-stage viability assessment to inform the Local Plan, ensuring the policies within the Plan are viable. Stage 1 [\[CD 3.54a\]](#) focused on the policies and standards both in the Local Plan, and set nationally, that may have cost implications for development, including affordable housing provision and standards. Stage 2 [\[CD 3.65a\]](#) includes a specific review of the viability of the strategic site allocations, including Tudeley Village, considered to be key to the overall delivery ambitions of the Plan, whilst also reflecting, where necessary, adjustments to policy/other changes since the publication of the Stage 1 report.
185. The Council recognises that the strategic sites, such as that being promoted at Tudeley Village, play an important role in the delivery of sustainable housing to meet the needs of the local plan area over the plan period. Reflecting this, it is recognised as important that there is confidence in their deliverability, as failure to deliver would have significant implications on the housing land supply. The findings drawn from the DSP assessment work have been a key aspect in the Council's ongoing considerations and in reaching the conclusion to include this allocation in the Local Plan. It would not have been appropriate to continue pursuing the site's allocation if the scheme were not deemed capable of viably delivering policy-compliant measures, including key infrastructure and affordable housing, or if they cannot generate a suitable level of landowner and developer return in the longer run (without which there would be insufficient incentive to build).
186. Building on the Stage 1 principles, details of the approach taken and key assumptions used by DSP in considering the viability prospects for this site are set out in the Stage 2

report [\[CD 3.65a\]](#) and not repeated here. DSP worked closely with David Lock Associates (DLA) following the preparation of the Infrastructure Framework and associated cost schedule required for the delivery of both Strategic Sites [\[CD 3.66a\]](#). DLA and DSP worked collaboratively whilst also in dialogue with the Council over the assumptions, sharing information in a positive and expeditious manner. This allowed for continuity of approach to both the masterplanning work and associated viability assessment.

187. As with all viability assessments to inform this stage of the Local Plan process, the viability model is by its very nature high level. The assumptions in the model reflect the policy and strategy direction of the Council as well as estimated/anticipated development values and costs more widely, using information as far as available at the time of undertaking the assessment. It is acknowledged by DSP that, as with all viability assessments, small changes in assumptions can have a significant individual or cumulative effect on the residual land value and therefore on the indicative surplus/deficit outputs generated. This is all in the context of the long timescales in local plan development and implementation over which the economy, development climate and related matters such as on national policy or other external influences are very likely to vary.
188. DSP was able to take the detailed schedule of costs that has been derived from the infrastructure framework prepared by DLA and input this into its viability model. It was an iterative process between DLA and DSP to reflect changes to the schedule as they emerged. From this, DSP ran the model alongside a number of sensitivity testing scenarios, including on the quantum of development and overall housing mix as set out in the report.
189. The assumptions that have been inputted into the model have been considered specifically but also reflect consistency with other Local Plan viability assessments. For example, the housing mix and sizes as set out in the Strategic Housing Market Assessment [\[CD 3.24\]](#); sale prices as assessed on overviewing available data from recognised sources (including Land Registry and more specific research); BCIS average build costs; and the assumed delivery and delivery trajectory/phasing as set out in Sections 4.0 and 5.0.

190. The viability assessment uses the well-established principles of residual land valuation, again consistent with wider experience of this process as taken through numerous local plan examinations. This considers the value indicated as remaining for land purchase (hence 'residual') once all the estimated costs of development (including infrastructure and affordable housing) have been deducted from the gross development value (sales revenue), having also taken into account finance and a reasonable level of developer return.
191. The influence of a representative benchmark land value (BLV) also needs to be considered within this analysis, reflecting the existing use value (EUV) of the land plus a landowner's premium as per the viability in planning principles, set out in the Planning Practice Guidance (PPG) and included within the assessment reporting. For these appraisals (informing the strategic sites element of the viability assessment), the indicated BLV of £250,000/ha (the key assumption level of BLV) has been applied to the gross (whole) assumed site area in an approach that is again consistent with experience and considered appropriate. This land cost is reflected as a fixed cost within the subject appraisals, so that the presented outcomes are set out having allowed for the BLV and indicate the resulting surplus (or deficit) level associated with each appraisal iteration (equivalent to residual land value (RLV) minus benchmark land value (BLV)).
192. Owing to the need to make a wide range of assumptions and set out related outputs in monetary terms, the nature of the viability assessment process is such that the numbers all appear very specific (to the single pound or similar). In reality, as has been acknowledged, there is a false level of accuracy implied by the specific figures at that level when looking at appraisal ingredients and findings at this stage as opposed to reviewing with the benefit of delivery (decision making) stage details in due course. The Council is aware these results remain high-level indications based on the current assumptions, but nonetheless appropriately gauged and with sensitivities explored. These are likely to change, as expected with any such review and with variances looking potentially large; and particularly when considering site proposals of this scale. The timescales over which the delivery of these sites is scheduled to take place means the overall/end result cannot possibly be known precisely at this stage. Rather, the findings of any viability process at such a stage can indicate a likelihood of deliverability, as has been the case here.

193. As indicated in the Stage 2 Report and summarised in the Strategic Sites Topic Paper [\[CD 3.65a\]](#) (paragraphs 7.10 to 7.16), DSP ran the viability model using the identified infrastructure schedule provided by DLA, which is considered robust and was itself informed by close liaison with infrastructure providers, and details a full list of items to ensure the creation of sustainable settlements with garden settlement principles embedded.
194. The appraisals were used to look at varying affordable housing provision as part of informing, alongside and in balance with the Council's housing needs information, the most appropriate approach to take in policy terms given the circumstances overall. This included the policy compliant 40% (60:40 tenure split (social rent: intermediate), along with looking at both 30% and 40% affordable housing proportions with various tenure splits.
195. The findings show overall that the Tudeley Village proposals have realistic prospects of viable delivery when considered in the round, as is appropriate. Accordingly, the Council is as confident as it can be at this stage that the proposed Strategic Site at Tudeley Village is deliverable in viability terms in the context of the Local Plan policies, including the target of seeking 40% of new homes to be affordable (with a 60:40 tenure split). This means the site can be delivered without relying on external funding.
196. It is noted that this position is agreed by Hadlow Estate in the signed Statement of Common Ground [\[CD 3.139\]](#) at paragraph 3.9.

Landscape and Heritage

Inspector's Question 23: [re. Setting of AONB]

The AONB Setting Analysis Report² identifies areas of 'high' and 'medium' sensitivity within the allocated site. In the area of high sensitivity, the Report states that development without mitigation is likely to harm the setting of the High Weald AONB. How is this reflected in the Plan? What potential impacts will the allocation have on the setting of the AONB?

TWBC response to Question 23

Introduction

197. The AONB Setting Analysis Report [CD 3.95a] identifies that development at Tudeley could **potentially** “adversely affect the setting to the AONB – if **no mitigation** is put forward” with particular reference to “development on the high ground to the south of the site, adjacent to the B2017”.

198. The sensitivity across the proposed allocation site is shown on plan T3 [CD 3.95c, last page] with most having a low sensitivity, with some areas to the south and north having medium sensitivity and with a narrow strip along the south/south west boundary having a high sensitivity. Both areas of medium and high sensitivity may, without mitigation, harm the setting of the AONB and so in these areas the design will need to respond to the issues identified.

199. The report noted [CD 3.95a paragraph 4.2.19] that the site is predicted to have “lower landscape and visual effects” than might be expected owing to the:

- a. strong landscape structure;
- b. fall in landform away from the AONB; and
- c. impression of settlement edge from existing dwellings along the B2017 (see view points 3 and 6).

² Core Document 3.95a

200. The key concern, the high ground to the south of the site, is highlighted in paragraph 4.2.20 as this area contributes most to the setting of the AONB as a result of its topography characteristic and intervisibility with the AONB.
201. The sensitivity of the southern boundary was recognised in early considerations of this site as the AONB boundary follows the southern side of the B2017 and so it was important to avoid development south of the B2017 and to retain and enhance the character of the B2017.
202. The report suggested design measures for the southern part of the site that would reduce predicted effects (at paragraph 4.2.23) which includes:
- a. setting development back from the AONB edge, particularly at the junction between the B2017 and Sherenden Road to maintain view corridors across the landscape to the north of the AONB boundary;
 - b. the use of characteristic structure planting including hedgerows and tree belts to assimilate development with the landscape; and
 - c. where new development is proposed in association with existing housing along the B2017, ensure that the new built form has a positive vernacular taking cues from the existing buildings and High Weald Design Guide.
203. The same paragraph suggested further measures, including a landscape-led approach to design following appropriate design guides, careful consideration of the setting of historic buildings, and protection and enhancement of the character of the B2017. A particular suggestion was to “*protect views and vistas back towards the AONB (see photographs T4 and T8-T10)*”.
204. The masterplan and policy embrace these suggestions and the responses to date can be further secured through the Framework Masterplan required by Policy STR/SS 3. Particular criteria of the policy will specifically help address these issues including the requirement to:
- a. give consideration to the key landscape characteristics, views, and the setting of the High Weald Area of Outstanding Natural Beauty (Part 7b);

- b. give particular respect to the setting of heritage assets, especially All Saints Church (Part 7c); and
- c. submit applications to a Design Review Panel.

205. The report notes at paragraph 4.2.5 that “if these measures are undertaken it is possible that the proposed allocation could be achieved without significant harm to the setting of the High Weald AONB”. The Council concurs with that view and suggests that, with the policy in place and the information provided to date, there can be a high degree of confidence that the proposed garden settlement at Tudeley can be delivered without significant effect on the setting of the AONB.

206. It is notable that Natural England, as recorded in the Statement of Common Ground [[CD 3.132 c\(v\)](#) pages 115 to 161] does not object to this allocation (paragraph 9.23).

Inspector's Question 24: [re. Visual separation between Tudeley Village and Five Oak Green]

How will the allocation ensure visual and physical separation between Tudeley Village and Five Oak Green?

TWBC response to Question 24

Introduction

207. The physical and visual relationship between the settlements of Paddock Wood, Five Oak Green and Tudeley Village in the context of the proposed strategic development has been a consideration of the development strategy and the policies for these sites. In proposing the strategic allocations at Paddock Wood and Tudeley Village the Council, mindful of the likely effects on the settlements, informed by the Green Belt and other studies, decided not to allocate land at Five Oak Green for development so as to not diminish the separation between settlements further and has in particular sought through the Plan to retain physical and visual separation between Five Oak Green and Tudeley Village.
208. The Green Belt Study Stage 2 identified 2 parcels to the west of Five Oak Green, FG1 and FG2 [[CD 3.93 b\(iii\)](#)] and noted that a key consideration was the “*relationship between settlement and countryside and role in settlement gap between Tonbridge and Paddock Wood*” (page 18). For FG1, north of the B2017, the report concluded a weak or no contribution to Green Belt purposes other than for safeguarding the countryside where it concluded a moderate contribution (page 28). For FG2, south of the B2017, the report concluded much the same save for safeguarding encroachment it concluded a relatively strong contribution.
209. The allocation at Tudeley is north of the B2017 and therefore closest to FG1. The allocation has been sensitive to these findings and the policy approach has been to seek to strengthen the Green Belt in this area.
210. The Green Belt Study stage 3 [[CD 93c](#)] does acknowledge that “*without mitigation*” the allocation at Tudeley village will “*weaken the strength of the separation between the inset edge of Tudeley Village and the existing inset edge at Five Oak Green*” but would still “*provide a level of distinction between the two settlements*” (paragraph 4.114). The Green Belt Study goes on to consider mitigation and notes the positive measures within

the policy and in particular Part 7f of Policy STR/SS 3. which specifically addresses this issue:

“the design should incorporate means to ensure there is appropriate visual separation between Tudeley Village and Five Oak Green, including potentially the use of structural planting on land outside of the allocation, but within the wider land ownership”;

211. The Green Belt Study stage 3 suggests other further mitigation measures and suggests the use of “open space and locally characteristic planting within the allocation site to the east to reduce impact on perceived separation between Tudeley village and Five Oak Green” (paragraph 4.122) and in reviewing the draft masterplan document (paragraph 4.125) notes that placing the secondary school and its associated playing fields to the east of Tudeley Village would “help reduce the impact on perceived separation between Tudeley Village and Five Oak Green”.
212. As can be seen from Map 32 Tudeley Village Plan (SLP page 161) the proposed secondary school and the playing fields is placed at the eastern end of the allocation where it complements the existing primary school and there is as the map shows, especially adjacent to the B2017, a significant amount of green space within the allocation all which follows the Green Belt study recommendations and will assist in retaining the separation between settlements.
213. The need to maintain physical and visual separation between Tudeley Village and Five Oak Green has been an ongoing consideration which is reflected in the overall strategy for development, the site-specific policy and the draft masterplan. Land around Five Oak Green and the Tudeley Village allocation will also remain in the Green Belt so as to preserve the remaining openness with some areas further restricted by being within Flood zone 3.
214. In addition, Hadlow Estate controls a significant amount of land outside the allocation boundary between the allocation boundary and the inset edge of Five Oak Green both to the north and south of the B2017. This has enabled the Hadlow Estate to propose compensatory improvements to the remaining Green Belt land that they control that will further protect and reinforce the separation between Tudeley Village. As set out in the “Green Belt Compensatory Improvements” report submitted by the Hadlow Estate (Appendix 1) these proposals include:

- Creation of a community Woodland between the propose secondary school and the existing primary school (page 7 Plan 3).
- Landscape enhancements to the south of the B2017 (page 8 Plan 4).

215. These additional measures will ensure that the allocation at Tudeley Village will maintain the physical and visual separation between Tudeley Village and Five Oak Green so that they remain as separate settlements and will be perceived as such.

Inspector's Question 25: [re. Impact on Heritage Assets]

What potential impacts will the proposed allocation have on the significance of designated heritage assets, having particular regard to the Grade I listed Church of All Saints' and Grade II listed buildings at Bank Farm and Lilley Farm? How have heritage assets been taken into account in the preparation of the Plan?

TWBC response to Question 25

Introduction

216. Turning first to the second part of this question, heritage assets have been taken into consideration from the outset of the preparation of this Plan. The Council's response to Question 3 under Matter 5, Issue 1 (Site Selection Methodology) [TWLP/021] sets out how the Council has considered the effects of development on heritage assets in the formation of the Plan and confirms that the historic environment of the borough has been fully recognised and respected throughout the Local Plan preparation. The detail is not repeated here, but reference is made to the key points below.
217. Following the Council's Call for Sites exercise, the Strategic Housing and Economic Land Availability Assessment (SHELAA) [[CD 3.77](#)] has provided assessments on the suitability (and availability) of the individual sites submitted. As part of this assessment on suitability, heritage assets were considered. Sites with particular heritage sensitivities were considered in consultation with the Council's Conservation and Urban Design Officer who has played an ongoing and proactive role inputting into these site assessments throughout the plan-making process. It is noted that, for the consideration of the Tudeley Village sites (see site 448), heritage is recognised as being a key matter that needs addressing; especially regarding All Saints Church which is Grade I Listed. However, the SHELAA concludes that with a masterplanned approach to development it is considered the effects of the development on this and other heritage assets can be mitigated [[CD 3.77e](#)].
218. Heritage also forms a principal consideration in the assessment of development options through the Sustainability Appraisal [[CD PS 013](#)]. Again, it is noted that all three scales of settlement at Tudeley Village would have similar significant effects on the setting of All Saints Church, and other heritage assets in the area, scoring 'negative' in the

Sustainability Appraisal scoring scale (Table 28). However, as with the SHELAA, it is considered the masterplanning approach to development can ensure a strategy for enhancements is realised.

219. Following the conclusions reached within both the SHELAA and Sustainability Appraisal, the Council's Conservation and Urban Design Officer provided an assessment of the impact of a new garden settlement at Tudeley Village on the heritage significance of a number of heritage assets in and adjoining the site in May 2020 (this assessment is referred to within the subsequent versions of the Sustainability Appraisal published thereafter). The purpose of this note was to inform the emerging masterplanning of Tudeley Village to inform the Regulation 19 Plan. This note is included at Appendix 6.
220. The heritage assets assessed include the grade I listed All Saints Church, the five grade II listed headstones in the churchyard, the grade II listed Church Farmhouse and the historic farmstead to which it belongs (a non-designated heritage asset), the grade I listed Somerhill and grade II registered Somerhill Historic Park. This concluded the following and was based on Historic England's guidance on impact on setting, [GPA3 'The Setting of Heritage Assets'](#), and on [managing significance \(GPA2\)](#):
- a. The development is likely to adversely impact on the significance of the Church of All Saints due to close proximity, prominence and competition, permanence of the development, and changes to the character of the area.
 - b. The development is likely to have an adverse impact on the heritage significance of the gravestones due to their contribution to group value as part of the setting, in turn, of the church, and the tranquil setting.
 - c. The development is likely to have an adverse impact on the grade II listed Church Farmhouse and farmstead because of the group of buildings' unusual close historic link with the church and the appreciation of the very rural set piece of a farmstead being located directly adjacent to a Parish Church.
 - d. The development is likely to affect the historic, aesthetic and communal values of Somerhill and its registered Historic Park and a Garden, due to the change of character of the agricultural land that has historically served the estate, and views from the Historic Park and Garden to Tudeley.

221. In terms of the impact on Lilley Farm and Bank Farm, these assets were not considered as part of the 2020 assessment, but the Council's Conservation and Urban Design officer concludes that there is likely to be harm to heritage significance of the listed buildings in these farmsteads, and the farmsteads themselves as non-designated heritage assets, due to the change in character of the rural, agricultural land surrounding them historically and with which they have a functional and visual relationship.
222. This advice has informed the shaping of the draft Masterplan included within the Hadlow Estate's Delivery Strategy (submitted as part of its Regulation 19 consultation) which has been subject to ongoing discussions with the Council. Indeed, the Masterplan has been amended with particular regard to the layout of the potential street scene in the development parcel running to the south of All Saints Church. The assessment appended has facilitated ongoing and collaborative discussions in this regard. These discussions will continue as the Hadlow Estate progresses its Masterplan as part of the preparation of a Framework SPD and pre-application discussions.
223. It is acknowledged by the Council in both the SHELAA and Sustainability Appraisal, and the note appended, that the development may have adverse impacts on some heritage assets. However, in understanding the heritage value of these assets it can continue to engage proactively with Hadlow Estate on the masterplanning to ensure any harm to these assets can be mitigated appropriately. The Council is also satisfied that the public benefits of delivering a new settlement would outweigh any identified harm in line with the NPPF (paragraph 202).
224. In this respect it is noted in the Plan that the borough is rich in historic features, and has a significant breadth of designated and non-designated heritage assets, including 2,250 listed buildings, 25 conservation areas, scheduled ancient monuments, historic parks and gardens, agricultural buildings and farmsteads, historic routeways, medieval field patterns, and ancient woodland. The features of the historic environment fall under themes that are particular to the borough, and are identified in the borough's Historic Environment Review [\[CD 3.100\]](#). It is therefore likely that the delivery of a significant strategic site, at any location within the borough, will impact upon heritage assets and need to be masterplanned accordingly.

225. Policy STR/SS3, part c) requires development to pay regard to the setting of heritage assets, especially All Saints Church. This provides a positive strategy for conservation of the historic environment, and provides an opportunity for the contribution of this historic environment to shape the character of the new settlement in line with paragraph 190 of the NPPF. It is noted that in the signed Statement of Common Ground between the Council and Historic England [CD 3.132b(v), page 79], includes the following acknowledgement demonstrating acceptable by Historic England of the Council's approach (paragraph 4.17):

“The proposal for a new settlement at Tudeley Village is another main area of interest of Historic England in view of the heritage assets and specifically the Grade I Listed Church. It notes the initial heritage assessment undertaken by TWBC and its masterplanning and delivery work undertaken to date, as well as that by the Hadlow Estate. It is pleased that the policy has a strong protection and enhancement element, with specific reference made to the setting of heritage assets, especially All Saints Church”.

Other Material Planning Considerations

Inspector's Question 26: [re. Flood risk at Tudeley Village]

Does any of the proposed allocation fall within areas at risk of flooding, taking into account all sources of flood risk and climate change?

TWBC response to Question 26

Introduction

227. Parts of the proposed allocation do fall within areas at risk of flooding. However, the proportion of site within areas at risk of flooding both now and in the future with the predicted effects of climate change are relatively small, and so the proposed allocation is considered deliverable.

228. The proposed allocation has been considered at both the Level 1 SFRA stage, and more recently Hadlow Estate has undertaken a Flood Risk and Drainage Review which was submitted at Regulation 19 stage. This review, prepared by WSP, confirms that in principle a comprehensive surface water drainage strategy can be delivered so that the rate of runoff from the site can be limited to appropriate values. The review also identified that opportunities existed to improve and protect the existing green and blue infrastructure as part of the SuDS design. The scope of a Flood Risk Assessment prepared for the site would need to include full detailed consideration of the provision of appropriate SuDS features and these would need to be harmonised so that they also addressed surface water flood risk (in particular overland flow paths and storage volumes).

229. The Level 1 SFRA, prepared by JBA Consulting, considered the land at Tudeley Village, and assessed flood metrics for all sources of flooding. The assessment [[CD 3.44a](#)], Table 13.1, Site 448, and also via SFRA Appendix mapping [[CD 3.44b](#)]) identified the following key points:

- a. Over 75% of the site (SFRA proportion banding of 75-100%) is outside of the area at risk of surface water flooding in the 0.1% AEP event. While surface water mapping has not been prepared for climate change scenarios of predicted increases in peak rainfall intensity, the relatively small proportion of the site predicted to be flooded by the 0.1% AEP event provides a sensible proxy for the

impacts of climate change in the 1% AEP event. On this basis the impacts of climate change on rainfall intensity would not materially alter decision-making with regards to the proposed allocation.

- b. The majority of the site is located within Flood Zone 1, with a small proportion of the northern part of the site located within Flood Zones 2 and 3a. The indicative masterplan which has been prepared by Hadlow Estate in its Delivery Strategy (a simplified version shown on Map 32 of submission Local Plan) shows that the limited area of floodplain associated with the River Medway is capable of being avoided other than for green open spaces and water compatible uses.
- c. Fluvial Flood Zone mapping is not available for the ordinary watercourses on the site. However, the surface water mapping provides a sensible proxy for fluvial flood risk, and so the relatively small proportion of the site predicted to be flooded by the 0.1% AEP surface water event indicates that fluvial flood risk from ordinary watercourses would not materially alter decision-making with regard to the proposed allocation.
- d. The influence of climate change on Flood Zone 3a was not predicted to significantly change the proportion of land outside within Flood Zones 1 and 2.
- e. The area of the site susceptible to groundwater flooding is predicted to be small (Areas Susceptible to Groundwater Flooding proportion bandings of '0-25%' or 'No risk').
- f. The area of the site which the risk of flooding from reservoirs intersects is small (SFRA proportion banding of 0-25%) and confined to the northern extent of the site, with extents similar to those of Flood Zone 2.
- g. Only one historic incidence of reported flooding was identified, located at Sherenden Road (no further details are available of the source or scale of flooding). This is also noted in the Hadlow Estate Flood Risk and Drainage Review document.

230. Having established that the proposals will involve development at locations where there is a risk of surface water flooding, it would be appropriate to consider that the Exception Test should be addressed and that a detailed FRA will be required to demonstrate that

development can be implemented safely and not result in adverse consequences during surface water flood events.

231. Hadlow Estate is a longstanding local landowner and controls a significant amount of land outside the Tudeley Village development boundary. The Estate has confirmed its intention to help facilitate betterment to the communities at Five Oak Green through strategic interventions it can provide on its land within the upstream catchment of the Alder Stream to help reduce flood risk downstream, and through reducing surface water flooding to western parts of Five Oak Green, for example Sychem Place.

Inspector's Question 27: [re. Railway Station at Tudeley Village]

Map 32 of the submission version Local Plan shows a 'potential train station site' within the allocation. What is the latest position regarding the potential for a new station at Tudeley Village? Is it a requirement of the allocation?

TWBC response to Question 27

Introduction

232. The railway line between Ashford and London Charing Cross runs through the proposed Tudeley Village allocation. Accordingly, the development provides the opportunity for a new railway station to be delivered at Tudeley Village, linking to both Tonbridge and Paddock Wood.
233. As set out in the signed Statement of Common Ground between TWBC and Network Rail [[CD 3.132b\(ii\)](#), page 167], it is accepted by TWBC that at this time Network Rail does not consider there is significant merit or scope for providing a new station in this location due to: its proximity to existing stations; proposals for enhanced bus and cycle routes; and impacts on the existing network, including track capacity and existing passengers.
234. Accordingly, the delivery of a station is not anticipated during the plan period, and provision of a station has not been included in the Council's considerations of this site through the Sustainability Appraisal, or in terms of planning merits or infrastructure requirements. The allocation for Tudeley Village is considered appropriate without a railway station.
235. The delivery of a railway station is a long-term aspiration of Hadlow Estate, recognising the benefits this would bring to the new settlement at Tudeley Village. It is recognised by both TWBC and Network Rail in the SoCG that the Tudeley Village masterplan makes provision for a station to be accommodated in the future, if this can be realised, to ensure the development does not preclude this - if the viability and merit of the proposal changes. The reservation of land for this purpose within the Tudeley Village masterplan does not affect the delivery of the 2,800 homes envisaged or the associated on-site infrastructure.

Appendices

Appendix 1: Hadlow Estate Green Belt Compensatory Improvements Report

Green Belt Compensatory Improvements

to support the development of
TUDELEY VILLAGE

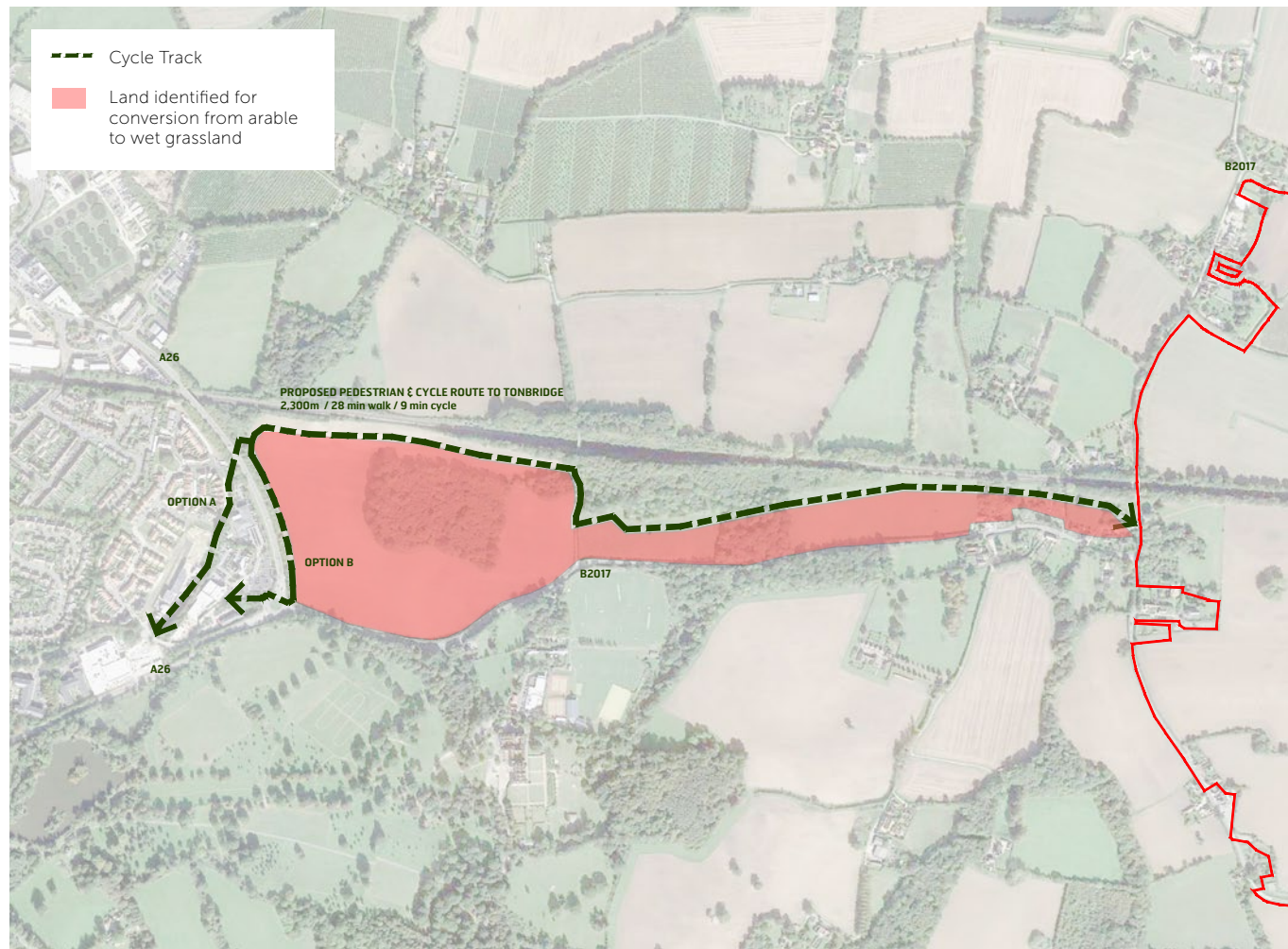
May 2022

THE
HADLOW
ESTATE

Green Belt Compensatory Improvements

Both the Tudeley Village Delivery Strategy, published in December 2020, and the Statement of Common Ground between Hadlow Estate and Tunbridge Wells Borough Council, published in October 2021, outline proposals by Hadlow Estate to make compensatory improvements to areas of the Green Belt within its ownership outwith the Tudeley Village site. The Estate has undertaken work to evidence its proposals for offsetting the impact of removing land from the Green Belt by improving the environmental quality and accessibility of remaining Green Belt land, alongside the delivery of further benefits in terms of landscape, ecology, heritage and flooding in conjunction with delivery of the Tudeley Village allocation. They include:

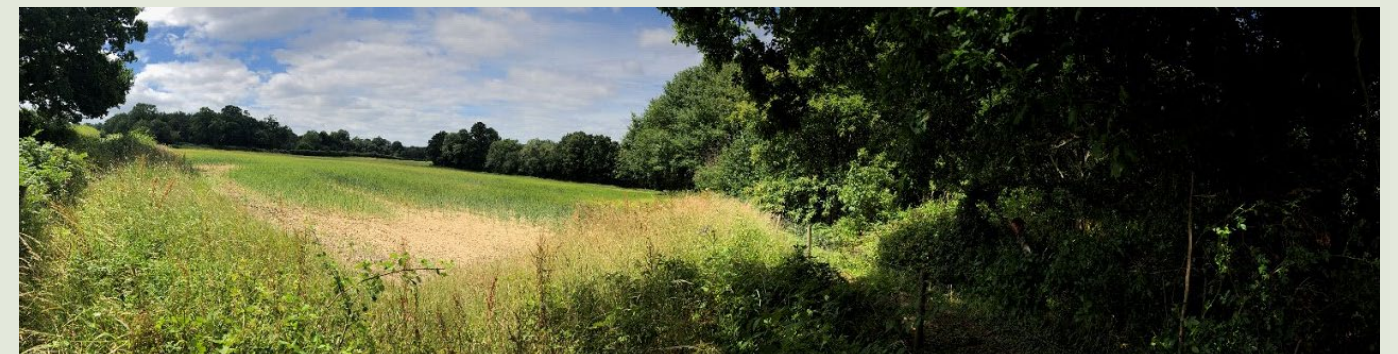
1. New pedestrian and cycle path between Tudeley Village and Tonbridge.
 2. Conversion of fields within the ownership of Hadlow Estate to the west of the site between Tudeley Village and Tonbridge, north of B2017 and south of rail line, from arable to permanent grassland.
 3. New and enhanced pedestrian routes within defined areas to the south of the site.
 4. Landscape and visual mitigation comprising a range of measures including setting back certain edges of development along the B2017 and for the landscape treatment of these set-back areas; multiple scattered individual trees and copses within the Medway Valley to the north of the allocated site; and the provision of Community Woodland between the proposed secondary school site, within the allocation, and Capel Primary School.
 5. Green Belt, landscape, visual amenity and biodiversity enhancements including planting to the south, south-east and south-west of the B2017 on land owned by the Hadlow Estate. This will include converting fields from arable to meadow grass, scrub, traditional orchard and wildflower meadow, aligned with Kent Biodiversity Action Plan habitat targets; and hedges with scattered hedgerow trees and copses that either reinforce existing hedgerows or are planted in alignment with former hedgerows.
 6. Re-instatement of ditch to south of B2017 and enhancement to create SUDS basin to reduce flooding risk.
 7. Long-term commitment to preservation and management of Tudeley Woods Reserve.
 8. Development of SUDS features and Natural Flood Management to alleviate flood risk and enhance biodiversity.
 9. Improvements to existing permanent ponds across the estate (on AONB Southern Field Boundaries, across the Estate, and on Medway and Mill Stream as part of wider Estate ecology strategy.
- An explanation of each proposal is set out below together with reference photographs and plans to help illustrate the area in question.



Plan 1

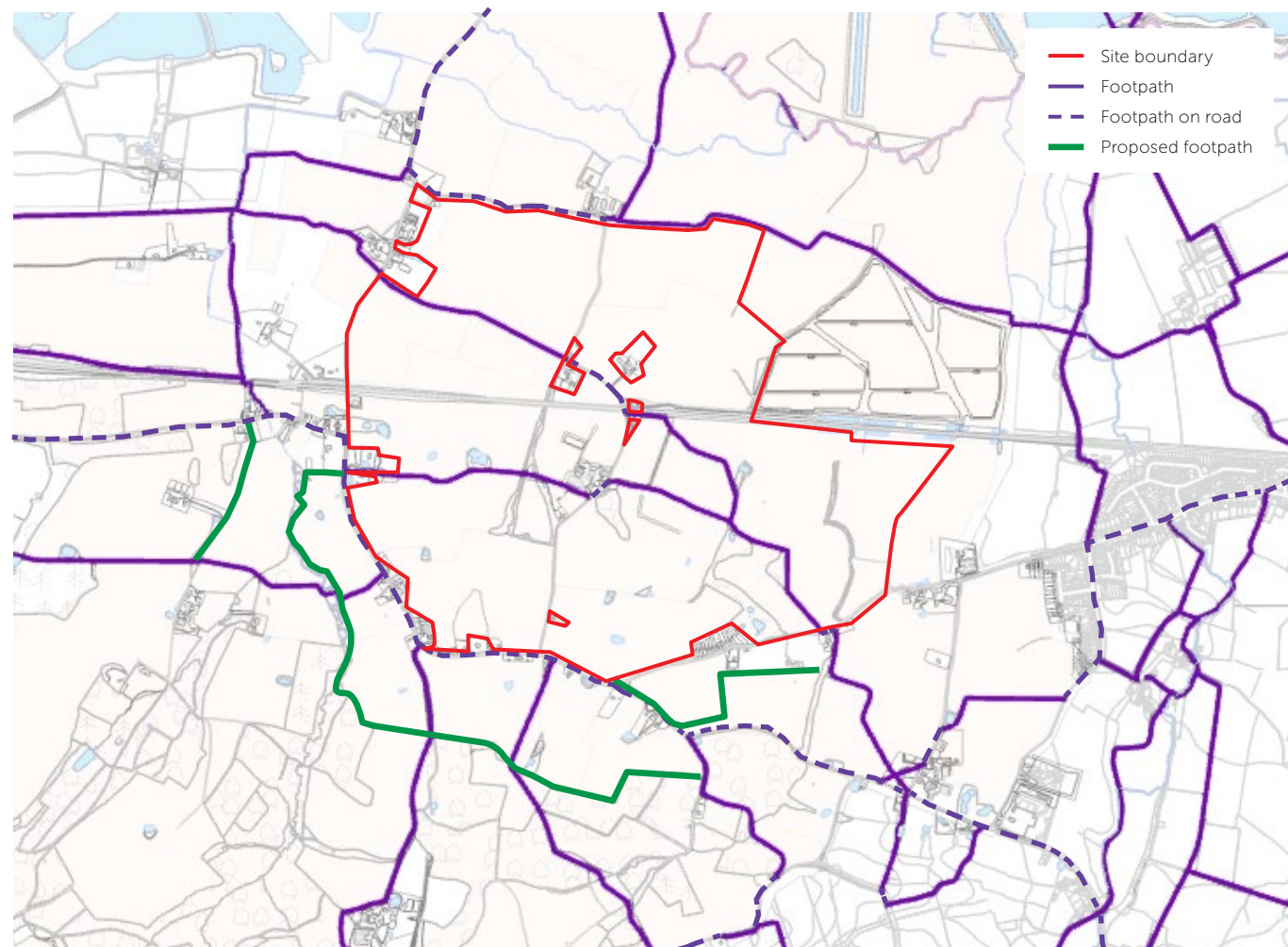
1. New pedestrian and cycle path between Tudeley Village and Tonbridge

Between the western edge of Tudeley Village and the edge of Tonbridge, the Estate proposes a pedestrian and cycle route, entirely separate from vehicular routes. The route is based on existing traces on the land and can be delivered entirely on Hadlow Estate land up to the boundary of Tonbridge at the A26 Woodgate Way. This off-line pedestrian and cycle link between Tudeley Village and Tonbridge would be built during Phase 1 of the Village development. The initiative will help promote wider connections in the local area, which do not rely on existing roads. From the village centre, it is estimated that the journey to Tonbridge Station will be 22 minutes by bicycle. The route is indicated on Plan 1.



2. Conversion of fields west of site, north of B2017 and south of rail line from arable to permanent grassland

Covering the area between Tudeley Village, Tonbridge, the B2017 and the railway line, and traversed by the proposed pedestrian and cycle path between Tudeley Village and Tonbridge, this area will be converted from arable to permanent grassland or wet grassland, delivering additional biodiversity benefits.



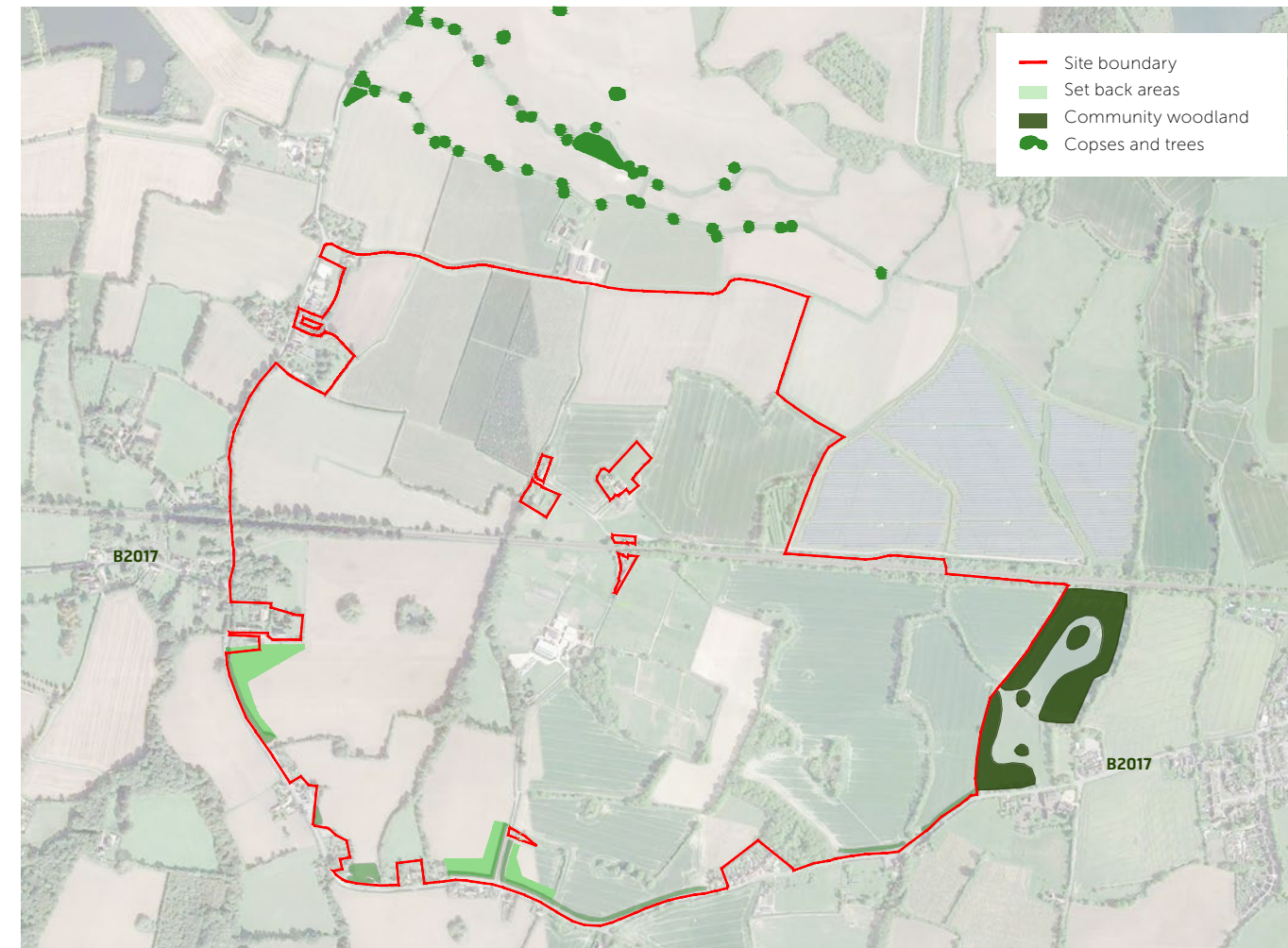
Plan 2

3. New and enhanced pedestrian routes within defined areas to the south of the site

Hadlow Estate has identified opportunities for the establishment of new or enhanced pedestrian routes extending from Tudeley Village, on land owned by the Estate. As indicated on Plan 2 above, these include a new route from the south of the settlement, connected to existing footpaths, plus the connection of two routes which run parallel from westward from the site towards Tonbridge. Access to safe pedestrian and cycle routes encourages sustainable travel choices and improves access to Green Belt land, including existing routes like the 13-mile Pembury Circular Walk.

In consultation with the KCC PRoW team, works to the existing footpath network on the Estate will be carried out to improve accessibility. This will include the replacement of styles with gates, improved surface treatments and improved drainage.

Described in more detail at Point 7, Hadlow Estate will make a long-term commitment to the preservation and management of Tudeley Woods as a nature reserve. This will secure public access to 4.5 miles of footpaths within that woodland.



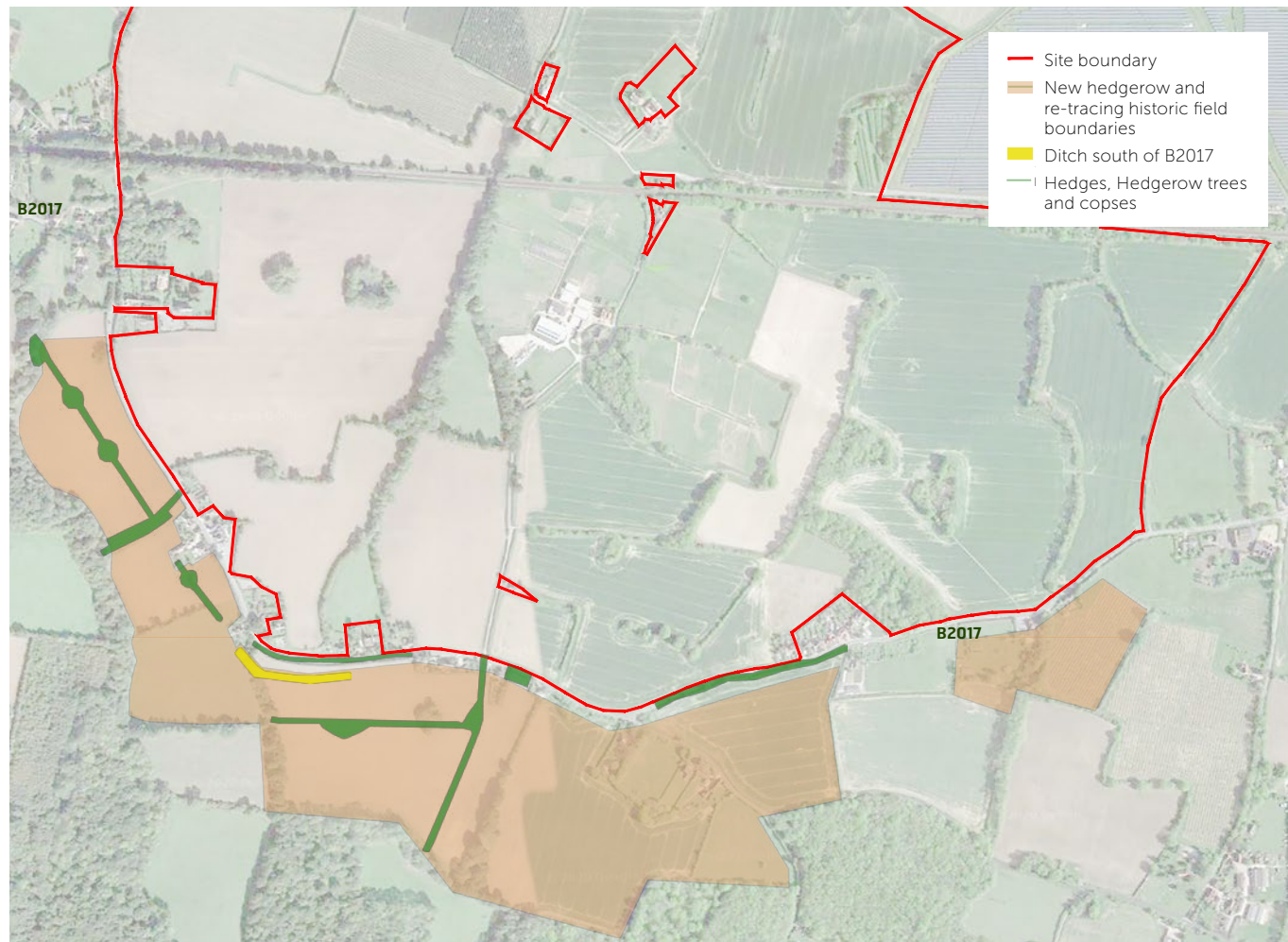
Plan 3

4. Landscape and Visual Mitigation

Landscape and visual mitigation measures have been proposed to offset the release of Green Belt land at Tudeley Village and enhance the remaining Green Belt land adjacent to the site. These include:

- Strengthening the B2017 boundary by enhancing hedges and the introduction of woodland copses and belts. This is achievable both within the site boundary on land which fronts the B2017, as shown at Plan 3, and on land to the south and west of the development within the ownership of the Hadlow Estate – see Plan 4. This will have a dual role of mitigating the effect of Tudeley Village on the setting of the AONB;
- Reducing the urbanising effect of development along the B2017 through use of set-back and appropriately designed road infrastructure to maintain the rural character of the road, and gradation in scale of built form, with lower density development to the periphery and in vicinity of the railway and B2017;

- Multiple scattered individual trees and copses within the Medway Valley to the north of the site; and
- The creation of a Community Woodland between the proposed secondary school site, within the allocation, and Capel Primary School.



Plan 4

5. Green Belt, landscape, visual amenity and biodiversity enhancements

Hadlow Estate propose a series of enhancements on land within its ownership to the south, south-east and south-west of the B2017 to offset the release of Green Belt land at Tudeley Village, enhance the remaining Green Belt land, and provide a range of additional benefits.

It is proposed to convert a number of arable fields within Estate ownership, marked on Plan 4, to a range of habitats including meadow grass, scrub, traditional orchard and wildflower meadow, with precise details to be determined in collaboration with TWBC and statutory stakeholders.

Traditional orchards, for example, are a distinctive, yet rapidly disappearing, part of the County's heritage. They make a significant contribution to biodiversity and local distinctiveness, not simply in

terms of the varieties of orchard trees, but also in terms of the local landscape and culture. The traditional orchard is a largely lost landscape, though core to the identity of the area around Tudeley Village. Due to changes in the rural economy, many have been grubbed and converted to arable or improved grassland. The Kent Biodiversity Plan objectives include halting the continuing loss of old orchards, restoring and enhancing existing traditional orchards (especially in the main fruit growing areas), creating more community orchards and creating new orchards and plats along traditional lines.

This proposal would also add to biodiversity, local distinctiveness and wider landscape amenity value to this area in close proximity to the proposed development. It could have a further benefit of managing to slow over-land surface water run-off rates, which could in turn contribute benefit in terms of reducing flood risk arising from extreme rainfall situations.

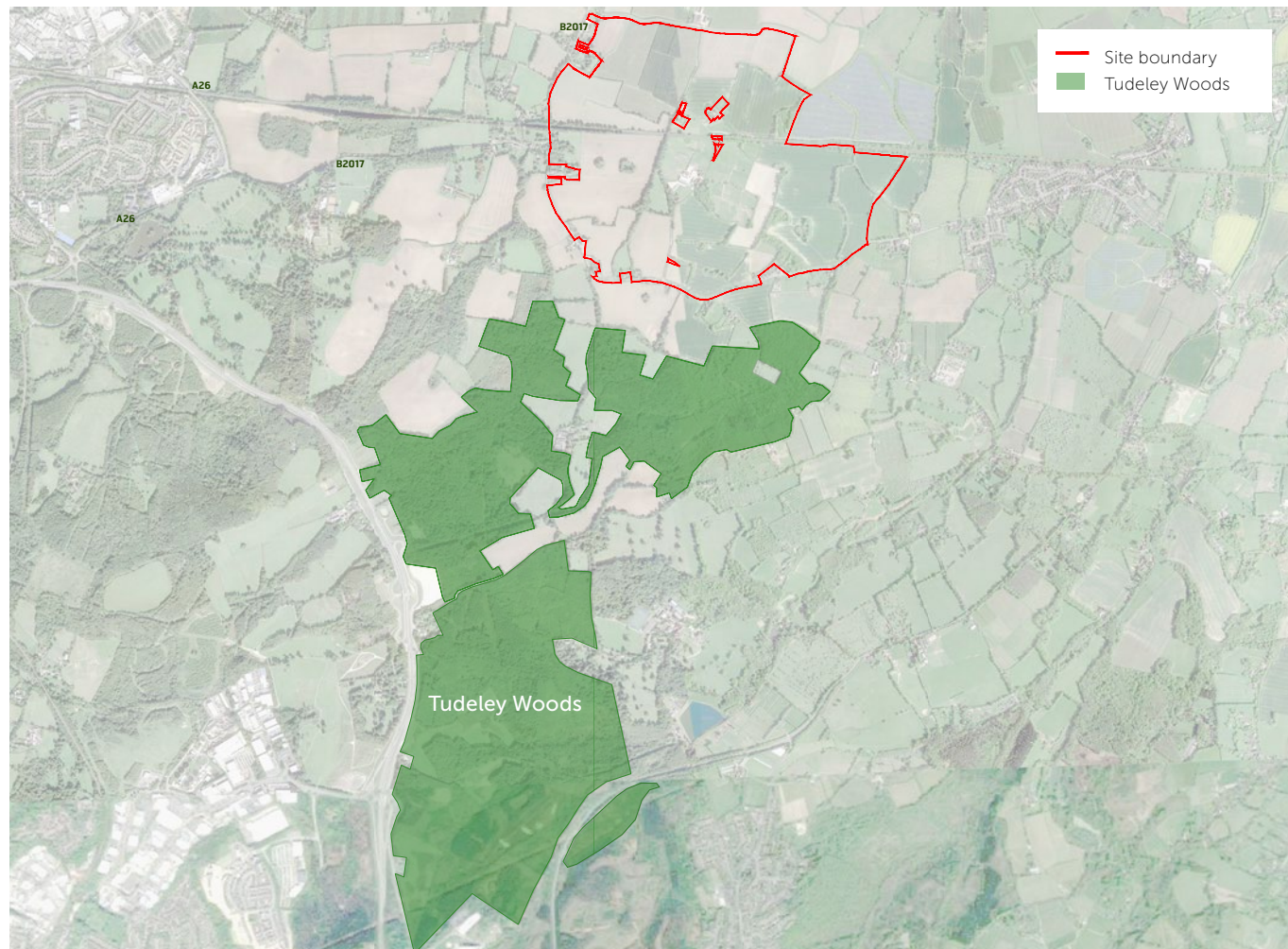


Aerial photo from south of the B2017 looking towards the western part of the site

Hadlow Estate also proposes improvements to existing hedgerows with scattered hedgerow trees and copses, plus the establishment of additional hedgerows on land to the south and south-west of the site in alignment with historic hedgerows which have been cleared. In intensively farmed areas, hedgerows can be the most significant semi-natural habitat, acting as wildlife corridors that are essential for migration, dispersal and genetic exchange of wild species. They are a refuge for a great many woodland and farmland plants and animals and are especially important for butterflies, moths, farmland birds, bats and dormice. New hedgerow planting and re-tracing historic field boundaries in the fields adjacent to the southside of the B2017 would enrich the hedgerow habitat, benefiting the landscape and ecology. Species-rich, high quality hedgerows also have the potential to screen the development from viewpoints within the AONB – a further broader benefit.

6. Re-instatement of ditch to south of B2017 and enhancement to create SUDS basin to reduce flooding risk

Where the Estate has control of land adjacent to the boundary of the B2017 to the south, there is an opportunity to re-instate ditches and create SUDS basin facilities to offer further flood risk management from surface run-off from the higher land to the south i.e. that outside of the allocation. Plan 4 illustrates the potential for this improvement.



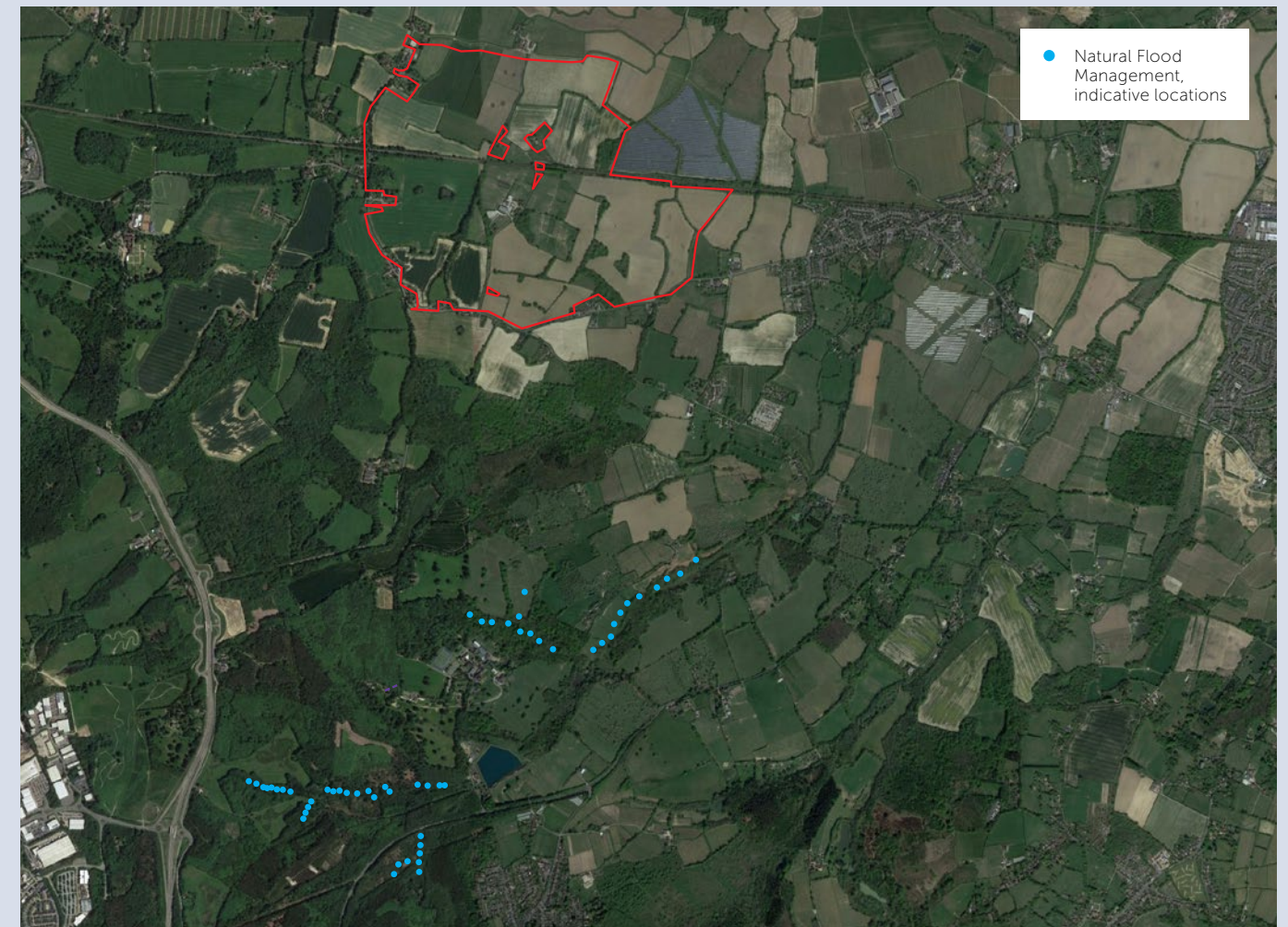
Plan 5

7. Long-term commitment to preservation and management of Tudeley Woods Reserve

Tudeley Woods, an area of ancient, semi-natural mixed woodland owned by Hadlow Estate, is currently managed as a Nature Reserve in conjunction with the RSPB. The woodland, highlighted on Plan 5, is crisscrossed with a number of ancient drovers sunken paths, footpaths and rides, as well as three nature trails, which give access for people to enjoy the Nature Reserve. As part of the grant of planning permission for Tudeley, the Estate would propose to undertake the following:

- Put in place a 30-year commitment to provide for the long-term security of the Tudeley Woods Reserve, meaning that permissive access to paths and trails through the woods would be secured through this period. A commitment of this duration would result in longer-term planning and management of the Reserve and greater certainty that conservation efforts and public access will endure over time.

- Further proposed improvements include:
 - Pond creation at Decoy Pond Cottages
 - A programme of Rhododendron clearance
 - Birch regeneration clearance on the main heathland
 - Wider heathland regeneration works
 - Support for the diversification of species with particular emphasis on the restoration of native species



Plan 6

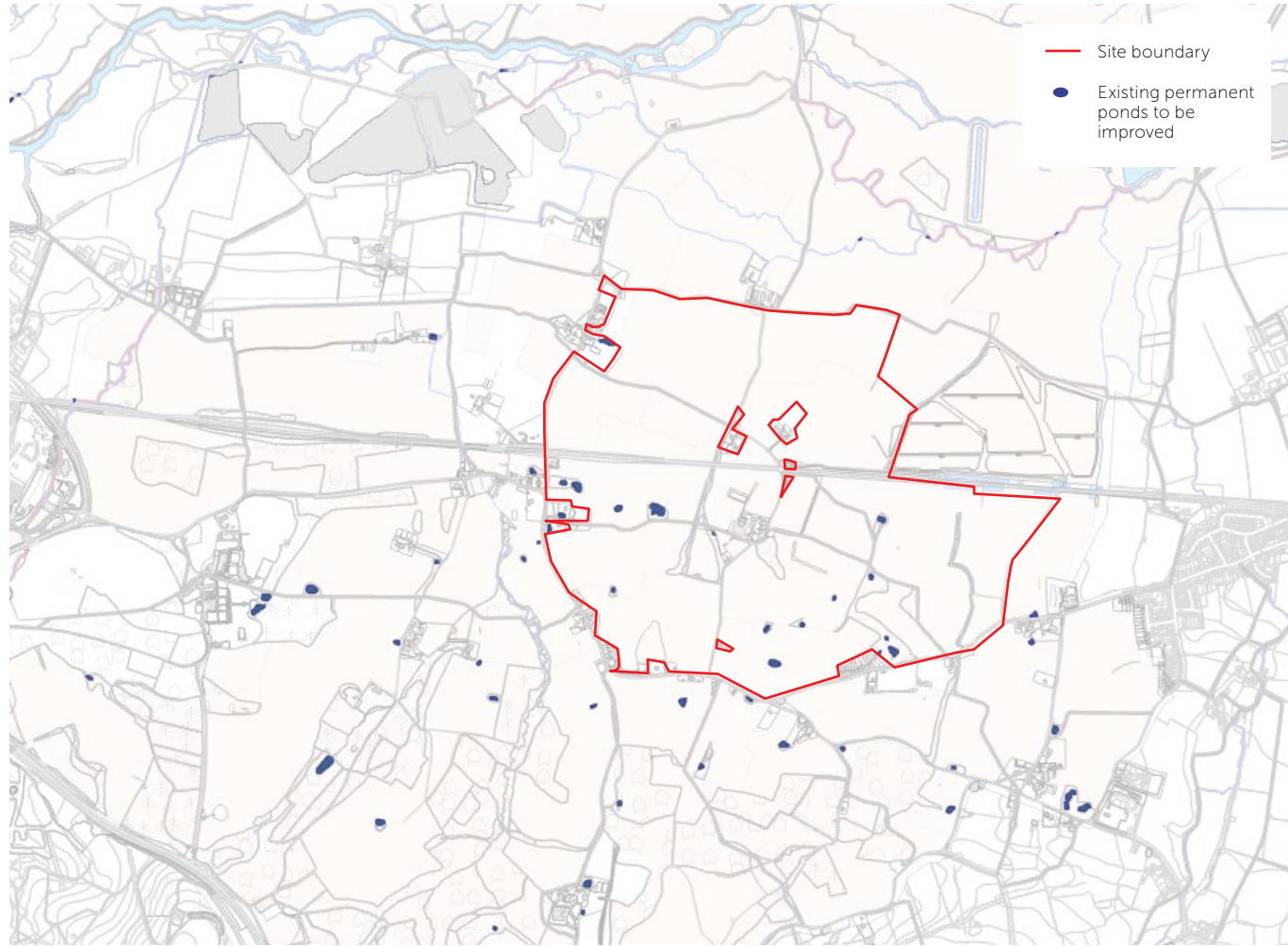
8. Development of SUDS features and Natural Flood Management to alleviate flood risk and enhance biodiversity

Hadlow Estate has installed Natural Flood Management measures, such as leaky dams, to reduce and control flood surges in the area. Such features force water to disperse onto the forest floor and infiltrate rather than coalesce into a stream. This, thereby, increases the retention time of the catchment and can alleviate flooding. Further NFM projects will be pursued. The Estate would propose to retain and, where possible, add further installations to further enhance the flood management and biodiversity benefits from the leaky dams.

The Estate is also aware of ongoing discussions between TWBC and the Environment Agency around the potential for further flood mitigation measures to be implemented in the vicinity of Sychem Lane and in association with the proposed new link road to the south of Five Oak Green. The Estate is content to support the principle of these measures being implemented on Estate land and so has included this opportunity within the package of compensatory improvements set out in this note.



Above: Natural Flood Management measures such as leaky dams reduce and control flood surges in the area.



Plan 7

9. Improvements to existing permanent ponds across the estate (on AONB Southern Field Boundaries, across the Estate, and on Medway and Mill Stream as part of wider Estate ecology strategy

Hadlow Estate propose a programme of more intensive management of these key permanent pond features as part of its wider strategy of ecological land management. The works are likely to include, but not be limited to: the cutting back of undergrowth and overgrowth which may be effecting the ecological value of the water features; selective coppicing and tree canopy management where appropriate to improve sun and daylight penetration; and the installation of bird box and other features to encourage species welfare. Plan 6 highlights the location of the key water features in question.

Broader Benefits

The Green Belt compensatory interventions have a range of broader benefits – whether this is to landscape, biodiversity, flooding, and access. These are captured in the matrix compiled below.

Proposals	Potential Benefits				
	AONB Mitigation	Green Belt Compensatory Measures	Biodiversity Net Gain	Flooding	Public Access
Options for on-site and off-site works under consideration					
1. New pedestrian and cycle path connecting the site to Tonbridge		✓			✓
2. Conversion of fields west of site, north of B2017 and south of rail line from arable to wet grassland.		✓	✓	✓	✓
3. New and enhanced pedestrian routes within defined areas to the south of the site		✓			✓
4. Landscape and Visual Mitigation	✓	✓	✓	✓	
5. Green Belt, landscape, visual amenity and biodiversity enhancements	✓	✓	✓	✓	
6. Re-instatement of ditch to south of B2017 and enhancement to create SUDS basin to reduce flooding risk.		✓	✓	✓	
7. Long-term commitment to preservation and management of Tudeley Woods Reserve.		✓	✓		✓
8. Development of SUDS features and Natural Flood Management to alleviate flood risk and enhance biodiversity		✓	✓	✓	
9. Improvements to existing permanent ponds across the estate (on AONB Southern Field Boundaries, across the Estate, and on Medway and Mill Stream as part of wider Estate ecology strategy.	✓	✓	✓	✓	

Delivery

Hadlow Estate owns considerable land contiguous with the Tudeley Village site, within the Medway floodplain to the north and around Tudeley Woods to the south. By virtue of these wider landholdings, the Estate has been able to put forward the following proposals for Green Belt compensatory improvements outwith the Tudeley site as a means to offset the release of the Tudeley Village site from the existing Green Belt, in addition to on-site measures to the same effect. This land and habitats within it have a significant and perhaps unique potential for environmental and biodiversity improvements, as well as opportunities to enhance accessibility to the Green Belt. This is a special opportunity to secure improvements to the Green Belt, as the Statement of Common Ground between Hadlow Estate and Tunbridge Wells Borough Council notes.

The proposals set out in this document explain in more detail the mitigation measures Hadlow Estate has outlined in its Delivery Strategy and Statement of Common Ground with TWBC. The Estate's ownership of broader areas of Green Belt land contiguous with the Tudeley Village site provides a rare opportunity to secure the delivery of compensatory improvement to the Green Belt. Subject to detailed consideration and engagement with TWBC, compensatory improvements to the Green Belt will be detailed as part of the planning application for Tudeley Village and will be secured through legal agreement, together with a programme of phased implementation.

THE
HADLOW
ESTATE

Appendix 2: Meeting Minutes TWBC and EA 13 April 2022

MEETING RE. FIVE OAK GREEN BYPASS

13TH APRIL @ 10 AM

Attendees:

Environment Agency (EA): Simon Curd and Peter Waring

Tunbridge Wells Borough Council (TWBC): Steve Baughen, Hannah Young and Tom Vint

Purpose of meeting/ Introduction by TWBC:

1. TWBC asked for the meeting to discuss the proposed new bypass serving Tudeley Village, to connect from the B2017 to the new bypass around the A228. TWBC explained the role of the bypass to principally direct traffic travelling east from Tudeley Village away from Five Oak Green and presented the route on a map.
2. TWBC would like to engage with the EA to explore a dual use for this route to understand if there is scope to enable this new road to act as an item of flood risk infrastructure. Five Oak Green is affected by flood events which is well understood by the EA; the new road could be designed to store flood water from the Alder Stream so it does not travel and impact upon residents at Five Oak Green. In exploring this option, TWBC instructed Stantec to provide more detailed design work for the proposed road and ascertain potential water storage volumes. Following this initial work, TWBC then instructed JBA to provide a high-level assessment to understand the potential benefits to reducing flood risk to Five Oak Green.
3. The work undertaken by Stantec and JBA was provided to EA ahead of the meeting. TWBC confirmed that the purpose of the meeting is not to discuss technical matters and accordingly JBA nor Stantec were invited to this initial discussion.
4. The work undertaken concludes that if the road is constructed accordingly as an item of flood risk infrastructure, the outcome in terms of storing flood water would be a material benefit to the residents at Five Oak Green in terms of reducing flood risk.
5. The Strategic Sites Infrastructure Framework prepared by DLA confirms that the cost to construct the road itself is c. £8.9million. To upgrade this so the road can provide flood mitigation the total cost is c. £11.3 million i.e. approximately £2.4 million more.
6. The cost of the road itself has been assessed has been assessed in the viability study underpinning the Local Plan and can be delivered from developer contributions from the Tudeley Village development. However, this provides a great opportunity for this additional opportunity to provide this additional benefit. Accordingly, TWBC would like to discuss with the EA to understand if it supports this opportunity and potential funding arrangements which could bring this forward.

Discussions

1. SC noted that the proposed bypass is a perfect opportunity to provide storage. EA has previously looked into, with Jacobs and JBA, the provision of storage areas further upstream in close proximity to Five Oak Green (to the north). Costs outweighed benefits so these were not progressed.
2. SC reiterated again - great opportunity – could potentially reduce a lot of flooding to Five Oak Green. Also stated that he is excited by it – exactly the opportunity that the EA is looking for
3. Peter Waring agreed. He also noted that there are other sources of flooding to Five Oak Green and not just from the Alder stream; other sources of overland flow. This includes around Sychem Lane- flows run south to north and the bypass could act as

a barrier here also, and around Alders Rd/ spur road. SB noted that some of this land is owned by Hadlow Estate and therefore good prospects of being provided.

4. EA confirmed this is the type of scheme that it could draw upon partnership contributions – top up funding. This would depend on what level of protection and how many properties that this.
5. EA has just started its next 6 year funding programme (April 2022) with a budget of £430 million. Runs until end of March 2028. Whilst this includes a schedule of infrastructure projects the EA advised that schemes drop out and very likely to be an opportunity to draw this into the funding at the appropriate time. Given the total budget, £2 million is not that significant. Therefore very likely an opportunity will be available within this 6 year programme, or it may be the programme falls within the next 6 year timeframe.
6. EA to explore broad outcomes into cost calculator to see if the figures align to the money we need. SC considers this makes a lot of sense and is fairly confident it will be a scheme that can support in partnership, especially when taking into consideration carbon savings, efficiency savings, etc.
7. Will need to consider drainage alongside the road application.

Post meeting note

1. TWBC to explore with JBA broad parameters for no. of houses which will benefit/ economic benefits. TWBC to share note on receipt

Appendix 3: Five Oak Green Bypass Technical Note (JBA)

TECHNICAL NOTE

JBA Project Code 2022s0318
Contract Tunbridge Wells Borough Council Local Plan Support
Client Tunbridge Wells Borough Council
Version / Date V1 / 11 March 2022
Author Oliver Francis
Reviewer / Sign-off Ben Gibson
Subject Alder Stream flood storage at proposed Five Oak Green Bypass

1 Overview

This note has been prepared to provide a high-level assessment of the potential for reduction in flood risk resulting from the provision of additional flood storage that could be achieved as a supplementary benefit resulting from the implementation of a proposed bypass road construction at Five Oak Green.

The note does not comprise a detailed assessment and is intended to identify the potential for storage of flood water at the site in question and a commentary on the associated potential reduction in flood risk. The assessment is limited to the quantum of flood storage and does not consider any wider benefits or constraints.

More detailed assessment would be required to progress the option beyond a concept, which would include among other things the preparation of updated flood flow hydrology estimates for Alder Stream.

2 Available information

To inform this assessment the following information has been provided:

- Highway scheme drawings including flood storage volume contours (prepared by Stantec and provided by Tunbridge Wells Borough Council). Files provided were:
 - 332410733_SK01 P01.pdf (proposed highway layout)
 - 332410733_SK01 P02.pdf (proposed highway long-section)
 - 332410733_SK01 P03.pdf (proposed highway long-section)
 - 332410733_SK01 P04.pdf (proposed highway cross-sections)
 - 332410733_SK01 P05.pdf (proposed highway cross-sections)
 - 332410733_SK01 P06.pdf (proposed highway cross-sections)
 - 332410733_SK01 P07.pdf (potential surface water storage volumes)
- Alder Stream flood risk mapping model (JBA Consulting for the Environment Agency, 2015)
- Light Detection and Ranging (LIDAR) data available from the Defra Data Portal under the Open Government Licence

3 Volume assessment

The Stantec contour plan assessed the volume at different elevations to the south of the new bypass road. The figures derived are presented in Table 3-1.

Table 3-1: Elevation vs volume information for the potential flood storage area, extracted from a contour plan (drawing P07) prepared by Stantec

Max level (mAOD)	Cumulative* volume (m ³)
25.0	34
25.5	403
26.0	1,898
26.5	5,541
27.0	13,808
27.5	30,431
28.0	57,172
28.5	91,663
29.0	133,604
29.5	183,367

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V1 / 11 March 2022
Author	Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass

A check on these figures was prepared using the LIDAR data within the Alder Stream hydraulic model. Note that the Stantec document refers to the volume at each 0.5m segment as incremental volume, which inspection of elevations in LIDAR data reveals is the cumulative volume of storage available. The comparison suggested that the available volume informed by LIDAR data was larger than the Stantec estimates. However, following a further check using more recently flown LIDAR data this suggested that there is approximately 200mm difference in ground levels in this location between the two LIDAR datasets. In the absence of a more detailed topographic survey and investigation into the differences in elevations between LIDAR datasets this assessment has been performed using the values from the Stantec drawing.

The first stage of assessment was to consider the total volume of the flood hydrograph at the downstream location of the potential storage area (where Alder Stream flows under the proposed Five Oak Green bypass) for a selection of events using the predicted values obtained from the Alder Stream flood risk mapping model. The channel and floodplain flow rates at node 'AS1.077' were interrogated to provide the flood hydrograph volumes presented in Table 3-2.

Table 3-2: Flood hydrograph volumes extracted from the Alder Stream model at the proposed Five Oak Green bypass

Flood event*	Flood hydrograph volume (m ³)
20% AEP	93,000
5% AEP	135,000
1.33% AEP	177,000
1% AEP plus climate change (+20% as available from the hydraulic modelling)	224,000
0.1% AEP	282,000

* AEP refers to the Annual Exceedance Probability: the change in each and every year of an event of the stated magnitude occurring.

The information presented above indicates that there is predicted volume available to store the entirety of the 1.33% AEP event with no outflow from the storage area.

If it were assumed that outflows were capped to a maximum flow that did not result in flooding downstream then the volume required for flood storage to achieve this aim would reduce. Referring to the results given in the existing hydraulic model very limited flooding is predicted downstream during the 20% AEP event (flooding that is predicted is caused by discharges from channels to the east of Alder Stream). The peak flow for the 20% AEP event at the proposed road location is 3.5m³/s. Analysis of the modelled flood hydrographs indicates that restricting outflows to a maximum of 3.5m³/s would require flood storage volumes of 144,000m³ and 150,000m³ for the 1% AEP plus climate change and 0.1% AEP flood events respectively. It can be observed that the predicted storage requirements for each of these events is below the maximum storage capacity available, based on the volumes calculated from Stantec's proposals.

TECHNICAL NOTE

JBA Project Code 2022s0318
Contract Tunbridge Wells Borough Council Local Plan Support
Client Tunbridge Wells Borough Council
Version / Date V1 / 11 March 2022
Author Oliver Francis
Reviewer / Sign-off Ben Gibson
Subject Alder Stream flood storage at proposed Five Oak Green Bypass

4 Proof of concept

Whilst the outline analysis has shown that the potential flood storage area has the volumetric capacity to reduce flood risk downstream, this assessment has also considered a simple proof of concept exercise. To perform this exercise a simple hydraulic model was constructed in Flood Modeller software to represent a storage area with the geometry informed by LIDAR and Stantec’s elevation vs storage relationship and an assumed throttle structure applied at the downstream of the storage area, at the location where the watercourse runs under the proposed Five Oak Green bypass. This representation of the storage area was connected to a short channel reach extracted from the Alder Stream model to provide a representative downstream boundary condition. The model also included an overspill configured using highway levels from the Stantec road scheme drawings. A schematic of the model is shown in Figure 4-1 overlain on Stantec’s drawing P07 information in the area of interest.

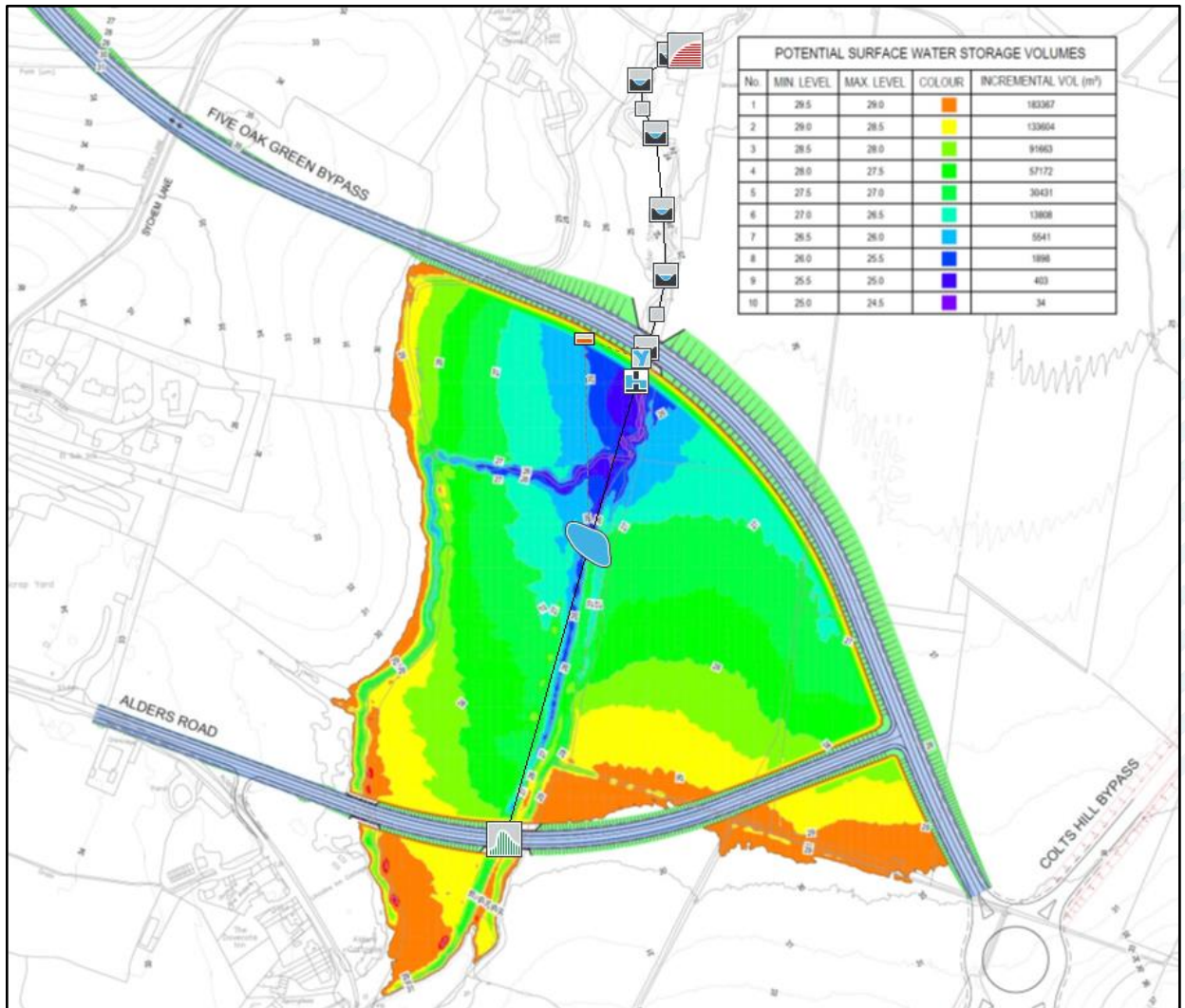


Figure 4-1: Schematic of the Flood Modeller model

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V1 / 11 March 2022
Author	Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass



The hydraulic model was run for the 1% AEP plus climate change event using flows extract from the Alder Stream model. The throttle on the flows as controlled by the structure beneath the proposed highway was taken as a 900mm diameter orifice. The results from the proof of concept simulation predict a maximum outflow of 3.3m³/s and maximum water level in the storage area of 28.5mAOD. It should be noted that this indicative structure applied within the model does not constitute a recommended design for the proposed scheme.

5 Conclusion

The analysis presented in this report is very high level and does not comprise the level of detail required for scheme appraisal. The results from the volumetric analysis and the simple hydraulic model indicate that there is potential to provide flood storage in this location that could provide material benefit in reducing flood risk downstream at Five Oak Green. This conclusion is based on assumptions and caveats which include:

- Further detailed analysis to consider the opportunity in more detail is required before progressing this concept.
- Inflows extracted from the Alder Stream model are the best available but may require updating to support any further assessment. An updated hydrological assessment using latest data and methods should be completed and consideration should be given to the latest climate change flood flow allowances (the +20% climate change allowance applied within the model does not align with the Environment Agency's latest allowances for the River Medway catchment).
- There are multiple ways of throttling flows to reduce the flows passing downstream to Alder Stream. The 900mm diameter orifice has been applied within the modelling for proof of concept only. Further analysis is required to consider the most appropriate structure(s) to regulate flows.
- The critical storm duration from the Alder Stream model will not be appropriate for a large flood storage area, given that the attenuation provided by the storage area will increase the critical storm duration significantly and this would mean that additional flood storage volume will be required. It is not possible to quantify this without further analysis.
- This assessment has not considered whether among other things:
 - it is feasible to construct a throttle structure in this location;
 - there are any environmental constraints on this location, and
 - fish passage would be required at the structure
- A flood storage area of this size would be defined a large-raised reservoir and subject to the provision of the Reservoirs Act 1975. Given the significant number of properties downstream this would be considered a Category A dam as defined in Flood and Reservoir Safety¹. This would require the structure to be designed to pass the 1 in 10,000-year event and to withstand the Probable Maximum Flood. Analysis of these event has not been undertaken but would be expected to require a substantial spillway structure. Dams and Reservoirs Safety would also require the structure to be designed with adequate freeboard (this is unlikely to be less than 0.6m).

¹ Floods and Reservoir Safety 4th Edition, ICE, 2015



TECHNICAL NOTE

JBA Project Code 2022s0318
Contract Tunbridge Wells Borough Council Local Plan Support
Client Tunbridge Wells Borough Council
Version / Date V3 / May 2022
Author Harriet Freestone / Oliver Francis
Reviewer / Sign-off Ben Gibson
Subject Alder Stream flood storage at proposed Five Oak Green Bypass

1 Overview

This note has been prepared to provide a high-level assessment of the potential for reduction in flood risk resulting from the provision of additional flood storage that could be achieved as a supplementary benefit resulting from the implementation of a proposed bypass road construction at Five Oak Green.

The note does not comprise a detailed assessment and is intended to identify the potential for storage of flood water at the site in question and a commentary on the associated potential reduction in flood risk. The assessment is limited to understanding the quantum of flood storage possible and high-level assessment of the magnitude of flood damages that could potentially be avoided. The assessment does not consider any wider benefits, constraints to delivery, or alternative options.

More detailed assessment would be required to progress the option beyond a concept, which would include among other things the preparation of updated flood flow hydrology estimates for Alder Stream.

2 Available information

To inform this assessment the following information has been provided:

- Highway scheme drawings including flood storage volume contours (prepared by Stantec and provided by Tunbridge Wells Borough Council). Files provided were:
 - 332410733_SK01 P01.pdf (proposed highway layout)
 - 332410733_SK01 P02.pdf (proposed highway long-section)
 - 332410733_SK01 P03.pdf (proposed highway long-section)
 - 332410733_SK01 P04.pdf (proposed highway cross-sections)
 - 332410733_SK01 P05.pdf (proposed highway cross-sections)
 - 332410733_SK01 P06.pdf (proposed highway cross-sections)
 - 332410733_SK01 P07.pdf (potential surface water storage volumes)
- Alder Stream flood risk mapping model (JBA Consulting for the Environment Agency, 2015) and the LIDAR data applied within it
- Light Detection and Ranging (LIDAR) data available from the Defra Data Portal under the Open Government Licence (LIDAR Composite DTM 2020)
- National Receptor Dataset (NRD) 2014 property point information
- Ordnance Survey MasterMap Topographic Area data

3 Volume assessment

The Stantec contour plan assessed the volume at different elevations to the south of the new bypass road. The figures derived are presented in Table 3-1.

Table 3-1: Elevation vs volume information for the potential flood storage area, extracted from a contour plan (drawing P07) prepared by Stantec

Max level (mAOD)	Cumulative* volume (m ³)
25.0	34
25.5	403
26.0	1,898
26.5	5,541
27.0	13,808

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V3 / May 2022
Author	Harriet Freestone / Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass



Max level (mAOD)	Cumulative* volume (m ³)
27.5	30,431
28.0	57,172
28.5	91,663
29.0	133,604
29.5	183,367

A check on these figures was prepared using the LIDAR data within the Alder Stream hydraulic model. Note that the Stantec document refers to the volume at each 0.5m segment as incremental volume, which inspection of elevations in LIDAR data reveals is actually the cumulative volume of storage available. The comparison suggested that the available volume informed by LIDAR data was larger than the Stantec estimates. However, following a further check using more recently flown LIDAR data this suggested that there is approximately 200mm difference in ground levels in this location between the two LIDAR datasets. In the absence of a more detailed topographic survey and investigation into the differences in elevations between LIDAR datasets, this assessment has been performed using the values from the Stantec drawing.

The first stage of assessment was to consider the total volume of the flood hydrograph at the downstream location of the potential storage area (where Alder Stream flows under the proposed Five Oak Green bypass) for a selection of events using the predicted values obtained from the Alder Stream flood risk mapping model. The channel and floodplain flow rates at model node 'AS1.077' were interrogated to provide the flood hydrograph volumes presented in Table 3-2.

Table 3-2: Flood hydrograph volumes extracted from the Alder Stream model at the proposed Five Oak Green bypass

Flood event*	Flood hydrograph volume (m ³)
20% AEP	93,000
5% AEP	135,000
1.33% AEP	177,000
1% AEP plus climate change (+20% as available from the hydraulic modelling)	224,000
0.1% AEP	282,000

* AEP refers to the Annual Exceedance Probability: the change in each and every year of an event of the stated magnitude occurring.

The information presented above indicates that there is predicted volume available to store the entirety of the 1.33% AEP event with no outflow from the storage area.

If it were assumed that outflows were capped to a maximum flow that did not result in flooding downstream, then the volume required for flood storage to achieve this aim would reduce. Referring to the results given in the existing hydraulic model, very limited flooding is predicted downstream during the 20% AEP event (flooding that is predicted is caused by discharges from channels to the east of Alder Stream). The peak flow from the model for the 20% AEP event at the proposed road location is approximately 3.5m³/s. Analysis of the modelled flood hydrographs indicates that restricting outflows to a maximum of 3.5m³/s would require flood storage volumes of 79,000m³ and 132,000m³ for the 1% AEP plus climate change and 0.1% AEP flood events, respectively. It can be observed that the predicted

TECHNICAL NOTE

JBA Project Code 2022s0318
 Contract Tunbridge Wells Borough Council Local Plan Support
 Client Tunbridge Wells Borough Council
 Version / Date V3 / May 2022
 Author Harriet Freestone / Oliver Francis
 Reviewer / Sign-off Ben Gibson
 Subject Alder Stream flood storage at proposed Five Oak Green Bypass

storage requirements for each of these events is below the maximum storage capacity available, based on the volumes calculated from Stantec’s drawing.

4 Proof of concept

Whilst the outline analysis has shown that the potential flood storage area has the volumetric capacity to reduce flood risk downstream, this assessment has also considered a simple proof of concept exercise. To perform this exercise a simple hydraulic model was constructed in Flood Modeller software to represent a storage area with the geometry informed by LIDAR (LIDAR Composite DTM 2020) and Stantec’s elevation vs storage relationship, and an assumed structure to throttle flows applied at the downstream of the storage area, at the location where the watercourse runs under the proposed Five Oak Green bypass. This representation of the storage area was connected to a short channel reach extracted from the Alder Stream model to provide a representative downstream boundary condition. The model also included an overspill flow pathway configured using highway levels from the Stantec road scheme drawings. A schematic of the model is shown in Figure 4-1 overlain on Stantec’s drawing P07 in the area of interest.

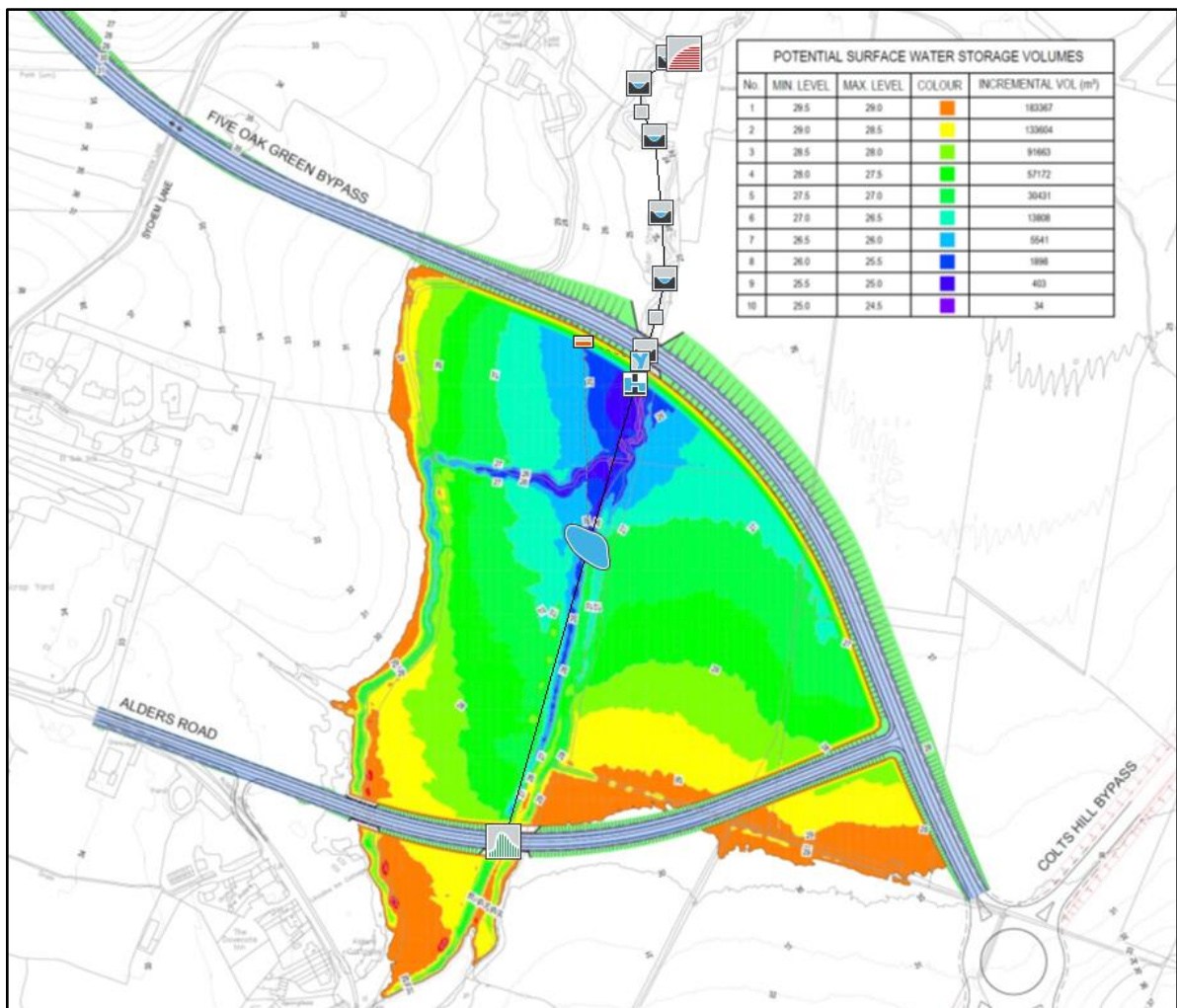


Figure 4-1: Schematic of the simple Flood Modeller hydraulic model

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V3 / May 2022
Author	Harriet Freestone / Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass

The hydraulic model was run for the 1% AEP plus climate change event using flows extract from the Alder Stream model. The throttle on the flows as controlled by the structure beneath the proposed highway was taken as a 900mm diameter orifice. The results from the proof-of-concept simulation predict a maximum outflow of 3.3m³/s and maximum water level in the storage area of approximately 28.5mAOD. It should be noted that this indicative structure applied within the model does not constitute a recommended design for the proposed scheme.

Following on from the proof of concept, the hydraulic model described above was also used to gauge the potential reduction in peak flow for a range of events considering five scenarios representing different overspill levels (used to infer maximum storage levels). These events were run to inform a high-level assessment of scheme benefits and are not intended as optioneering on road levels.

5 Assessing conceptual benefits of the scheme

5.1 Overview

The flood depth predictions from the Environment Agency's Alder Stream model were used in conjunction with National Receptor Dataset (NRD) property point data and Ordnance Survey MasterMap data building footprints to assess depths of flooding within properties. With this depth information, and damages curve from the Multi-Coloured Manual, it was possible to convert this information into economic damages. This assessment was completed with JBA's Flood Risk Metrics (Frism) tool.

Use of the Alder Stream flood modelling outputs presents the 'baseline' case e.g. pre-scheme. By modifying the flood depth grids that align with each AEP event in the damages calculations (based on the potential reductions in flood flows predicted by the simplified modelling described above), it is possible to assess predicted changes in the flood damages for different flood water retention level scenarios.

5.2 Calculating flood depths and economic damages

When assessing flood depths and damages, the following points are particularly of note:

- Average (mean) flood depths predicted inside property footprints have been assessed, and the analysis assumes the full area of a property footprint is flooded¹
- Indirect, intangible and vehicle damages are not considered in the analysis
- Emergency costs are not considered in the analysis
- Damages are not capped
- Properties are not written off at a given AEP event

¹ By using the average (mean) flood depth of flooding within a property, it is possible for the average depth of flooding calculated to reduce as flood magnitudes increase. For larger magnitude events, while the area of flooding increases this can have the effect of reducing the average. For example:

Event 1: half the building is flooded to a depth of 1.0m = average depth of 1.0m

Event 2: half the building is flooded to a depth of 1.2m, and the second half 0.2m = average depth of 0.7m

This was identified for a relatively small number of properties in some scenarios, but was not adjusted as it is not expected to greatly change the overall outcomes. Moreover, doing so would imply a greater level of confidence in the assumed flooding than is held.

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V3 / May 2022
Author	Harriet Freestone / Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass

- A default Consumer Price Index (CPI) value of 101.4 has been used, reflecting the value from 2017
- The sensitivity of economic damages calculations to the assumed threshold heights of properties has been assessed by completing the analysis for assumed thresholds of 0m (ground level), 0.1m above ground level and 0.3m above ground level.
- The assessment has not considered the effect of climate change and the damages presented are based on 'present day' events.

5.3 Scenarios assessed and results

5.3.1 Overview of scenarios and approach

In addition to calculating damages for the baseline (no scheme) option, the flood risk mapping model outputs were used to test five different indicative scheme scenarios, reflecting different levels of flood water storage. The scenarios considered were as follows:

0. Baseline

1. Target level of stored water: 27.0mAOD
2. Target level of stored water: 27.5mAOD
3. Target level of stored water: 28.0mAOD
4. Target level of stored water: 28.5mAOD
5. Target level of stored water: 29.0mAOD

The change in peak flows at Five Oak Green for the scenarios above were assessed by modifying the simple hydraulic model described in Section 4, so that the SPILL unit representing a flow route over the proposed Five Oak Green bypass is set to the target levels of stored water listed above.

In order to calculate the change in flood risk for the different scenarios, the reduction in peak flow predicted by the simple hydraulic model was equated to an AEP event. This is presented in Table 5-1. For example, in Scenario 2, where the target level of stored water was 27.5mAOD, the peak flow for a 5% AEP event was reduced to the 20% AEP event peak flow. For Scenario 5, where the target level of stored water was 29.0mAOD, the peak flow for all events except for the 0.1% AEP was reduced to the 20% AEP event peak flow.

Table 5-1: Reduction in event magnitude for different storage level scenarios

Scenario	Baseline Annual Exceedance Probability (AEP) and reduce in event magnitude for different storage level scenarios							
	20%	5%	3.33%	2%	1.33%	1%	0.4%	0.1%
Scenario 1 (27.0mAOD)	20%	5%	5%	3.33%	2%	1.33%	0.4%	0.1%
Scenario 2 (27.5mAOD)	20%	20%	5%	5%	5%	3.33%	1%	0.1%
Scenario 3 (28.0mAOD)	20%	20%	20%	20%	20%	5%	5%	0.4%
Scenario 4 (28.5mAOD)	20%	20%	20%	20%	20%	20%	20%	2%
Scenario 5 (29.0mAOD)	20%	20%	20%	20%	20%	20%	20%	5%

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V3 / May 2022
Author	Harriet Freestone / Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass



5.3.2 Annualised Average Damages

The Annual Average Damage is the damage that might be expected to occur annually given the probability of each event occurring. It is the annual damage costs if all flood events within a period (e.g. 100-years) were spread out equally throughout the years. It allows for the larger, rarer flood events (e.g. 0.1% AEP) costs to be considered alongside smaller, more frequent flood events (e.g. 20% AEP). In simple terms the more frequent events (e.g. 20% AEP) will potentially contribute damages multiple times in the assessment period (100-years), whereas less frequent events will contribute damages fewer times, or only a fraction of times (in the case of 0.4% and 0.1% AEP events). Table 5-2 presents the Annual Average Damages information for the baseline and scenarios, for three assumed property thresholds (0m, 0.1m and 0.3m above ground level defined within the model). Table 5-3 presents the change in Annualised Average Damages for each scenario compared with the baseline.

Table 5-2: Annualised Average Damages for the baseline and each scenario

Scenario	Annual Average Damages (£) for different assumed property threshold scenarios		
	0m	0.1m	0.3m
Baseline (no scheme)	232,000	80,000	36,000
Scenario 1 (27.0mAOD)	224,000	76,000	36,000
Scenario 2 (27.5mAOD)	145,000	48,000	21,000
Scenario 3 (28.0mAOD)	110,000	34,000	15,000
Scenario 4 (28.5mAOD)	100,000	30,000	14,000
Scenario 5 (29.0mAOD)	99,000	30,000	14,000

Table 5-3: Change in Annualised Average Damages for each scenario compared with the baseline

Scenario	Changes in Annual Average Damages (£) for different assumed property threshold scenarios		
	0m	0.1m	0.3m
Scenario 1 (27.0mAOD)	-8,000	-4,000	0
Scenario 2 (27.5mAOD)	-87,000	-32,000	-15,000
Scenario 3 (28.0mAOD)	-122,000	-46,000	-21,000
Scenario 4 (28.5mAOD)	-132,000	-50,000	-22,000
Scenario 5 (29.0mAOD)	-133,000	-50,000	-22,000

The baseline annual average damage across the area is £232,000 when the property threshold is assumed to be 0mAOD. This reduces notably when potential property thresholds are considered (to £80,000 for 0.1m threshold and £36,000 for 0.3m threshold). This indicates that it will be very important to understand property threshold levels as part of any future more detailed investigations, so that the damages calculations can be refined. This places a weighting on the damage total for each return period.

It can be observed that there is a notable reduction in the Annualised Average Damages when the higher storage level is considered for Scenario 2 (compared with the benefits of Scenario 1), with further reductions becoming more modest at higher storage level scenarios. When a threshold of 0.1m is assumed, there is a further more notable reduction in the Annualised Average Damages between scenario 3 and 4.

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V3 / May 2022
Author	Harriet Freestone / Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass

5.3.3 Present Value Damages

Using the Annualised Average Damages values, it is possible to calculate the Present Value Damages (PVD) avoided compared with the baseline, by implementation of a scenario. It has been assumed that the period of time over which the scenarios provide benefits is 100-years. This PVD avoided information is presented in Table 5-4. As with the findings discussed for Table 5-3 it can be seen that a notable value of damages avoided is present for Scenario 2 compared with Scenario 1.

Table 5-4: Present Value Damages avoided for scenarios, compared with the baseline, assuming a 100-year benefit period

Scenario	Present Value Damages (£) avoided for different assumed property threshold scenarios		
	0m	0.1m	0.3m
Scenario 1 (27.0mAOD)	£240,000	£120,000	£0
Scenario 2 (27.5mAOD)	£2,600,000	£960,000	£450,000
Scenario 3 (28.0mAOD)	£3,640,000	£1,370,000	£630,000
Scenario 4 (28.5mAOD)	£3,940,000	£1,490,000	£660,000
Scenario 5 (29.0mAOD)	£3,970,000	£1,490,000	£660,000

5.3.4 Changes to property counts within flood risk bands

Table 5-5 presents the number of properties which, through the reduction in peaks flows for different scenarios, are predicted to be moved to at least one lower flood risk category band as defined by the FCERM Appraisal guidance. The AEP events which align with bands in the guidance are 5%, 3.33%, 1.33%, 1.67% and 0.5%. Given that the flood event magnitudes available from the Alder Stream modelling do not cover all of these, some pragmatism was required in the selection of events (the 1% AEP was used in place of the 0.67% AEP, and the 0.4% AEP was used in place of the 0.5% AEP). As the storage level associated with scenarios increases, greater reduction in flood flows is predicted, and properties may move through more than one flood risk band category. This is why the counts presented for scenario 3, 4 and 5 are the same for each of the assumed property threshold scenarios.

Table 5-5: Number of properties moved to a lower FCERM Appraisal Guidance flood risk band category

Scenario	Number of properties moved to a lower FCERM Appraisal Guidance flood risk band category for different assumed property thresholds		
	0m	0.1m	0.3m
Scenario 1 (27.0mAOD)	35	32	2
Scenario 2 (27.5mAOD)	223	163	25
Scenario 3 (28.0mAOD)	223	163	26
Scenario 4 (28.5mAOD)	223	163	26
Scenario 5 (29.0mAOD)	223	163	26

TECHNICAL NOTE

JBA Project Code	2022s0318
Contract	Tunbridge Wells Borough Council Local Plan Support
Client	Tunbridge Wells Borough Council
Version / Date	V3 / May 2022
Author	Harriet Freestone / Oliver Francis
Reviewer / Sign-off	Ben Gibson
Subject	Alder Stream flood storage at proposed Five Oak Green Bypass



6 Conclusion

The analysis presented in this report is very high level and does not comprise the level of detail required for scheme appraisal. The results from the volumetric analysis and the simple hydraulic model indicate that there is potential to provide flood storage in this location that could provide material benefit in reducing flood risk downstream at Five Oak Green. This conclusion is based on assumptions and caveats which include:

- Further detailed analysis to consider the opportunity in more detail is required before progressing this concept.
- Inflows extracted from the Alder Stream model are the best available but may require updating to support any further assessment. An updated hydrological assessment using latest data and methods should be completed and consideration should be given to the latest climate change flood flow allowances (the +20% climate change allowance applied within the model does not align with the Environment Agency's latest allowances for the River Medway catchment).
- There are multiple ways of throttling flows to reduce the flows passing downstream to Alder Stream. The 900mm diameter orifice has been applied within the modelling for proof of concept only. Further analysis is required to consider the most appropriate structure(s) to regulate flows.
- The critical storm duration from the Alder Stream model will not be appropriate for a large flood storage area, given that the attenuation provided by the storage area will increase the critical storm duration significantly and this would mean that additional flood storage volume will be required. It is not possible to quantify this without further analysis.
- This assessment has not considered whether among other things:
 - it is feasible to construct a throttle structure in this location;
 - there are any environmental constraints on this location, and
 - fish passage would be required at the structure
- A flood storage area of this size would be defined a large-raised reservoir and subject to the provision of the Reservoirs Act 1975. Given the significant number of properties downstream this would be considered a Category A dam as defined in Flood and Reservoir Safety². This would require the structure to be designed to pass the 1 in 10,000-year event and to withstand the Probable Maximum Flood. Analysis of these event has not been undertaken but would be expected to require a substantial spillway structure. Dams and Reservoirs Safety would also require the structure to be designed with adequate freeboard (this is unlikely to be less than 0.6m).
- The assessment of flood damages has presented a comparative analysis of the different scenarios compared with the baseline predictions. This comparative analysis should not be taken as a definitive account of predicted flood damages. The assessment provides information to support understanding of the scale of predicted damages, influence of assumptions on predicted damages (e.g. assumed thresholds heights) and importantly how increasing the height of stored water changes the damages estimated at properties.

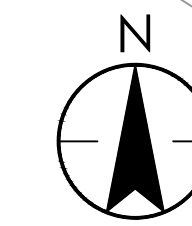
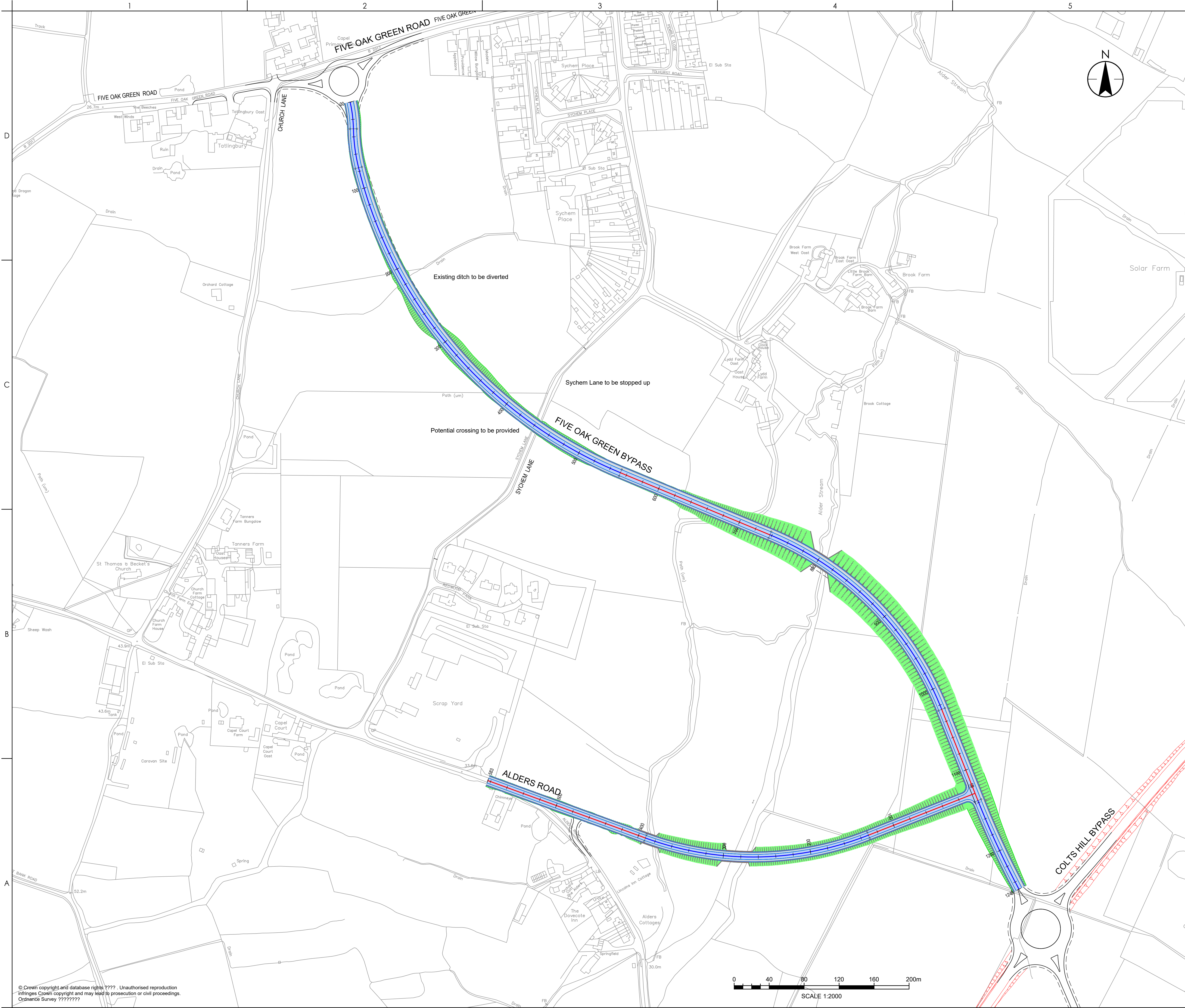
² Floods and Reservoir Safety 4th Edition, ICE, 2015

TECHNICAL NOTE

JBA Project Code 2022s0318
Contract Tunbridge Wells Borough Council Local Plan Support
Client Tunbridge Wells Borough Council
Version / Date V3 / May 2022
Author Harriet Freestone / Oliver Francis
Reviewer / Sign-off Ben Gibson
Subject Alder Stream flood storage at proposed Five Oak Green Bypass

- Whilst the analysis indicates that there may be a tipping point between scenarios 1 and 2 in terms of more notable reduction in flood damages, consideration should be given to the design of the proposed Five Oak Green bypass during decision-making. For example, if the road needs to be designed to a level above that considered in Scenario 2, it is anticipated that this may be a more compelling reason for a higher storage level, particularly if the costs of delivering flood water storage at this level does not greatly increase overall scheme costs.
- The provision of the proposed bypass may provide benefits beyond flood risk (e.g. economic, social and amenity), which should be captured in a full economic appraisal.
- Note that the assessment of flood damages has identified that there is greater sensitivity resulting from the assumed property threshold levels than to the volume of the flood storage area. This indicates that it will be very important to understand property threshold levels as part of any future more detailed investigations, so that the damages calculations can be refined.

Appendix 4: Detailed Design Five Oak Green Bypass (Stantec)



Issue/Revision	By	Appd	2022.02.09
P01 First Issue	DMH	PH	2022.02.09
	DMH	PH	2022.02.09
	Dwn	Dsgn	Chkd
			YYYY.MM.DD

Issue Status
FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



Client/Project
TUNBRIDGE WELLS BOROUGH COUNCIL

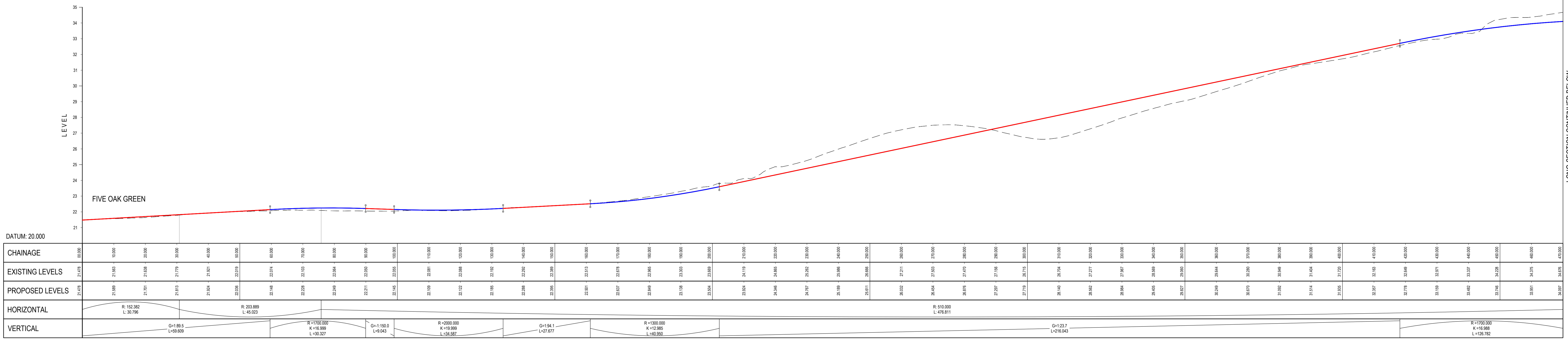
FIVE OAK GREEN BYPASS

Title
PROPOSED HIGHWAY LAYOUT

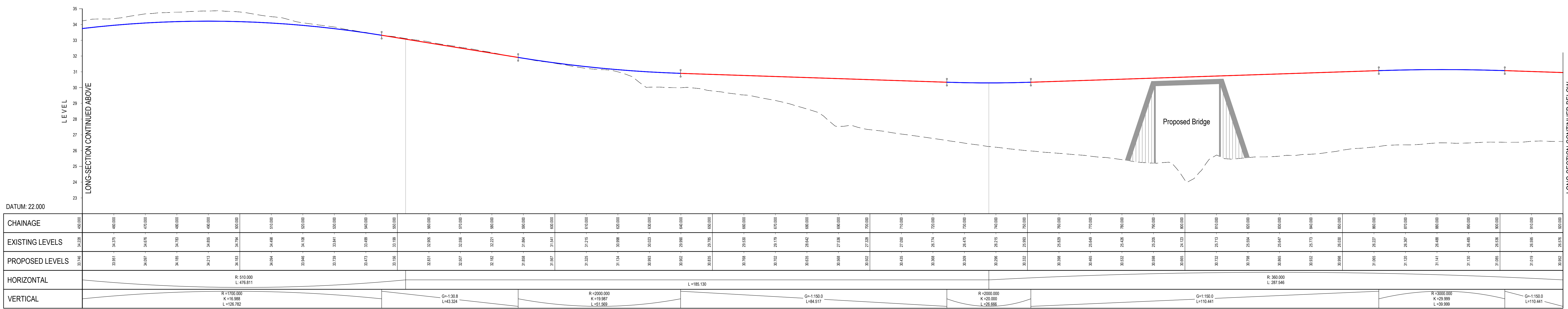
Project No.	Scale
332410733	1:2000
Revision	Drawing No.
P01	332410733_SK01

© Crown copyright and database rights ?????. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Ordnance Survey ????????

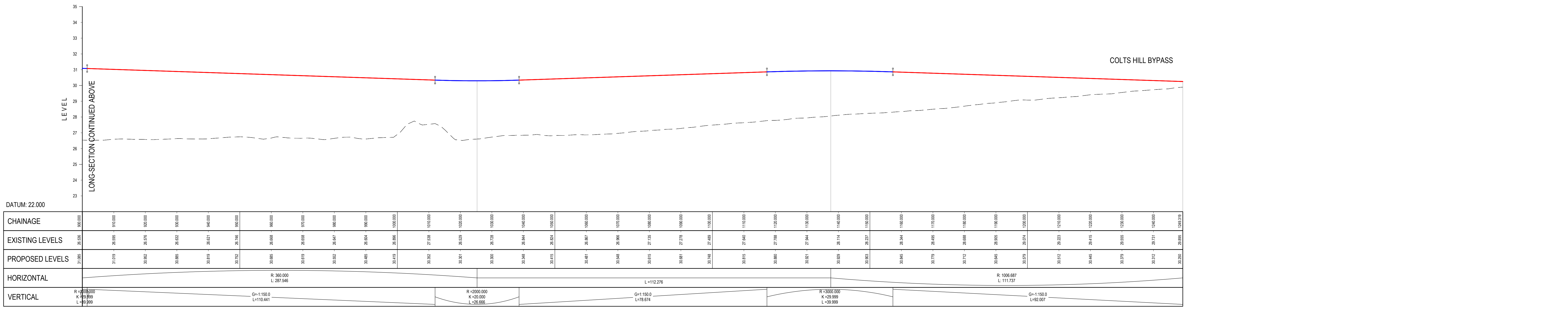
FIVE OAK GREEN BYPASS
 SCALE: H 1:500, V 1:100.



FIVE OAK GREEN BYPASS (1)
 SCALE: H 1:500, V 1:100.



FIVE OAK GREEN BYPASS (2)
 SCALE: H 1:500, V 1:100.



Issued/Revision	Drawn	Checked	Issue Date
1	DMH	PHI	2022/02/09
2	DMH	PHI	2022/02/09
3	DMH	PHI	2022/02/09

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



Client/Project
 TUNBRIDGE WELLS BOROUGH COUNCIL

FIVE OAK GREEN BYPASS

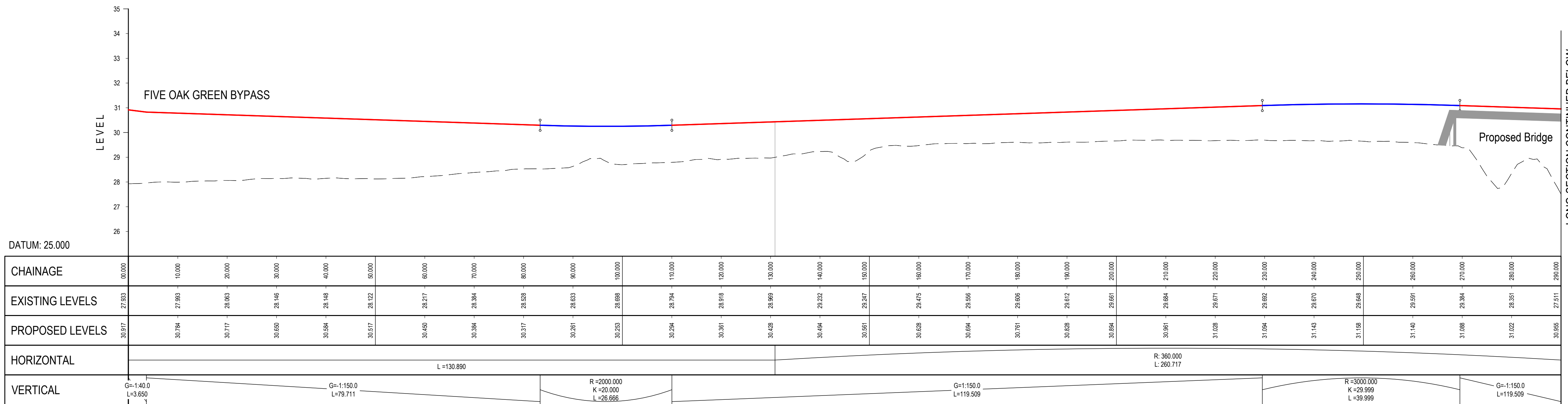
Title
 PROPOSED HIGHWAY LONGSECTION
 FIVE OAK GREEN TO COLTS HILL BYPASS

© Crown copyright and database rights 1977. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
 Ordnance Survey 1:50,000

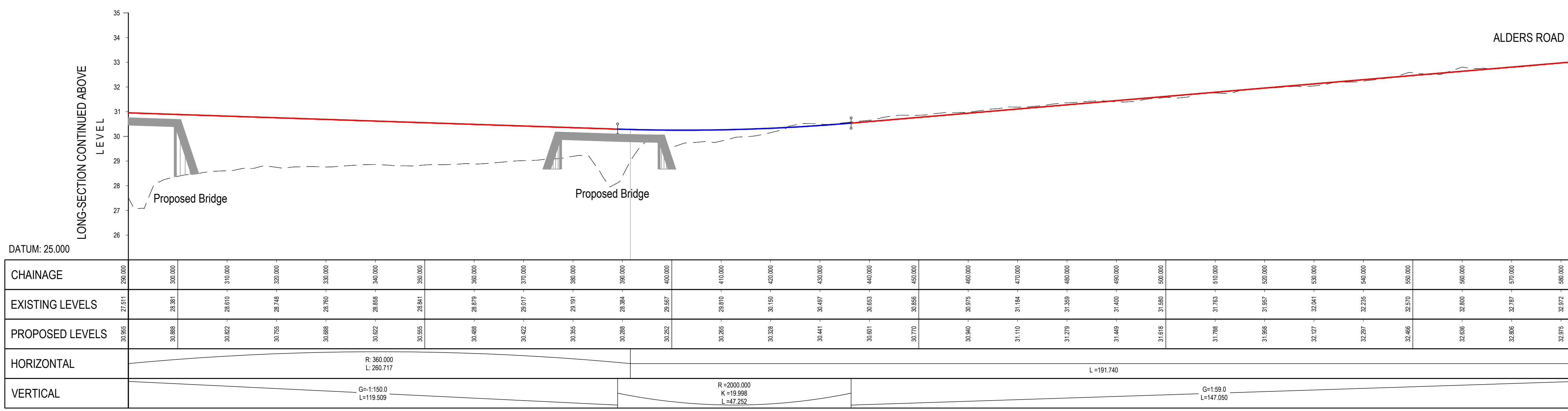
Copyright Reserved
 The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing
 - any errors or omissions shall be reported to Stantec without delay.
 The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.

Notes
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

ALDERS ROAD
 SCALE: H 1:500, V 1:100.



ALDERS ROAD (1)
 SCALE: H 1:500, V 1:100.



Issue/Revision	By	Appd	Date
P01 First Issue	DMH	PH	2022.02.09
	DMH	PH	2022.02.09
	Dwn.	Dsgn.	Chkd.

Issue Status
FOR INFORMATION
 This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



Client/Project
 TUNBRIDGE WELLS BOROUGH COUNCIL
 FIVE OAK GREEN BYPASS

Title
 PROPOSED HIGHWAY LONGSECTION
 PROPOSED FIVE OAK GREEN BYPASS
 TO ALDERS ROAD

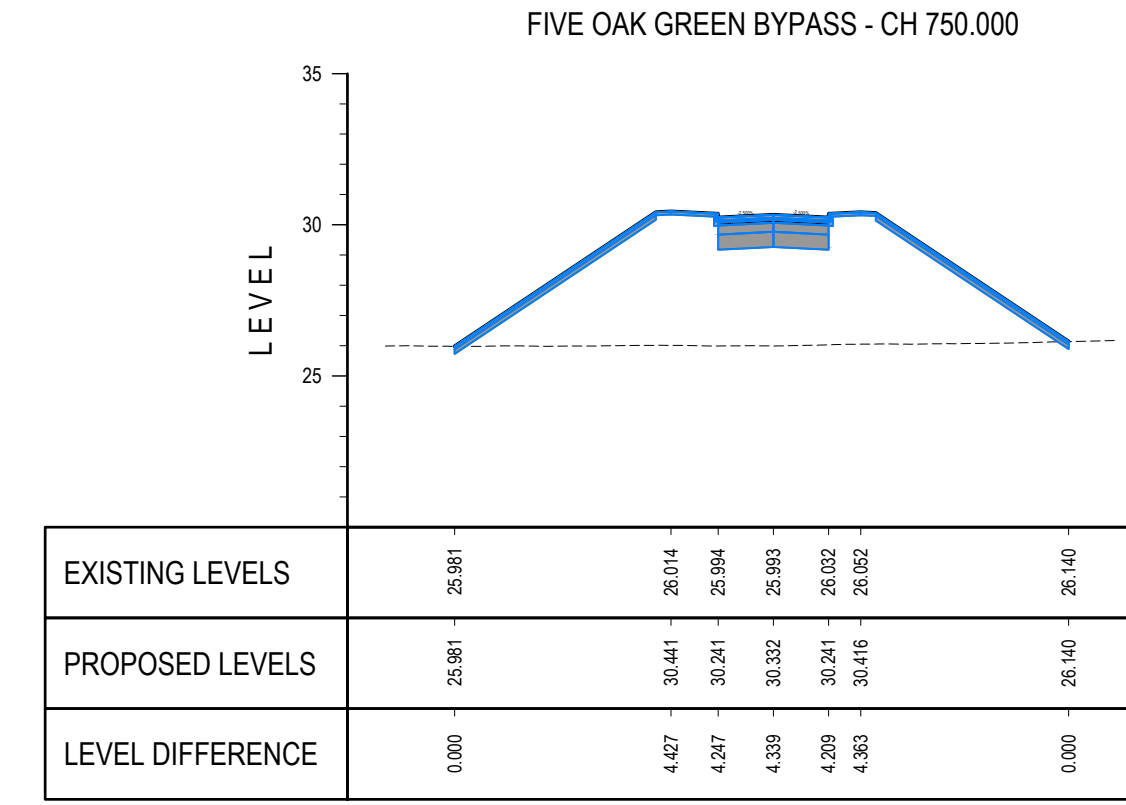
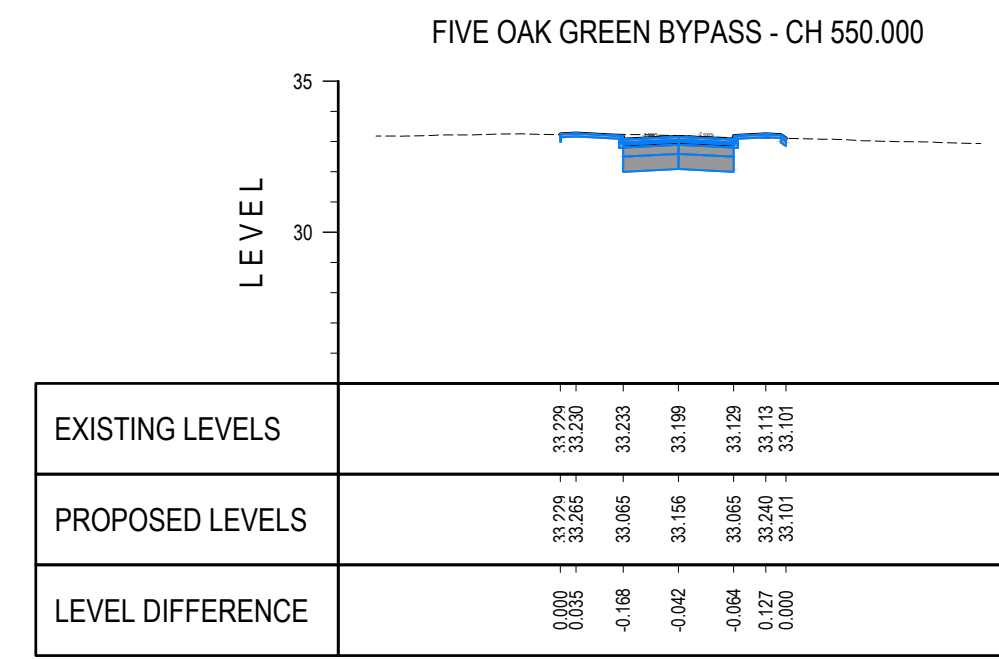
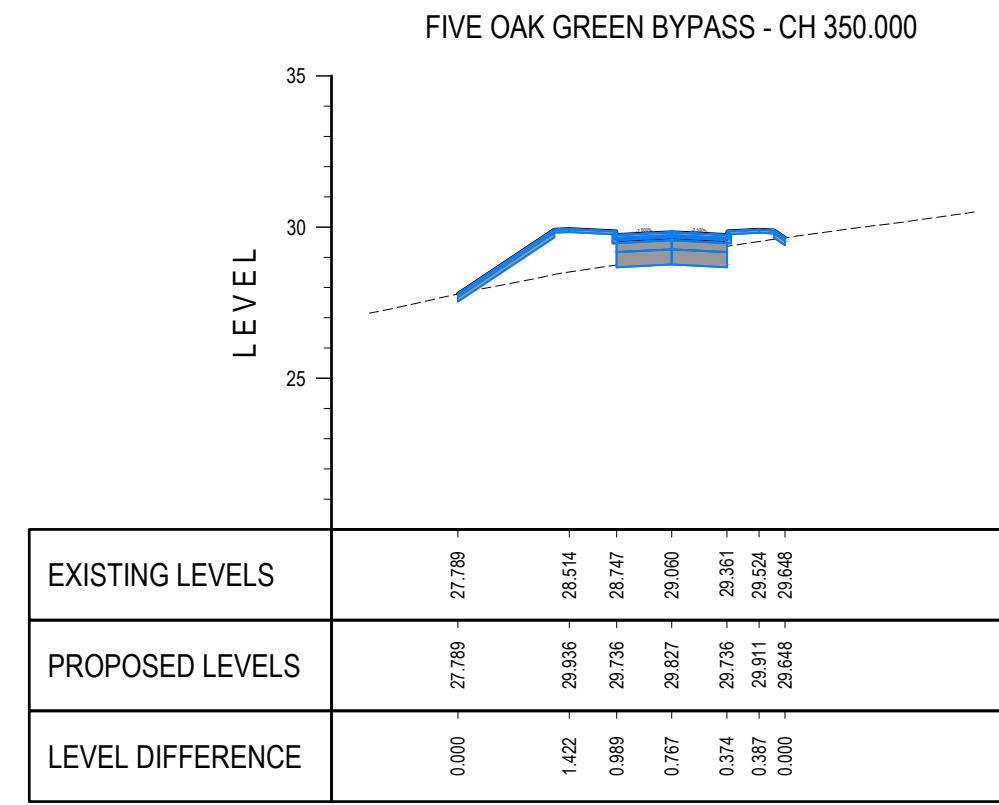
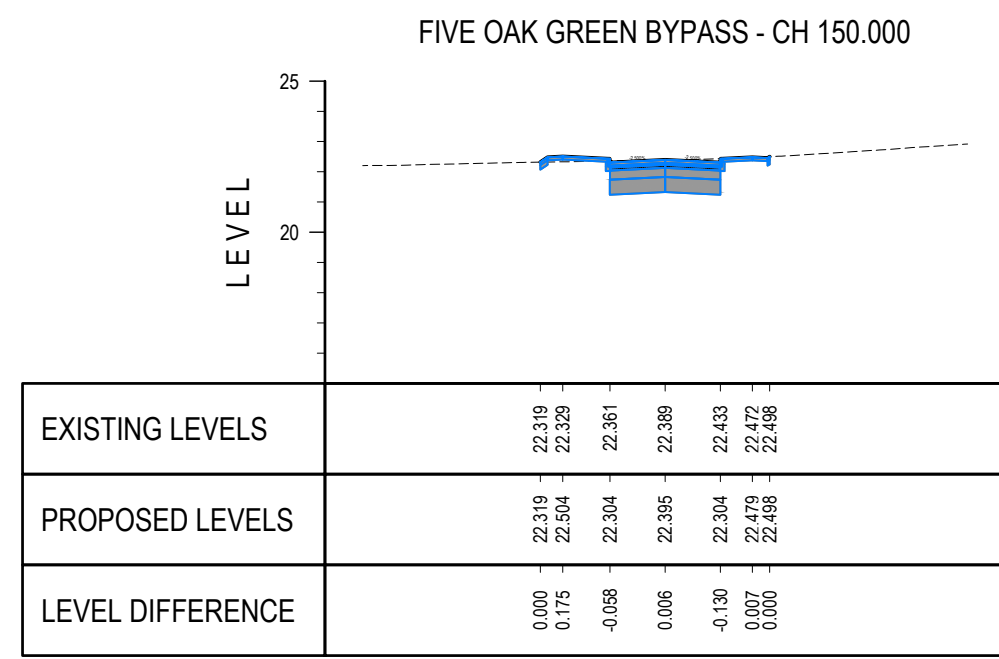
Project No. 332410733
 Scale Hor 1:500, Ver 1:100
 Revision P01
 Drawing No. 332410733_SK03

Path: 01232202202209_402527_P01.dwg
 01/23/2022 10:00:00 AM
 © Crown copyright and database rights 2022. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
 Ordnance Survey 100000000

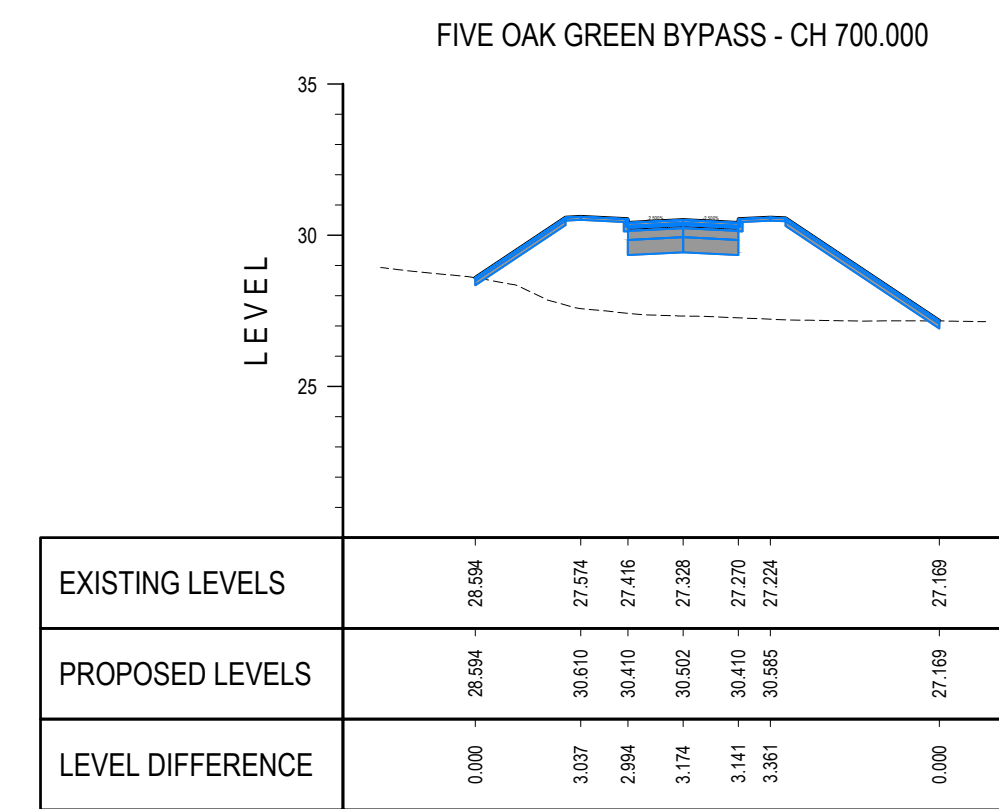
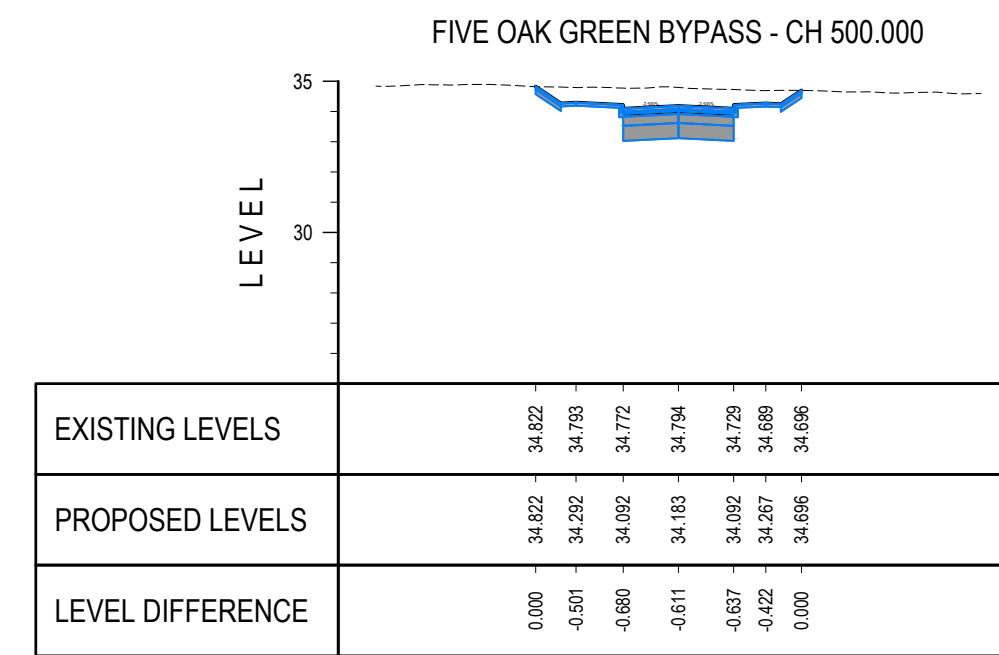
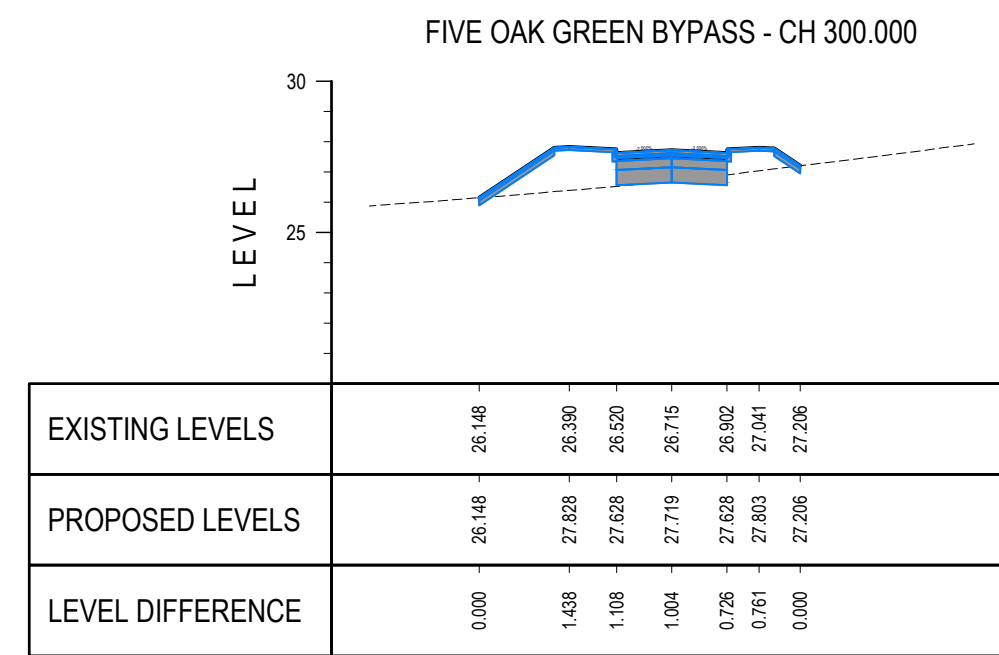
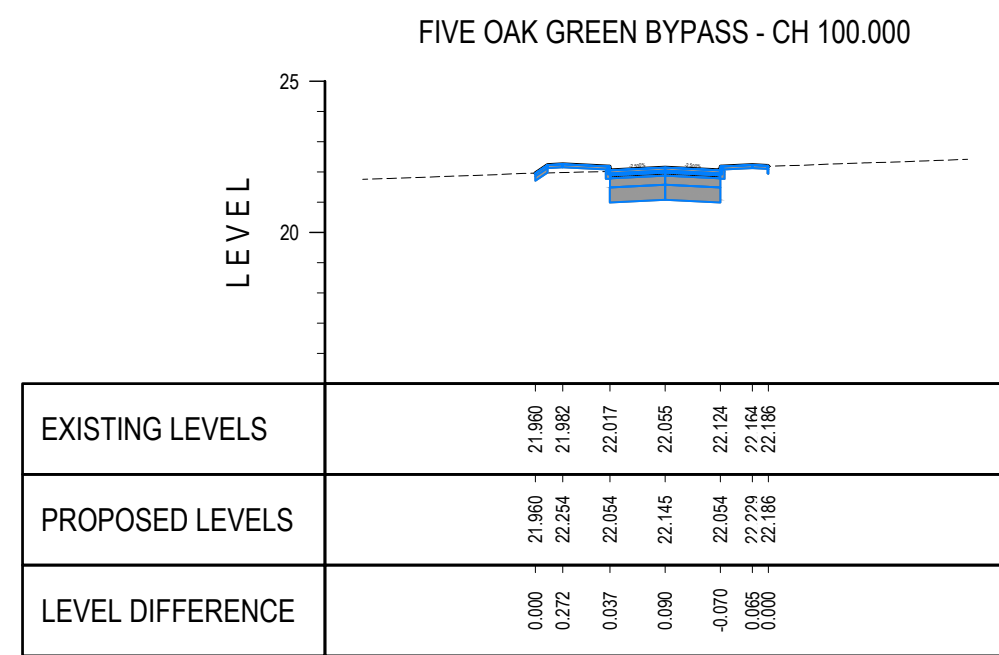
Copyright Reserved
 The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing
 - any errors or omissions shall be reported to Stantec without delay.
 The Copyrights to all designs and drawings are the property of Stantec. Reproduction or
 use for any purpose other than that authorized by Stantec is forbidden.

Notes
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this
 is expressed or implied. Other such plant or apparatus may also be present but not
 shown. The Contractor is therefore advised to undertake their own investigation where the
 presence of any existing sewers, services, plant or apparatus may affect their operations.

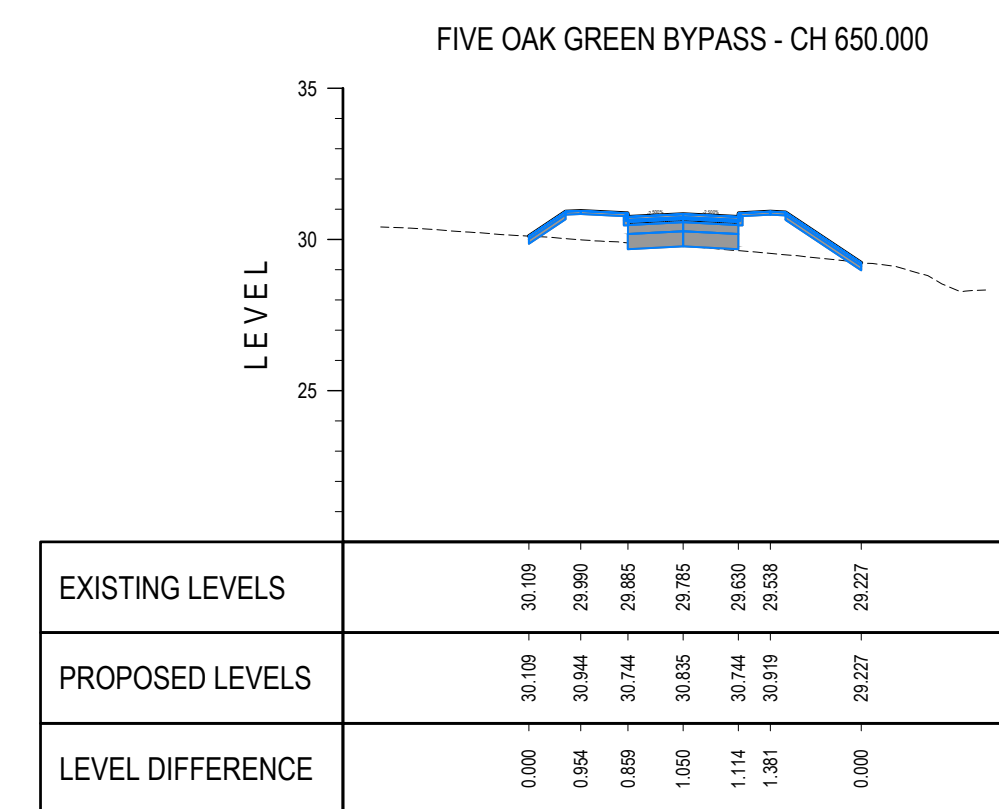
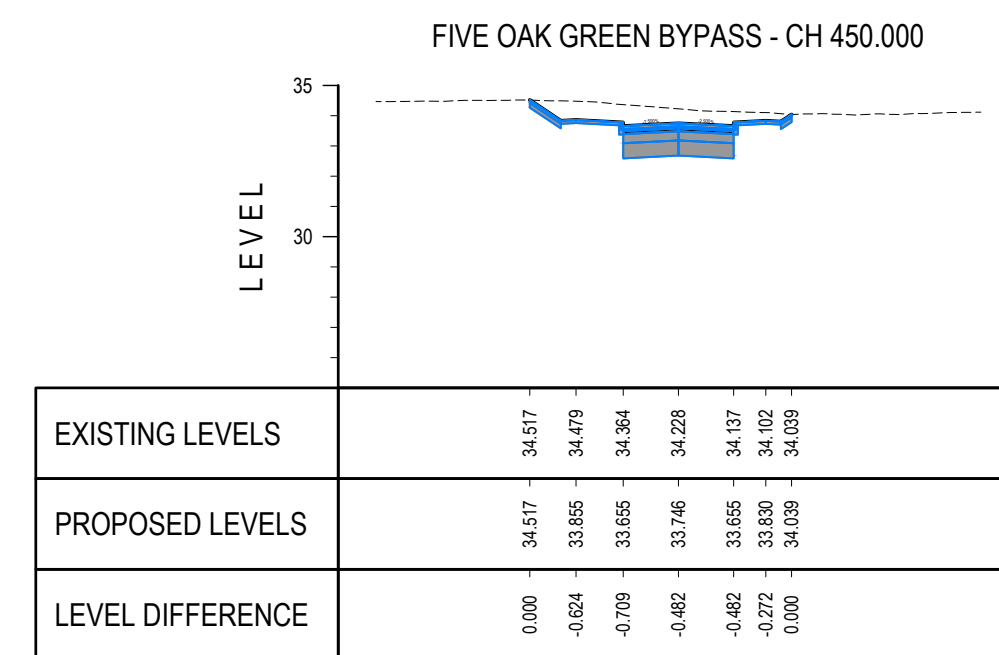
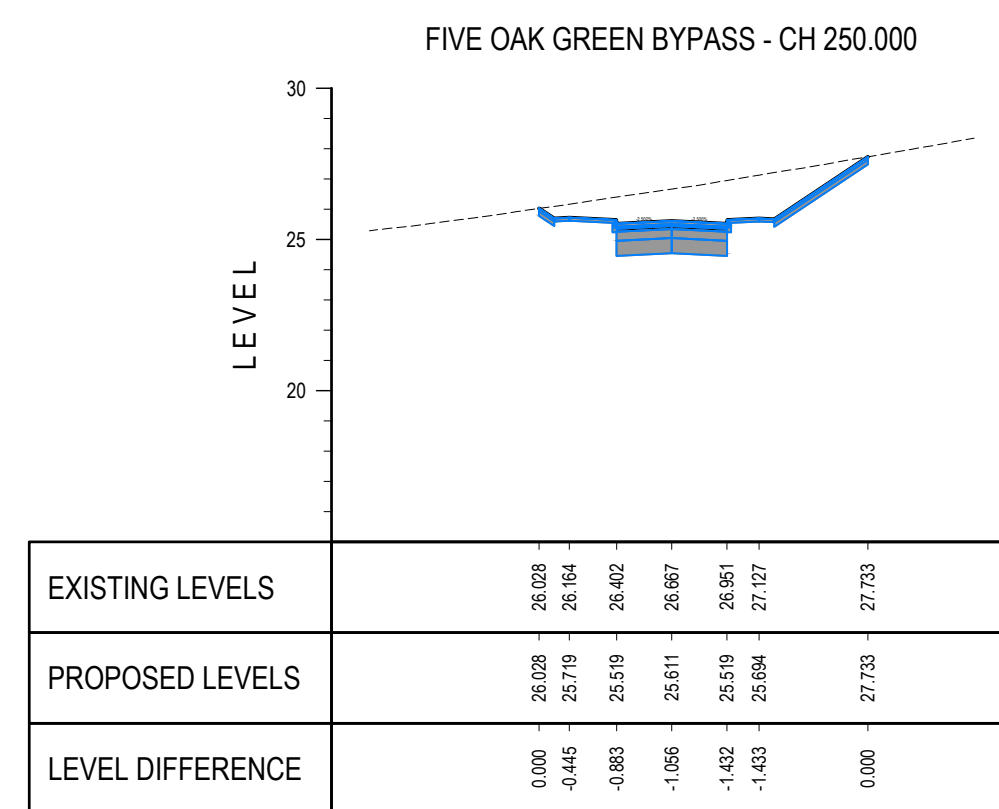
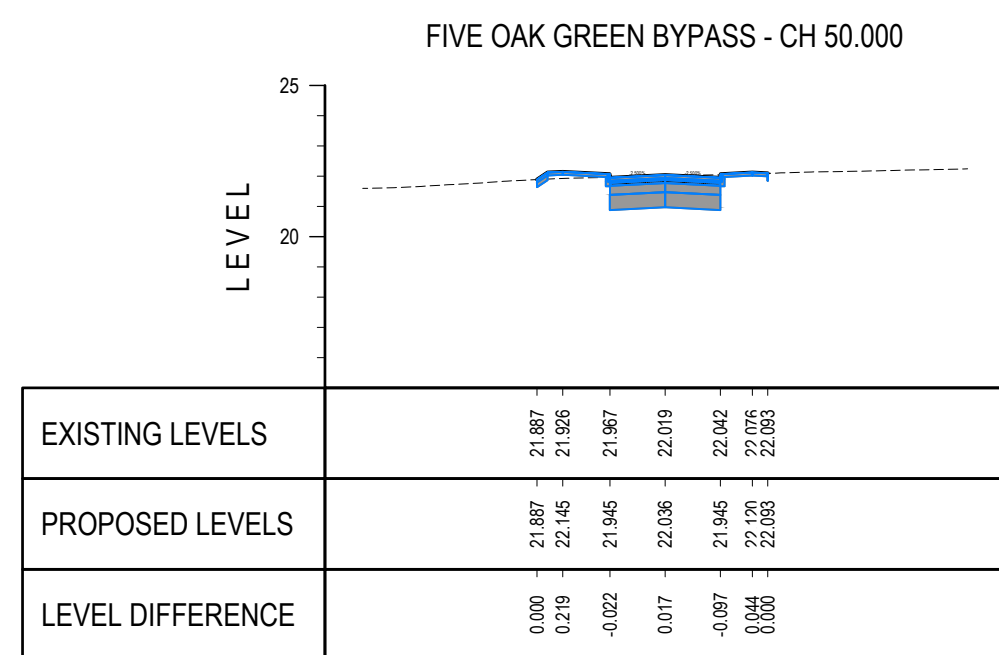
D



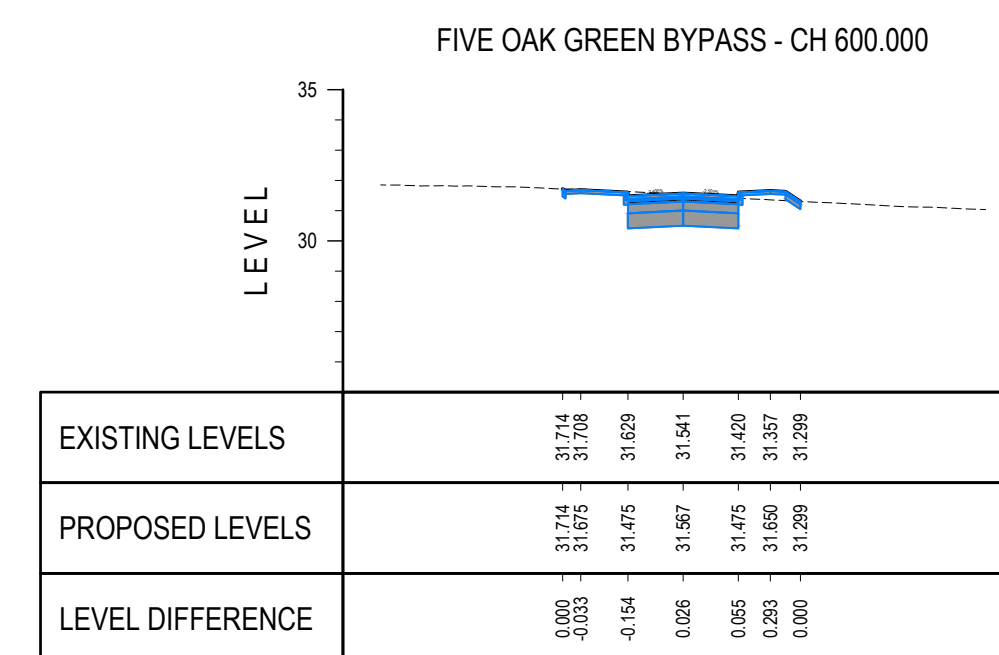
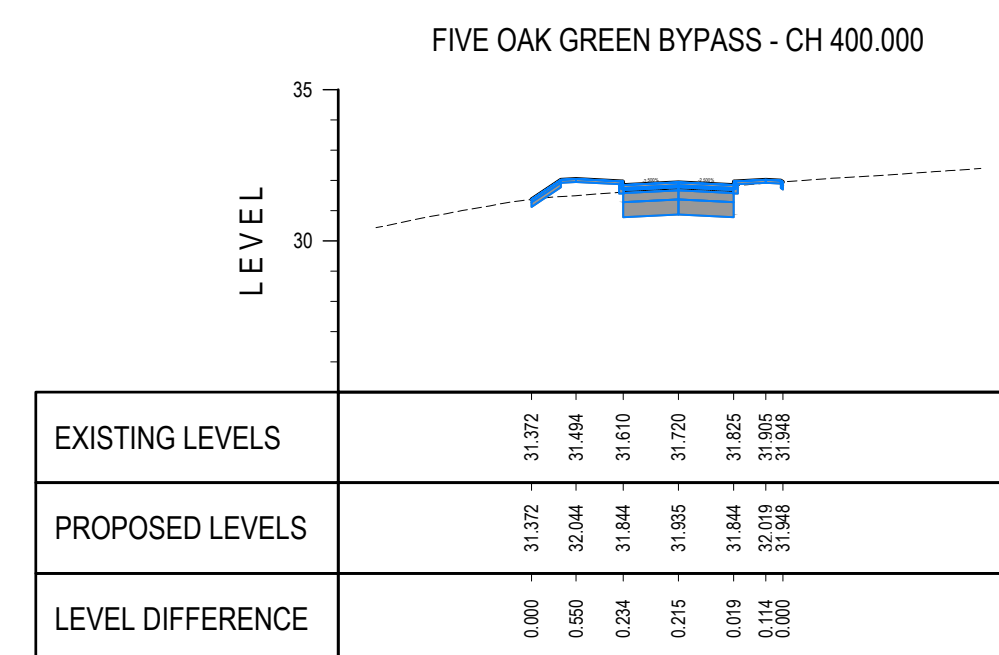
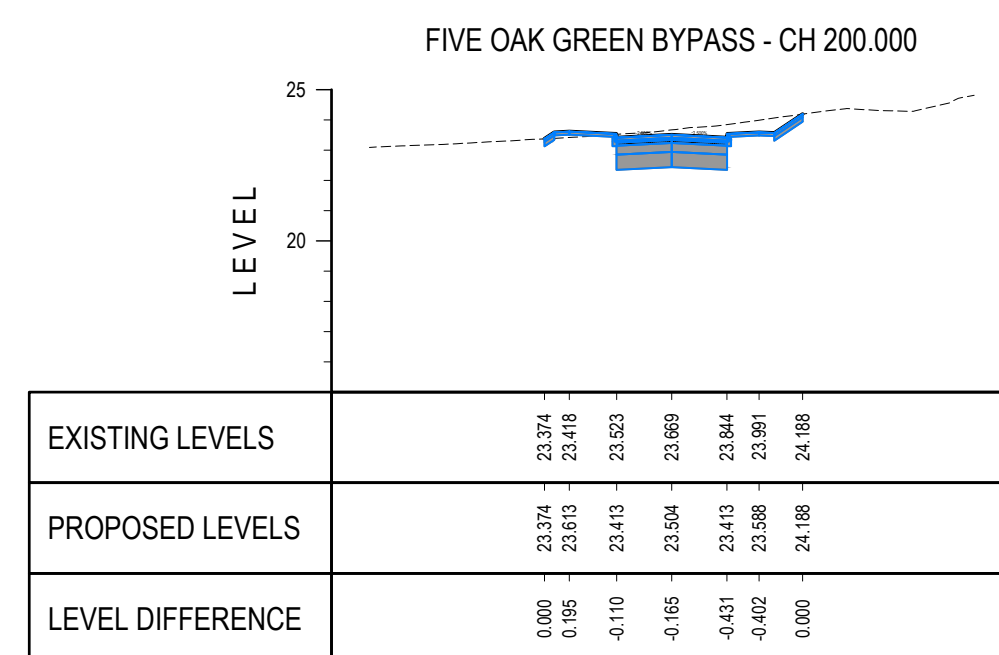
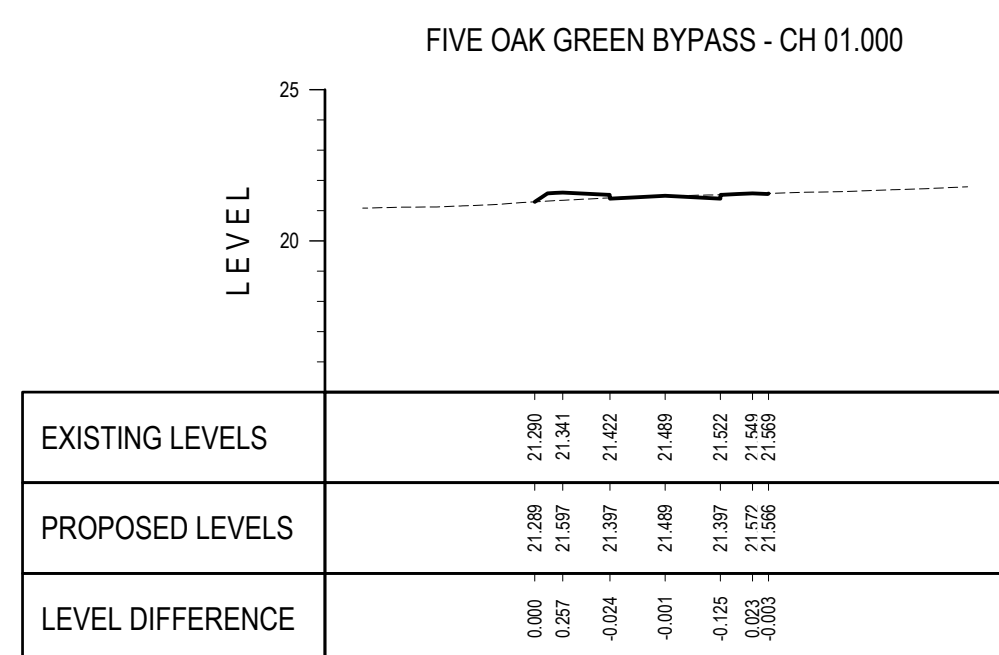
C



B



A



PO1	First Issue	DMH	PH	2022.02.08
	Issued/Revision		By	Appd
		DMH	DMH	PH
		Dwn.	Dsgn.	Chkd.
				2022.02.08
				YYYY.MM.DD

Issue Status
FOR INFORMATION
 This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



Client/Project
 TUNBRIDGE WELLS BOROUGH COUNCIL
 FIVE OAK GREEN BYPASS

Title
 PROPOSED HIGHWAY CROSS-SECTIONS
 FIVE OAK GREEN TO COLTS HILL BYPASS

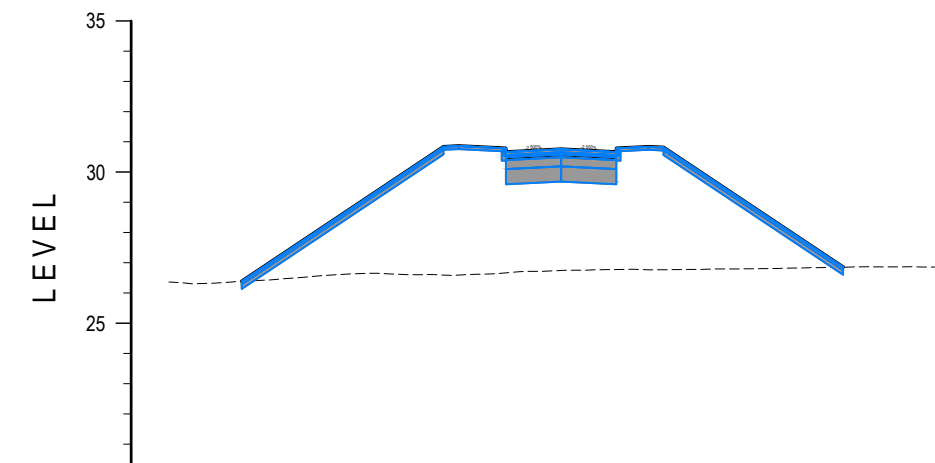
© Crown copyright and database rights 2022. All rights reserved. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Ordnance Survey 100000000

Copyright Reserved
 The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing
 - any errors or omissions shall be reported to Stantec without delay.
 The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.

Notes
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

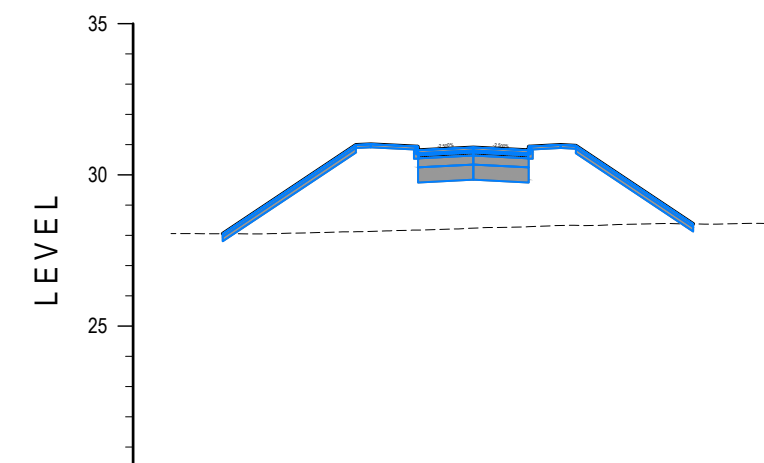
D

FIVE OAK GREEN BYPASS - CH 950.000



EXISTING LEVELS		26.384		26.592		26.584
PROPOSED LEVELS		26.384	30.861	30.661	30.752	26.584
LEVEL DIFFERENCE		0.000	4.478	3.994	4.090	0.000

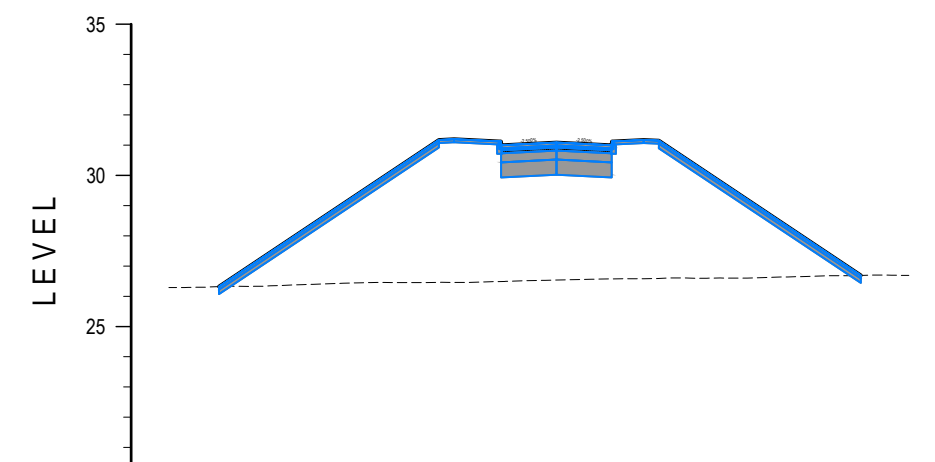
FIVE OAK GREEN BYPASS - CH 1150.000



EXISTING LEVELS		26.032		26.130		26.174
PROPOSED LEVELS		26.032	31.012	30.812	30.803	26.237
LEVEL DIFFERENCE		0.000	2.980	2.638	2.666	0.063

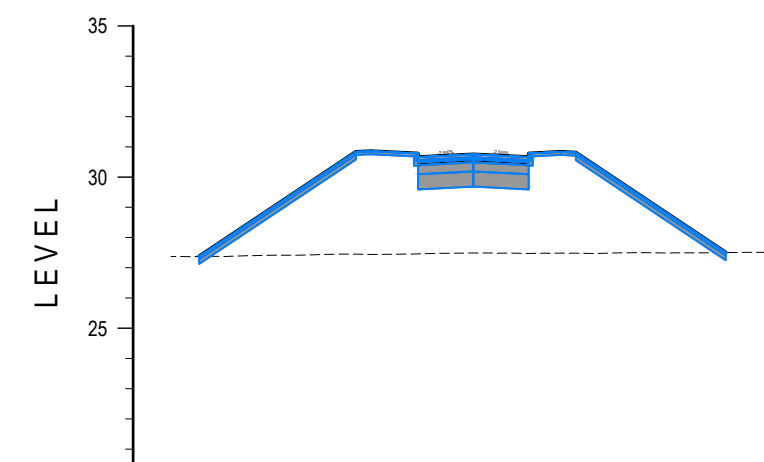
C

FIVE OAK GREEN BYPASS - CH 900.000



EXISTING LEVELS		26.322		26.459		26.691
PROPOSED LEVELS		26.322	31.194	30.994	31.085	26.578
LEVEL DIFFERENCE		0.000	4.736	4.505	4.549	4.421

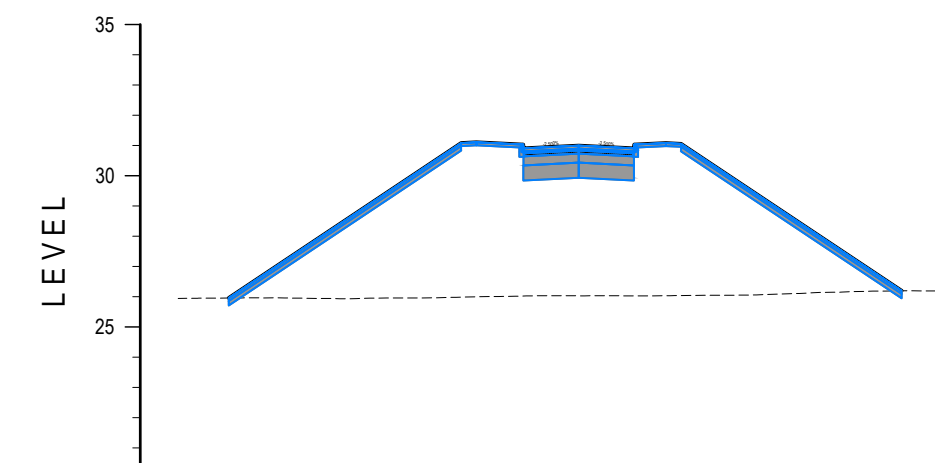
FIVE OAK GREEN BYPASS - CH 1100.000



EXISTING LEVELS		27.378		27.465		27.500
PROPOSED LEVELS		27.378	30.657	30.657	30.748	27.483
LEVEL DIFFERENCE		0.000	3.413	3.187	3.259	0.000

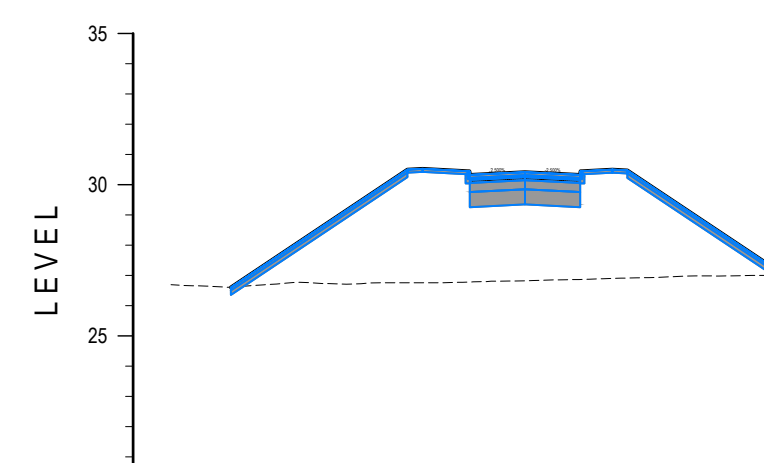
B

FIVE OAK GREEN BYPASS - CH 850.000



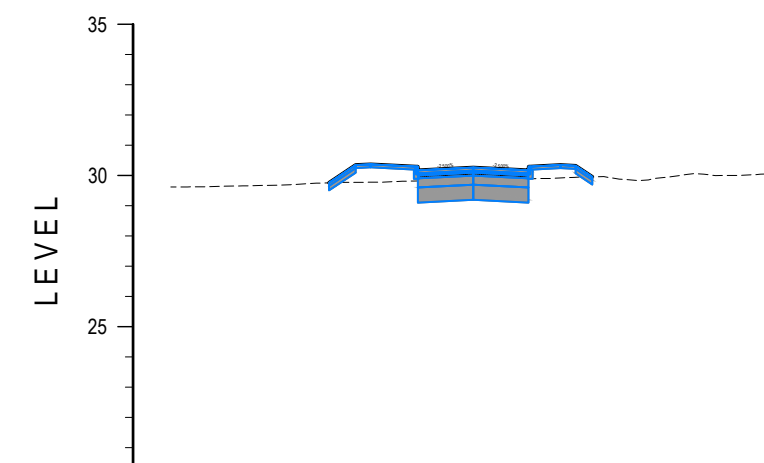
EXISTING LEVELS		25.958		26.007		26.023
PROPOSED LEVELS		25.958	31.107	30.907	30.888	26.023
LEVEL DIFFERENCE		0.000	5.110	4.884	4.988	4.809

FIVE OAK GREEN BYPASS - CH 1050.000



EXISTING LEVELS		26.865		26.758		26.783
PROPOSED LEVELS		26.865	30.623	30.323	30.415	26.824
LEVEL DIFFERENCE		0.000	3.755	3.500	3.591	0.000

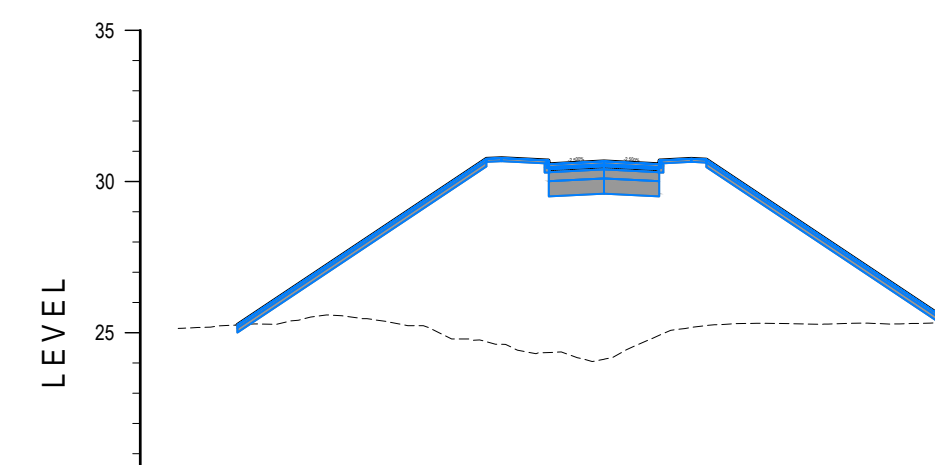
FIVE OAK GREEN BYPASS - CH 1248.000



EXISTING LEVELS		29.757		29.776		29.819
PROPOSED LEVELS		29.757	30.306	30.188	30.298	29.875
LEVEL DIFFERENCE		0.000	0.551	0.348	0.384	0.276

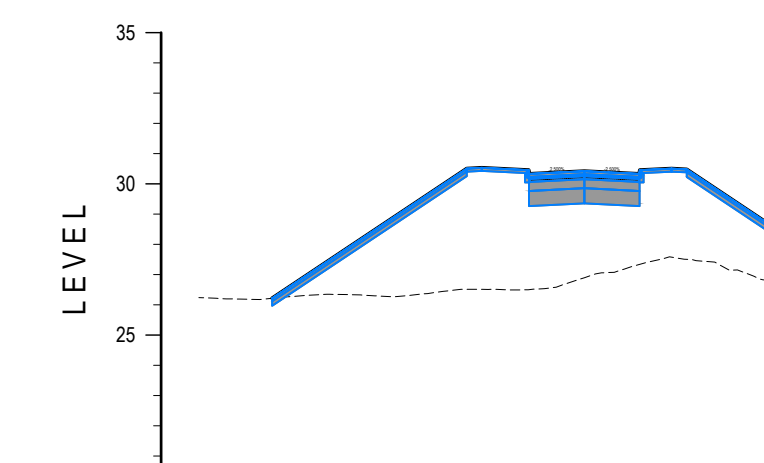
A

FIVE OAK GREEN BYPASS - CH 800.000



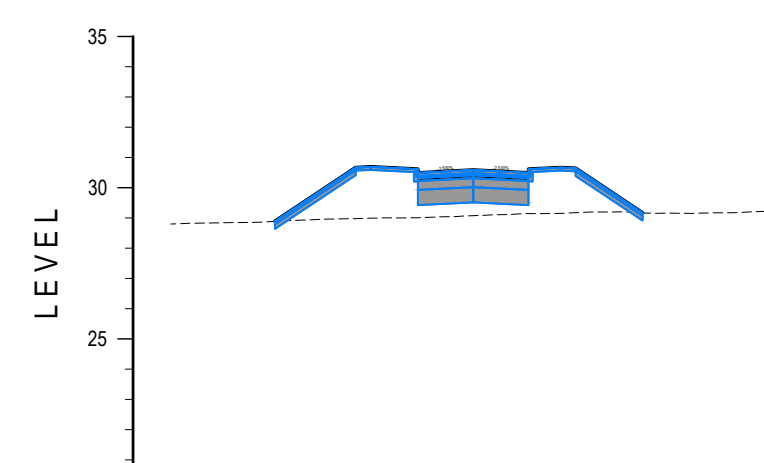
EXISTING LEVELS		25.257		24.816		24.945
PROPOSED LEVELS		25.257	30.774	30.574	30.665	24.912
LEVEL DIFFERENCE		0.000	6.157	6.229	6.542	5.682

FIVE OAK GREEN BYPASS - CH 1000.000



EXISTING LEVELS		26.214		26.509		26.689
PROPOSED LEVELS		26.214	30.327	30.327	30.419	27.535
LEVEL DIFFERENCE		0.000	4.019	3.808	3.524	1.000

FIVE OAK GREEN BYPASS - CH 1200.000



EXISTING LEVELS		28.886		28.891		29.007
PROPOSED LEVELS		28.886	30.688	30.489	30.579	28.942
LEVEL DIFFERENCE		0.000	1.698	1.481	1.506	0.000

Issue/Revision	DMH	PH	2022.02.08
	By	Appd	YYYY.MM.DD
	DMH	PH	2022.02.08
	Dwn.	Dsgn.	Chkd.

Issue Status
FOR INFORMATION
 This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



Client/Project
 TUNBRIDGE WELLS BOROUGH COUNCIL

FIVE OAK GREEN BYPASS

Title
 PROPOSED HIGHWAY CROSS-SECTIONS
 FIVE OAK GREEN TO COLTS HILL BYPASS

P:\0100\332410733\2022\02\08\12512 P:\0100\332410733\2022\02\08\12512 P:\0100\332410733\2022\02\08\12512 P:\0100\332410733\2022\02\08\12512

Copyright Reserved
 The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing
 - any errors or omissions shall be reported to Stantec without delay.
 The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.

Notes
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

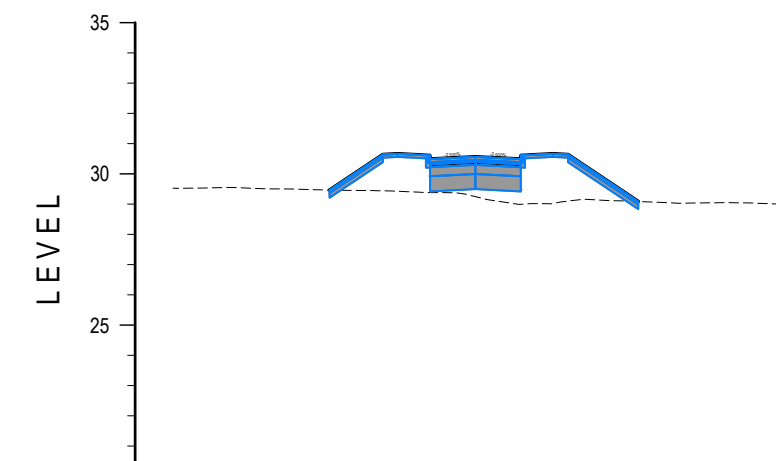
D

C

B

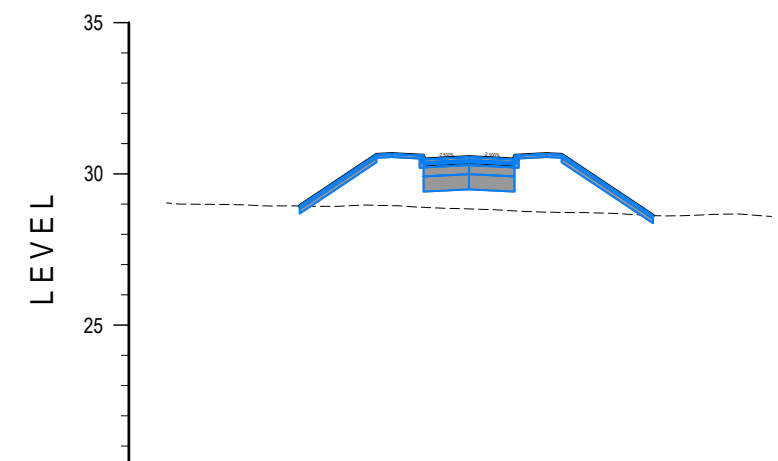
A

ALDERS ROAD - CH 150.000



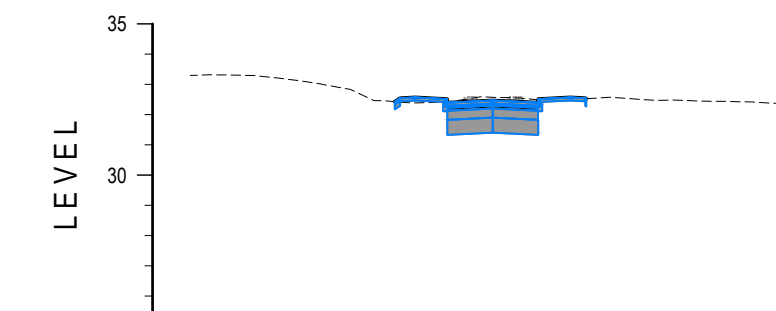
EXISTING LEVELS	29.462	29.425	29.383	29.348	29.294	29.021	29.007
PROPOSED LEVELS	29.462	30.061	30.496	30.561	30.606	30.681	29.007
LEVEL DIFFERENCE	0.000	1.236	1.100	1.313	1.482	1.640	0.000

ALDERS ROAD - CH 350.000



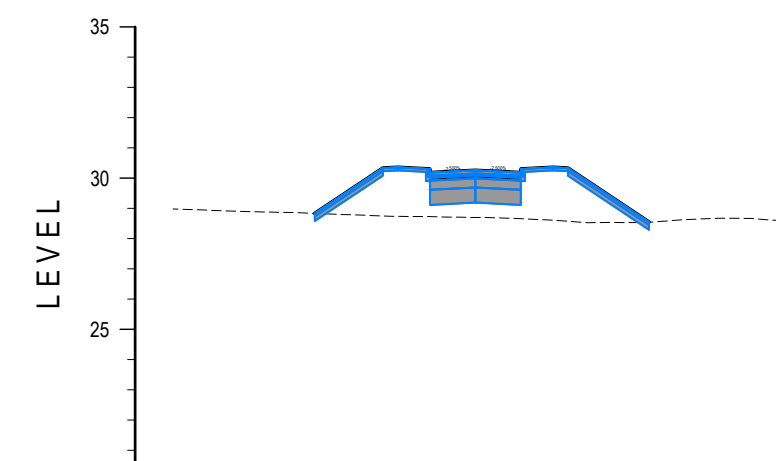
EXISTING LEVELS	28.938	28.660	28.666	28.666	28.777	28.738	28.620
PROPOSED LEVELS	28.938	30.665	30.680	30.685	30.685	30.685	28.620
LEVEL DIFFERENCE	0.000	1.706	1.586	1.713	1.700	1.917	0.000

ALDERS ROAD - CH 550.000



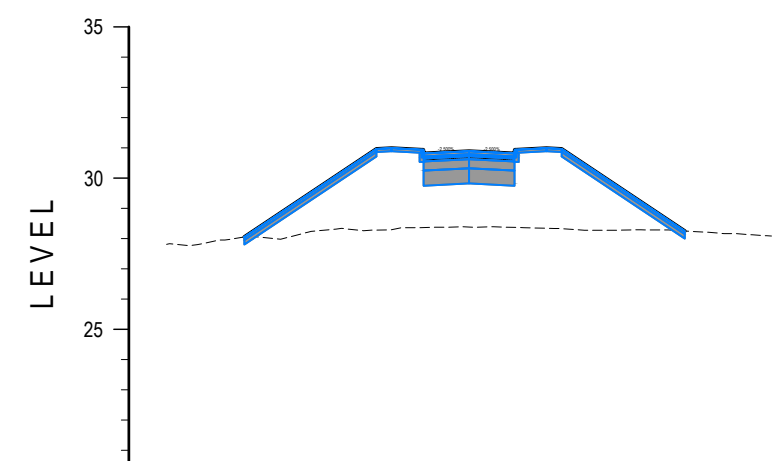
EXISTING LEVELS	32.424	32.386	32.417	32.570	32.484	32.469	32.523
PROPOSED LEVELS	32.424	32.566	32.391	32.466	32.391	32.566	32.523
LEVEL DIFFERENCE	0.000	0.180	-0.025	-0.104	-0.093	0.097	0.000

ALDERS ROAD - CH 100.000



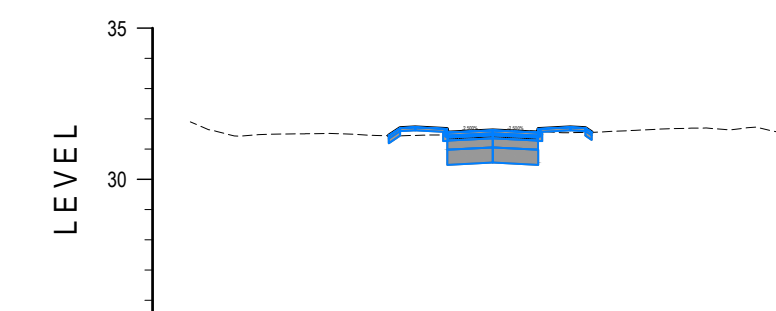
EXISTING LEVELS	28.831	28.733	28.726	28.698	28.607	28.643
PROPOSED LEVELS	28.831	30.353	30.178	30.253	30.178	30.353
LEVEL DIFFERENCE	0.000	1.620	1.452	1.554	1.521	1.746

ALDERS ROAD - CH 300.000



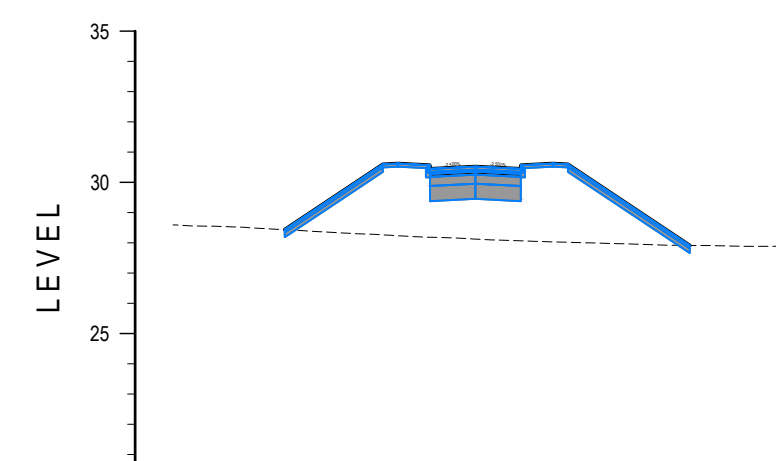
EXISTING LEVELS	28.932	28.591	28.586	28.581	28.389	28.340	28.249
PROPOSED LEVELS	28.932	30.689	30.813	30.888	30.813	30.888	28.249
LEVEL DIFFERENCE	0.000	2.097	2.446	2.297	2.444	2.448	0.000

ALDERS ROAD - CH 500.000



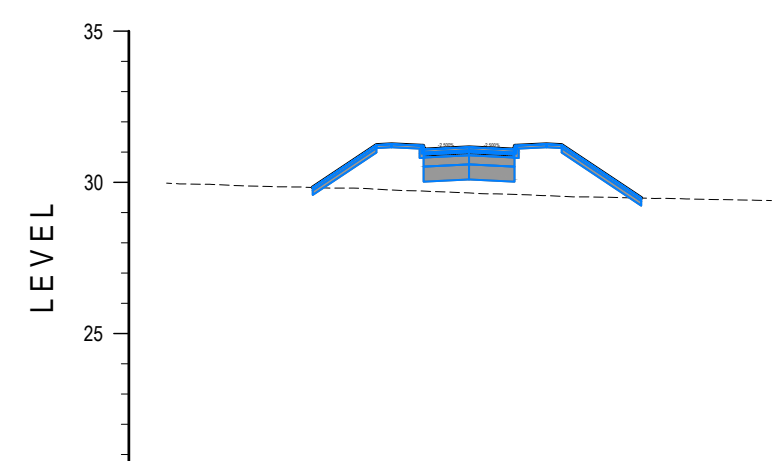
EXISTING LEVELS	31.442	31.462	31.465	31.580	31.586	31.542	31.553
PROPOSED LEVELS	31.442	31.718	31.543	31.618	31.543	31.718	31.553
LEVEL DIFFERENCE	0.000	0.276	-0.078	0.039	-0.043	0.176	0.000

ALDERS ROAD - CH 50.000



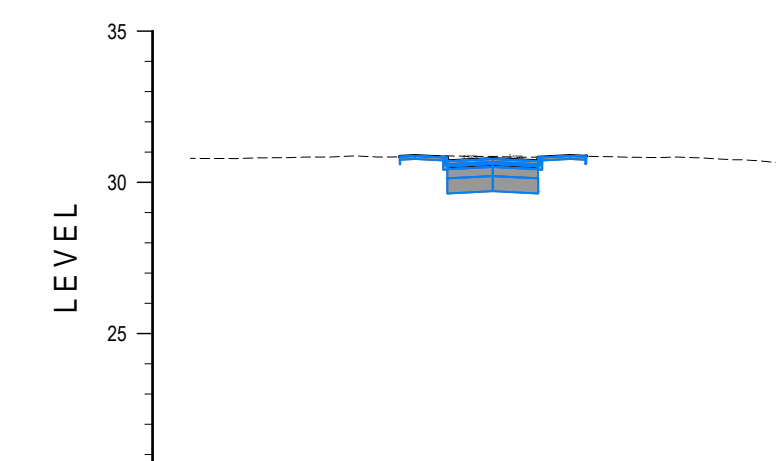
EXISTING LEVELS	28.432	28.234	28.184	28.132	28.064	28.029	27.909
PROPOSED LEVELS	28.432	30.617	30.442	30.517	30.442	30.617	27.909
LEVEL DIFFERENCE	0.000	2.385	2.258	2.385	2.378	2.588	0.000

ALDERS ROAD - CH 250.000



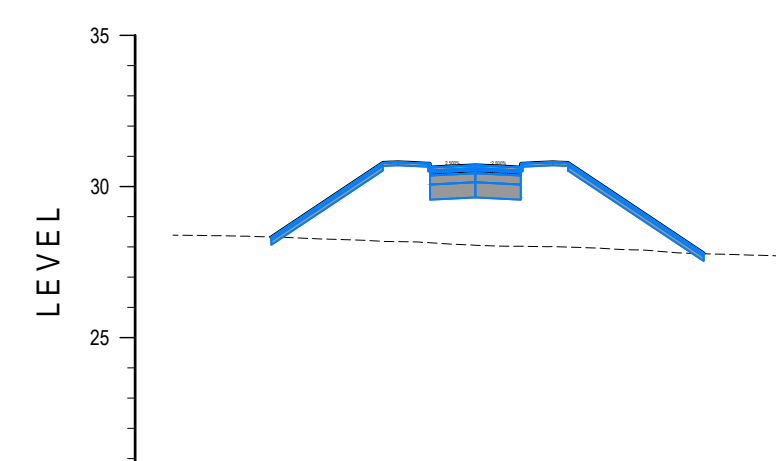
EXISTING LEVELS	29.828	29.746	29.709	29.684	29.601	29.557	29.478
PROPOSED LEVELS	29.828	31.628	31.603	31.588	31.083	31.258	29.478
LEVEL DIFFERENCE	0.000	1.812	1.734	1.910	1.482	1.701	0.000

ALDERS ROAD - CH 450.000



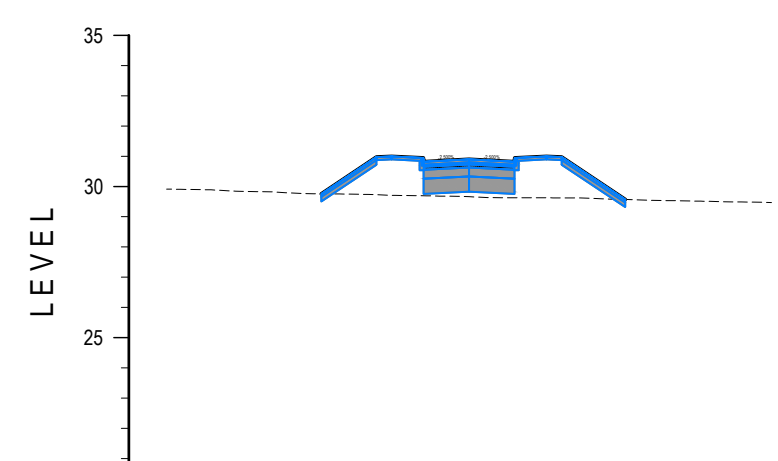
EXISTING LEVELS	30.898	30.869	30.873	30.865	30.832	30.865
PROPOSED LEVELS	30.898	30.870	30.695	30.770	30.695	30.870
LEVEL DIFFERENCE	0.000	-0.029	-0.178	-0.086	-0.138	0.105

ALDERS ROAD - CH 22.000



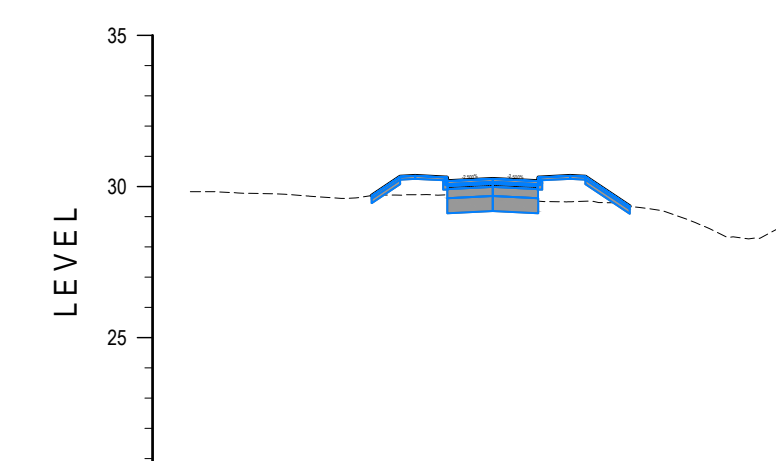
EXISTING LEVELS	28.322	28.267	28.176	28.137	28.068	28.011	27.977
PROPOSED LEVELS	28.321	29.806	30.094	30.137	30.104	30.094	27.977
LEVEL DIFFERENCE	-0.011	1.539	2.028	2.041	2.046	2.087	0.011

ALDERS ROAD - CH 200.000



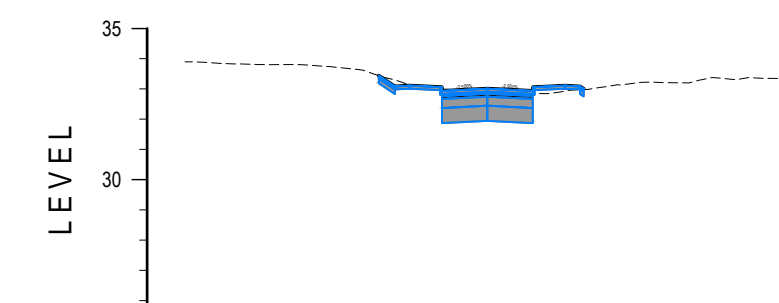
EXISTING LEVELS	29.706	29.709	29.684	29.684	29.625	29.625	29.570
PROPOSED LEVELS	29.706	30.984	30.919	30.919	30.919	30.919	29.570
LEVEL DIFFERENCE	0.000	1.058	1.123	1.233	1.104	1.294	0.000

ALDERS ROAD - CH 400.000



EXISTING LEVELS	29.697	29.729	29.725	29.567	29.516	29.484	29.349
PROPOSED LEVELS	29.697	30.392	30.177	30.222	30.177	30.392	29.349
LEVEL DIFFERENCE	0.000	0.623	-0.451	0.055	-0.041	0.087	0.000

ALDERS ROAD - CH 582.000



EXISTING LEVELS	33.436	33.443	32.895	32.910	32.855	32.820
PROPOSED LEVELS	33.436	33.109	32.934	32.859	32.859	32.820
LEVEL DIFFERENCE	0.000	-0.024	-0.081	-0.001	0.079	0.000

DMH	DMH	PH	2022.02.08
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



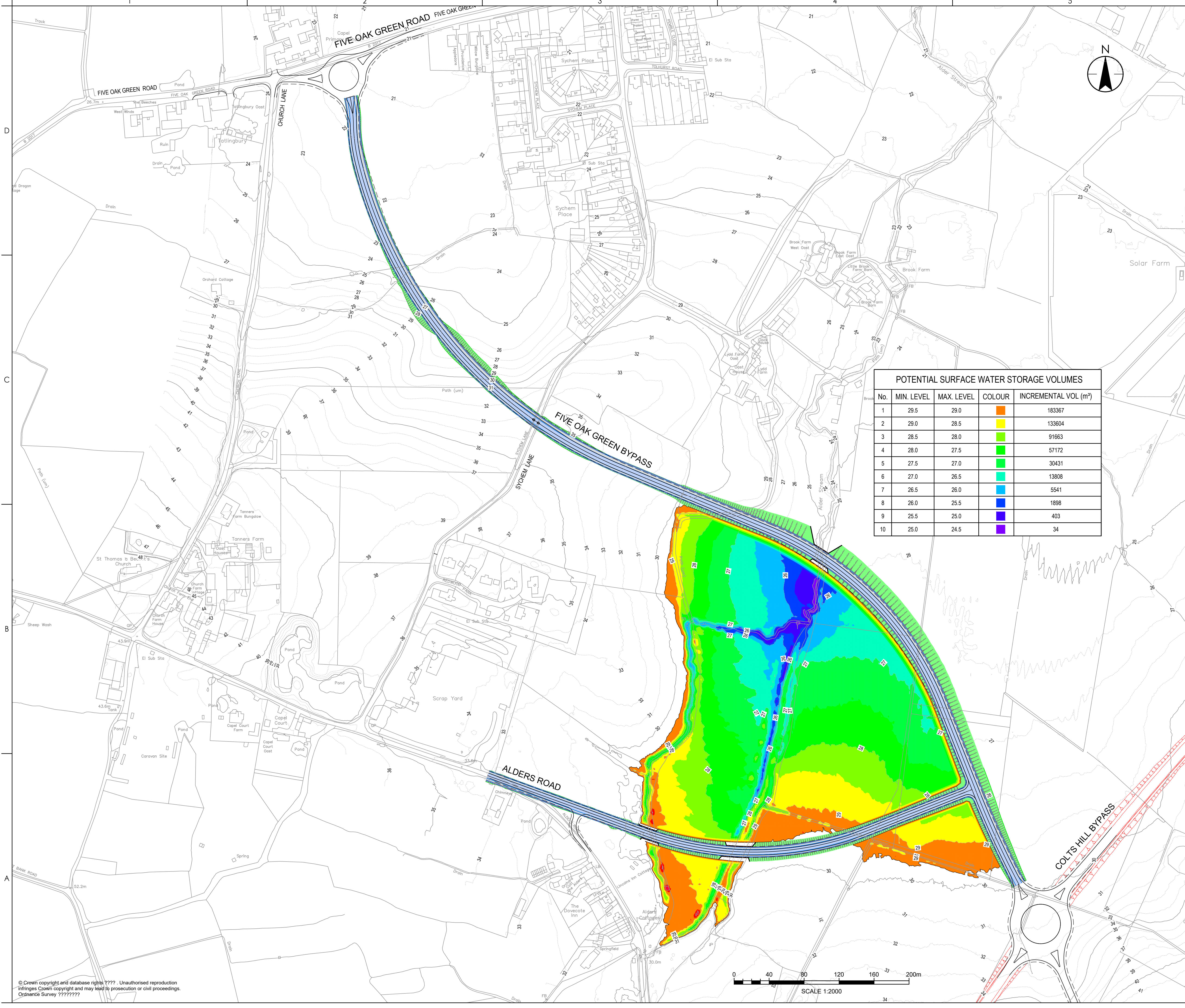
Client/Project
 TUNBRIDGE WELLS BOROUGH COUNCIL

FIVE OAK GREEN BYPASS

Title
**PROPOSED HIGHWAY CROSS-SECTIONS
 PROPOSED FIVE OAK GREEN BYPASS
 TO ALDERS ROAD**

© Crown copyright and database rights 7777. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
 Ordnance Survey 77777777

P:\0161\332410733\332410733_01.dwg 13/02/2022 10:51:57 P:\0161\332410733\332410733_01.dwg 13/02/2022 10:51:57 P:\0161\332410733\332410733_01.dwg 13/02/2022 10:51:57



Issue/Revision	DMH	PH	2022.02.09
P01 First Issue	DMH	PH	2022.02.09
Issued/Revision	By	Appd	YYYY.MM.DD
	DMH	PH	2022.02.09
	Dwn.	Chkd.	YYYY.MM.DD

Issue Status

FOR INFORMATION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.



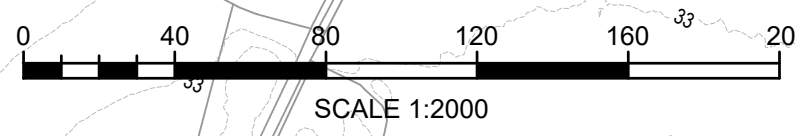
Client/Project
 TUNBRIDGE WELLS BOROUGH COUNCIL

FIVE OAK GREEN BYPASS

Title
 POTENTIAL SURFACE WATER STORAGE VOLUMES

Project No. 332410733 Scale 1:2000
 Revision P01 Drawing No. 332410733_SK07

© Crown copyright and database rights 2022. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Ordnance Survey 2022.02.09 15:17 PM by: horton, dm



Appendix 5: Strategic Sites Infrastructure Framework

Scenario 1 - Both Sites

Short Phase 0
 Medium Phase 1/2
 Long Phase 3/Longer

SHARED

Plan Ref	Item	Category	Priority	When?	Cost	Funding Source	Delivery / Partners
	Colts Hill improvements	E	Desirable	Medium	£ 20,000,000	S106/S278	KCC Highways
7	A228 Maidstone Road / Whetsted Road priority junction;	E	Essential	Short	£ 150,000	S278	KCC Highways
8	A228 Maidstone Road / B2017 Badsell Road (Colts Hill) roundabout	E	Essential	Short	£ 2,000,000	S278	KCC Highways
	Five Oak Green to A26 on road cycle route - on B2017	E	Desirable	Short	£ 2,300,000	S106	
	Pedestrian/Cycle Route to Tunbridge Wells - A228 Route	E	Desirable	Medium	£ 1,050,000	S106	
	Pedestrian/Cycle Route to Tudeley	E	Essential	Short	£ 1,100,000	S106	
	6FE Secondary School - Tudeley site, costs shared	E	Essential	Medium/Long	£ 23,948,888	S106	Hadlow Estate
	New health centre facility	E	Desirable	Medium	£ 5,000,000	S106	CCG / GP Practices

PADDOCK WOOD

Plan Ref	Item	Category	Priority	When?	Cost	Funding Source	Delivery / Partners
	Highways						
	Access road with loop within site - East	A	Essential	Short	£ 2,562,500	Development Cost	
	Internal road off main access road - East	A	Essential	Short/Medium	£ 687,500	Development Cost	
	Access Road off Church Road to site - East	A	Essential	Short/Medium	£ 500,000	Development Cost	KCC Highways
	Bus / cycle / ped 'causeway' to Countryside site - East	C	Essential	Short	£ 488,000	Development Cost	Countryside
	Internal link road between the A228 and B2160 Maidstone Road - North West	A	Essential	Short/Medium	£ 2,100,000	Development Cost	
	Internal road between link road and northern & southern parcels - North West	A	Essential	Short/Medium	£ 1,800,000	Development Cost	
1	Roundabout Access with A228 - North West	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
2	Priority access with Maidstone Road - North West	A	Essential	Short	£ 400,000	Development Cost	KCC Highways
	1x Road/bus/cycle/ped 'causeway' over floodplain - North West	A	Essential	Short	£ 288,000	Development Cost	
	Internal road off Badsell Road - South West	A	Essential	Short/Medium	£ 1,300,000	Development Cost	
3	Access with A228 - South West	A	Essential	Medium	£ 1,000,000	Development Cost	KCC Highways
4	Access with Badsell Road - South West	A	Essential	Medium	£ 400,000	Development Cost	KCC Highways
	Internal road off A228 - South West	A	Essential	Medium	£ 625,000	Development Cost	
	2x Road/bus/cycle/ped 'causeways' over floodplain - South West	A	Essential	Medium	£ 1,088,000	Development Cost	
14	A228 Whetsted Road/A228 Bransbridges Road/B2160 Maidstone Road roundabout	D	Essential	Short	£ 1,000,000	S278	KCC Highways
9	B2017 Badsell Road / B2160 Maidstone Road signalised junction;	D	Essential	Short	£ 1,000,000	S278	KCC Highways
10	B2160 Maidstone Road / Commercial Road priority junction	D	Essential	Short	£ 500,000	S278	KCC Highways
11	Shuttle signal Bridge Paddock Wood High Street	D	Desirable	Medium	£ 500,000	S278	KCC Highways
12	Crossing on the A228	D	Essential	Short	£ 250,000	S278	KCC Highways
	Sustainable Transport						
	Proposed cycleway/footway routes through site (x3) - East	A	Essential	Short/Medium	£ 900,000	Development Cost	
	Bus stops on site along internal road - East	A	Essential	Short/Medium	£ 250,000	Development Cost	
	Hop Pickers Line integration to the Pedestrian and cycle infrastructure - East	A	Desirable	Short	£ 325,000	Development Cost / S106	
	Proposed cycleway/footway route - North West	A	Essential	Short	£ 1,050,000	Development Cost	
	Bus stops on site along link road - North West	A	Essential	Short	£ 200,000	Development Cost	
5	Pedestrian/cycle Bridge across Railway - West	C	Essential	Medium	£ 3,500,000	S106	Network Rail
6	Pedestrian/cycle Bridge across Railway - immediately east of A228 - West	C	Desirable	Medium	£ 3,500,000	S106	Network Rail
	Bus stops on site along access road - South West	A	Essential	Medium	£ 200,000	Development Cost	
	Pedestrian/cycle route through site - South West	A	Essential	Medium	£ 425,000	Development Cost	
	New bus route subsidy support (5 years)	F	Essential	Short/Medium/Long	£ 1,500,000	S106	KCC Public Transport
	Travel Plan contribution	F	Essential	Short/Medium/Long	£ 1,606,500	S106	KCC Public Transport
	Pedestrian and cycle improvements - Stantec assumed upgrades and PIA presentatio	D	Essential	Short	£ 4,050,000	S106	
	Cycle storage improvements at Paddock Wood Station	D	Desirable	Short	£ 50,000	S106	Southeastern Railway
	New bus route subsidy support (5 years)	F	Essential	Short/Medium/Long	£ 1,500,000	S106	
13	Improvement to NE existing pedestrian/cycle bridge over Railway	D	Desirable	Medium	£ 3,500,000	S106	
	Education						
	7FE primary provision	B	Essential	Short/Medium/Long	£ 27,038,036	S106	KCC
	2FE Secondary school annex	D	Essential	Medium	£ 7,982,963	S106	KCC / Mascalls Academy
	Health						
	Primary Care contribution	F	Essential	Short/Medium/Long	£ 1,135,740	S106	CCG
	Water						
	Sewage Works Upgrade	D	Essential	Short/Medium	£ 200,000	S106	Southern Water
	Utilities						
	Electricity - New Connections	A	Essential	Short/Medium	£ 9,655,500	Development Cost	
	Electricity - Diversion of Existing Utilities	A	Desirable	Short	£ 1,200,000	Development Cost	UKPN
	Gas - New Connections	A	Optional	Short/Medium	£ 25,572	Development Cost	
	Water - New Connections	A	Essential	Short/Medium	£ 219,937	Development Cost	
	Foul Water - New Connections	A	Essential	Short/Medium	£ 150,000	Development Cost	
	Foul Water - Diversion of Existing Utilities	A	Desirable	Short	£ 100,000	Development Cost	Southern Water
	Green / Grey / Blue						
	Improved conveyancing (enhanced or new channels in SFRA)	B	Essential	Short	£ 1,590,000	Development Cost / Flood Tariff	Environment Agency
	Flood defences - embankment/wall	B	Essential	Short	£ 991,975	Development Cost / Flood Tariff	Environment Agency
	Raised platform (11ha by 1m)	A	Essential	Short/Medium	£ 5,235,000	Development Cost	
	Groundworks	A	Essential	Short/Medium	£ 2,500,000	Development Cost	
	SUDS	A	Essential	Short/Medium	£ 745,000	Development Cost	
	Outdoor Sports Hub	B	Desirable	Medium	£ 3,620,000	S106	TWBC
	Allotment provision	A	Essential	Short/Medium	£ 550,100	S106	
	Amenity space	A	Essential	Short/Medium	£ 1,329,039	S106	
	Children's Play area capital costs	A	Essential	Short/Medium	£ 1,108,080	S106	
	Cultural						
	Indoor Sports Hub with pool	B	Desirable	Medium	£ 10,840,000	S106	TWBC
	Other						
	Climate Change Adaptation per Unit	F	Desirable	Short/Medium/Long	£ 7,140,000	Development Cost	

TUDELEY

Item	Category	Priority	When?	Cost	Funding Source	Delivery / Partners	
	Highways						
15	Site Access to East of Tudeley	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
17	Site Access to West of Tudeley	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
16	Site Access south of Tudeley	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
	Primary Roads (x5)	A	Essential	Short/Medium	£ 3,646,050	Development Cost	
	Secondary Roads (x8)	A	Essential	Short/Medium	£ 3,228,888	Development Cost	
18	Tunnel	A	Desirable	Medium/Long	£ 20,000,000	Development Cost	Network Rail
	Link Road through site	A	Essential	Medium/Long	£ 2,144,675	Development Cost	
19	Railway bridge all Modes - ped and cyclist vehicle	A	Essential	Medium	£ 10,000,000	Development Cost	Network Rail
21	Works to reduce existing rail bridge	A	Desirable	Medium	£ 150,000	S106	Network Rail
22	Link by passing Five Oak Green-RBout with A228	D	Desirable	Medium	£ 8,860,980		
23	A26/B2017 Roundabout	D	Desirable	Short	£ 1,000,000		
24	A21/A26 Roundabout	D	Desirable	Short	£ 1,000,000		
25	Traffic Management in Five Oak Green	D	Desirable	Medium	£ 200,000		
26	Widening of B2017 - Site SE corner to A26	D	Desirable	Medium	£ 3,100,000		
	Sustainable Transport						
20	Railway bridge - ped and cycle	A	Desirable	Long	£ 3,500,000	Development Cost	Network Rail
	Proposed cycleway/footway routes through site (x6)	A	Essential	Short/Medium	£ 2,103,695	Development Cost	
	3m shared cycleway/footway along internal link road	A	Essential	Short/Medium	£ 200,000	Development Cost	
	Pedestrian and cycle crossings	A	Essential	Short/Medium	£ 300,000	Development Cost	
	New bus route subsidy support	F	Essential	Medium/Long	£ 1,500,000	S106	KCC Public Transport
	Travel Plan contribution	F	Essential	Medium/Long	£ 1,260,000	S106	KCC Public Transport
	Cycle route west to the A26	D	Desirable	Medium/Long	£ 833,965		
	Cycle route south to A21 via Half Moon Lane	D	Desirable	Short	£ 1,420,000		
	Cycle storage improvements at Tonbridge Station	D	Desirable	Short	£ 50,000		
	New bus route subsidy support	F	Essential	Short/Medium/Long	£ 1,500,000		
	Education						
	4FE primary provision	A	Essential	Medium	£ 15,450,306	S106	KCC
	Health						
	Primary Care contribution	F	Essential	Short/Medium/Long	£ 921,760		
	Water						
	Sewage Works Upgrade	D	Essential	Medium	£ 200,000		
	Utilities						
	Electricity - New Connections	A	Essential	Short/Medium/Long	£ 4,000,000	Development Cost	

Electricity - Diversion of Existing Utilities	A	Essential	Short	£ 7,500,000	Development Cost	UKPN
Gas - New Connections	A	Essential	Short/Medium/Long	£ 18,600	Development Cost	
Water - New Connections	A	Essential	Short/Medium/Long	£ 153,856	Development Cost	
Foul Water - New Connections	A	Essential	Short/Medium/Long	£ 150,000	Development Cost	
Foul Water - Diversion of Existing Utilities	A	Essential	Short	£ 100,000	Development Cost	Southern Water
Green / Grey / Blue						
Groundworks	A	Essential	Short/Medium	£ 1,500,000	Development Cost	
Allotment provision	A	Desirable	Medium	£ 450,374	S106	
Amenity space	A	Essential	Medium	£ 1,088,102	S106	
Children's Play area capital	A	Essential	Medium	£ 907,200	S106	TWBC
Sports pitches contribution (per Open Space SPD)	A	Essential	Medium	£ 7,078,411	S106	TWBC
Tennis Courts	A	Desirable	Medium	£ 750,000	Development Cost	
Cricket pitch	A	Desirable	Medium/Long	£ 1,000,000	Development Cost	
Cultural						
Indoor hall / community hall with sports provision - bowls, badminton, trampolining	A	Desirable	Medium	£ 2,000,000	Development Cost	
Other						
Climate Change Adaptation per Unit	F	Essential	Medium/Long	£ 5,600,000	Development Cost	

Scenario 2 - Paddock Wood & east Capel

Short
Medium
Long

Phase 0
Phase 1/2
Phase 3/Longer

PADDOCK WOOD

Plan Ref	Item	Category	Priority	When?	Cost	Funding Source	Delivery / Partners
Highways							
	Access road with loop within site - East	A	Essential	Short	£ 2,562,500	Development Cost	
	Internal road off main access road - East	A	Essential	Short/Medium	£ 687,500	Development Cost	
	Access Road off Church Road to site - East	A	Essential	Short/Medium	£ 500,000	Development Cost	KCC Highways
	Bus / cycle / ped 'causeway' to Countryside site - East	C	Essential	Short	£ 488,000	Development Cost	Countryside
	Internal link road between the A228 and B2160 Maidstone Road - North West	A	Essential	Short/Medium	£ 2,100,000	Development Cost	
	Internal road between link road and northern & southern parcels - North West	A	Essential	Short/Medium	£ 1,800,000	Development Cost	
1	Roundsabout Access with A228 - North West	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
2	Priority access with Maidstone Road - North West	A	Essential	Short	£ 400,000	Development Cost	KCC Highways
	1x Road/bus/cycle/ped 'causeway' over floodplain - North West	A	Essential	Short	£ 288,000	Development Cost	
	Internal road off Badsell Road - South West	A	Essential	Short/Medium	£ 1,300,000	Development Cost	
3	Access with A228 - South West	A	Essential	Medium	£ 1,000,000	Development Cost	KCC Highways
4	Access with Badsell Road - South West	A	Essential	Medium	£ 400,000	Development Cost	KCC Highways
	Internal road off A228 - South West	A	Essential	Medium	£ 625,000	Development Cost	
	2x Road/bus/cycle/ped 'causeways' over floodplain - South West	A	Essential	Medium	£ 1,088,000	Development Cost	
	Colts Hill improvements	D	Desirable	Medium	£ 20,000,000	S106/S278	KCC Highways
7	A228 Maidstone Road / Whetsted Road priority junction;	D	Essential	Short	£ 150,000	S278	KCC Highways
8	A228 Maidstone Road / B2017 Badsell Road (Colts Hill) roundabout	D	Essential	Short	£ 2,000,000	S278	KCC Highways
14	A228 Whetsted Road/A228 Bransbridges Road/B2160 Maidstone Road round	D	Essential	Short	£ 1,000,000	S278	KCC Highways
9	B2017 Badsell Road / B2160 Maidstone Road signalised junction;	D	Essential	Short	£ 1,000,000	S278	KCC Highways
10	B2160 Maidstone Road / Commercial Road priority junction	D	Essential	Short	£ 500,000	S278	KCC Highways
11	Shuttle signal Bridge Paddock Wood High Street	D	Desirable	Medium	£ 500,000	S278	KCC Highways
12	Crossing on the A228	D	Essential	Short	£ 250,000	S278	KCC Highways
Sustainable Transport							
	Proposed cycleway/footway routes through site (x3) - East	A	Essential	Short/Medium	£ 900,000	Development Cost	
	Bus stops on site along internal road - East	A	Essential	Short/Medium	£ 250,000	Development Cost	
	Hop Pickers Line integration to the Pedestrian and cycle infrastructure - East	A	Desirable	Short	£ 325,000	Development Cost / S106	
	Proposed cycleway/footway route - North West	A	Essential	Short	£ 1,050,000	Development Cost	
	Bus stops on site along link road - North West	A	Essential	Short	£ 200,000	Development Cost	
5	Pedestrian/cycle Bridge across Railway - West	C	Essential	Medium	£ 3,500,000	S106	Network Rail
6	Pedestrian/cycle Bridge across Railway - immediately east of A228 - West	C	Desirable	Medium	£ 3,500,000	S106	Network Rail
	Bus stops on site along access road - South West	A	Essential	Medium	£ 200,000	Development Cost	
	Pedestrian/cycle route through site - South West	A	Essential	Medium	£ 425,000	Development Cost	
	New bus route subsidy support (5 years)	F	Essential	Short/Medium/Long	£ 1,500,000	S106	KCC Public Transport
	Travel Plan contribution	F	Essential	Short/Medium/Long	£ 1,606,500	S106	KCC Public Transport
	Five Oak Green to A26 on road cycle route - on B2017	D	Desirable	Short	£ 2,200,000	S106	
	Pedestrian/Cycle Route to Tunbridge Wells - A228 Route	D	Desirable	Medium	£ 1,050,000	S106	
	Pedestrian and cycle improvements - Stantec assumed upgrades and PJA pres	D	Essential	Short	£ 4,050,000	S106	
	Cycle storage improvements at Paddock Wood Station	D	Desirable	Short	£ 50,000	S106	Southeastern Railway
	New bus route subsidy support (5 years)	F	Essential	Short/Medium/Long	£ 1,500,000	S106	
13	Improvement to NE existing pedestrian/cycle bridge over Railway	D	Desirable	Medium	£ 3,500,000	S106	
Education							
	2FE primary provision	B	Essential	Short/Medium/Long	£ 27,038,036	S106	KCC
	2FE Secondary school annex	D	Essential	Medium	£ 7,982,963	S106	KCC / Mascalls Academy
	3FE Contribution towards secondary school provision elsewhere	F	Essential	Medium	£ 11,974,444	S106	Hadlow Estate
Health							
	Primary Care contribution	F	Essential	Short/Medium/Long	£ 1,135,740	S106	CCG
	New health centre facility	D	Desirable	Medium	£ 3,000,000	S106	CCG / GP Practices
Water							
	Sewage Works Upgrade	D	Essential	Short/Medium	£ 200,000	S106	Southern Water
Utilities							
	Electricity - New Connections	A	Essential	Short/Medium	£ 9,655,500	Development Cost	
	Electricity - Diversion of Existing Utilities	A	Desirable	Short	£ 1,200,000	Development Cost	UKPN
	Gas - New Connections	A	Optional	Short/Medium	£ 25,572	Development Cost	
	Water - New Connections	A	Essential	Short/Medium	£ 219,937	Development Cost	
	Foul Water - New Connections	A	Essential	Short/Medium	£ 150,000	Development Cost	
	Foul Water - Diversion of Existing Utilities	A	Desirable	Short	£ 100,000	Development Cost	Southern Water
Green / Grey / Blue							
	Improved conveyancing (enhanced or new channels in SFRA)	B	Essential	Short	£ 1,590,000	Development Cost / Flood Tariff	Environment Agency
	Flood defences - embankment/wall	B	Essential	Short	£ 991,975	Development Cost / Flood Tariff	Environment Agency
	Raised platform (11ha by 1m)	A	Essential	Short/Medium	£ 5,235,000	Development Cost	
	Groundworks	A	Essential	Short/Medium	£ 2,500,000	Development Cost	
	SuDS	A	Essential	Short/Medium	£ 745,000	Development Cost	
	Outdoor Sports Hub	B	Desirable	Medium	£ 3,620,000	S106	TWBC
	Allotment provision	A	Essential	Short/Medium	£ 550,100	S106	
	Amenity space	A	Essential	Short/Medium	£ 1,329,039	S106	
	Children's Play area capital costs	A	Essential	Short/Medium	£ 1,108,080	S106	
Cultural							
	Indoor Sports Hub with pool	B	Desirable	Medium	£ 10,840,000	S106	TWBC
Other							
	Climate Change Adaptation per Unit	F	Desirable	Short/Medium/Long	£ 7,140,000	Development Cost	

Scenario 3 - Tudeley

Short Phase 0
 Medium Phase 1/2
 Long Phase 3/Longer

TUDELEY

Item	Category	Priority	When?	Cost	Funding Source	Delivery / Partners
Highways						
15 Site Access to East of Tudeley	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
17 Site Access to West of Tudeley	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
16 Site Access south of Tudeley	A	Essential	Short	£ 1,000,000	Development Cost	KCC Highways
Primary Roads (x5)	A	Essential	Short/Medium	£ 3,646,050	Development Cost	
Secondary Roads (x8)	A	Essential	Short/Medium	£ 3,228,888	Development Cost	
18 Tunnel	A	Desirable	Medium/Long	£ 20,000,000	Development Cost	Network Rail
Link Road through site	A	Essential	Medium/Long	£ 2,144,675	Development Cost	
19 Railway bridge all Modes – ped and cyclist vehicle	A	Essential	Medium	£ 10,000,000	Development Cost	Network Rail
21 Works to reduce existing rail bridge	A	Desirable	Medium	£ 150,000	S106	Network Rail
7 A228 Maidstone Road / Whetsted Road priority junction;	D	Essential	Short	£ 150,000	S278	KCC Highways
8 A228 Maidstone Road / B2017 Badsell Road (Colts Hill) roundabout	D	Essential	Short	£ 2,000,000	S278	KCC Highways
22 Link by passing Five Oak Green+R'bout with A228	D		Medium	£ 8,860,980		
23 A26/B2017 Roundabout	D		Short	£ 1,000,000		
24 A21/A26 Roundabout	D		Short	£ 1,000,000		
25 Traffic Management in Five Oak Green	D		Medium	£ 200,000		
26 Widening of B2017 - Site SE corner to A26	D		Medium	£ 3,100,000		
Sustainable Transport						
20 Railway bridge - ped and cycle	A	Desirable	Long	£ 3,500,000	Development Cost	Network Rail
Proposed cycleway/footway routes through site (x6)	A	Essential	Short/Medium	£ 2,103,695	Development Cost	
3m shared cycleway/footway along internal link road	A	Essential	Short/Medium	£ 200,000	Development Cost	
Pedestrian and cycle crossings	A	Essential	Short/Medium	£ 300,000	Development Cost	
New bus route subsidy support	F	Essential	Medium/Long	£ 1,500,000	S106	KCC Public Transport
Travel Plan contribution	F	Essential	Medium/Long	£ 1,260,000	S106	KCC Public Transport
Five Oak Green to A26 on road cycle route - on B2017	D	Desirable	Short	£ 2,300,000	S106	
Pedestrian/Cycle Route to Tunbridge Wells - A228 Route	D	Desirable	Medium	£ 1,050,000	S106	
Pedestrian/Cycle Route to Tudeley	D	Essential	Short	£ 1,100,000	S106	
Cycle route west to the A26	D		Medium/Long	£ 833,965		
Cycle route south to A21 via Half Moon Lane	D		Short	£ 1,420,000		
Cycle storage improvements at Tonbridge Station	D		Short	£ 50,000		
New bus route subsidy support	F		Short/Medium/Long	£ 1,500,000		
Education						
4FE primary provision	A	Essential	Medium	£ 15,450,306	S106	KCC
3FE Contribution towards secondary school provision	A/F	Essential	Medium	£ 11,974,444	S106	Hadlow Estate
Health						
Primary Care contribution	F		Short/Medium/Long	£ 921,760		
New health centre facility	A	Desirable	Medium	£ 3,000,000	S106	CCG / GP Practices
Water						
Sewage Works Upgrade	D		Medium	£ 200,000		
Digital						
Utilities						
Electricity - New Connections	A	Essential	Short/Medium/Long	£ 4,000,000	Development Cost	
Electricity - Diversion of Existing Utilities	A	Essential	Short	£ 7,500,000	Development Cost	UKPN
Gas - New Connections	A	Essential	Short/Medium/Long	£ 18,600	Development Cost	
Water - New Connections	A	Essential	Short/Medium/Long	£ 153,856	Development Cost	
Foul Water - New Connections	A	Essential	Short/Medium/Long	£ 150,000	Development Cost	
Foul Water - Diversion of Existing Utilities	A	Essential	Short	£ 100,000	Development Cost	Southern Water
Green / Grey / Blue						
Groundworks	A	Essential	Short/Medium	£ 1,500,000	Development Cost	
Allotment provision	A	Desirable	Medium	£ 450,374	S106	
Amenity space	A	Essential	Medium	£ 1,088,102	S106	
Children's Play area capital	A	Essential	Medium	£ 907,200	S106	TWBC
Sports pitches contribution (per Open Space SPD)	A	Essential	Medium	£ 7,078,411	S106	TWBC
Tennis Courts	A	Desirable	Medium	£ 750,000	Development Cost	
Cricket pitch	A	Desirable	Medium/Long	£ 1,000,000	Development Cost	
Cultural						
Indoor hall / community hall with sports provision - bowls, badminton, tramp	A	Desirable	Medium	£ 2,000,000	Development Cost	
Other						
Climate Change Adaptation per Unit	F	Essential	Medium/Long	£ 5,600,000	Development Cost	

Appendix 6: TWBC Heritage Note on Tudeley Village

Church of All Saints, Tudeley Lane, Capel, Tunbridge Wells

ASSESSMENT OF SETTING CONTRIBUTING TOWARDS SIGNIFICANCE

SUMMARY

The grade I listed Church of All Saints is the Parish church for Capel, and is in an isolated position on the hills rising up from the Medway valley and Tonbridge, near to the small hamlet of Tudeley. It forms part of the historic farmstead of Church Farm, which is a non-designated heritage asset and includes the grade II listed Church Farmhouse. Five burial headstones within the churchyard are grade II listed as rare surviving 18th century headstones within the churchyard. The church historically has formed part of the Somerhill Estate and has long established links with it. The focal point of the Somerhill estate is the grade I listed house to the west further up the hill along the ridge, and its grade II registered Historic Park and Garden, the boundary of which is just to the west of Tudeley.

The 1797 Hasted survey of Kent described it as ‘obscure and unfrequented’ and originally part of the ‘vast possessions of William the Conqueror’s half brother’ (Edward Hasted, *The History and Topographical Survey of the County of Kent: Volume 1* (Canterbury, 1797), *British History Online* <http://www.british-history.ac.uk/survey-kent/vol1> [accessed 28 April 2020]). The stained glass windows in the church are predominately the work of Marc Chagall, the first, commissioned to commemorate the daughter of the owners of Somerhill at the time, installed in 1967, and the final one installed in the 1980s. The Pevsner volume of Kent notes that the windows are of European importance because of the comprehensive re-glazing of the church, by a prominent international artist.

This assessment takes into consideration, broadly, the potential effect of development of 2,500 to 2,800 dwellings, in stages but through a masterplan process, on the grade I listed church, as set out in the draft housing allocation policy AL/CA1 (Tudeley Village) within the Tunbridge Wells Borough Council Draft Local Plan. Consideration is also briefly given to the impact on the significance of the other heritage assets listed in the first paragraph. The assessment is based on a desk top study as well as a visit to the immediate site, but did not include longer range views of the site from, or which take in, other heritage assets.

LEGISLATION AND POLICY

S.66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 sets out a duty to local planning authorities to consider the impact of planning applications on the special architectural and historic character of listed buildings, including setting. National policy acknowledges that setting can contribute to the significance of a heritage asset, as well as allowing that significance to be appreciated, and that harm to significance can be the cause of development in its setting (paragraph 193). The Government’s Planning Practice guidance states in paragraph 18a-013 that ‘The extent and importance of setting is often expressed by reference to the visual relationship between the asset and the proposed development and associated visual/physical considerations. Although views of or from an asset will play an important part in the assessment of impacts on setting, the way in which we experience an asset in its setting is also influenced by other environmental factors such as noise, dust, smell and vibration from other land uses in the vicinity, and by our understanding of the

historic relationship between places.’ Finally, paragraph 197 of the NPPF requires that the effect of application proposals on the significance of non-designated heritage assets also needs to be taken into account.

ASSESSMENT OF SIGNIFICANCE

There are two Good Practice Advice Notes provided by Historic England that assist in two stages: the identification of the nature of the significance of a heritage asset, and then the attributes of setting that may contribute towards this significance.

GPA2: ‘Managing Significance in Decision-Taking’, provides advice on assessing the nature, extent and importance of the significance of heritage assets which then allows for an assessment of the impact on development within setting that would affect these values. It suggests that English Heritage’s *Conservation Principles* is a helpful framework for attributing heritage values to an asset in order to analyse significance. The principles set out four values: evidential value, historical value, aesthetic value, and communal value. These are discussed in relation to All Saints Church below:

Evidential value: this is the potential of a place to yield evidence about past human activity. All Saints Church has evidential value primarily in the different phases of architectural style that have been the result of rebuilding, remodelling, installations and alterations, starting from its medieval origins. These demonstrate features and artefacts from each period that were designed according to the knowledge and fashions of the time. This value is also derived from the memorials both inside and out of the church (including the grade II listed headstones), and the links with the community. Most important of these are the Chagall windows and the first in particular, commemorating the daughter of the Somerhill estate owners.

Historical value: this is the way in which past people, events and aspects of life can be connected through a place to the present – it tends to be illustrative or associative. The church has historical value in its isolated position as part of the very large Somerhill historic estate which is characterised by scattered farmsteads and estate cottages, some forming part of small hamlets. Its associations with this medieval estate, including the commissioning of remodelling, form a very significant part of this value. Again the memorials in the church form a part of this value, providing links to the history of local residents and landowners. Also important is the strong association with the farmstead with which it forms a distinct closely-knit grouping, something that is also typical of large estates and can be seen elsewhere in the High Weald, for instance at Horsmonden and which set it apart as a rural church.

Aesthetic value: this is the ways in which people draw sensory and intellectual stimulation from a place. The church has aesthetic value again in its architectural elements of varying periods, and the grouping of the church with the farmstead as part of the rural landscape as discussed in the previous value paragraph, in relative isolation but near to a major traffic route. An important part of its aesthetic value derives from the Chagall windows, a composition of ancient church, showing change right through time, and bespoke 20th century internationally renowned artwork. The aesthetic value is therefore particularly high.

Communal value: Communal value is the meaning of a place to people who relate to it or as part of collective experiences and memory. The church also has high communal value as a long-term historic part of the Somerhill estate and the iconic parish church. The Chagall windows have a role in this value as well as the local community are proud of the collection of artwork that is publicly accessible and was commissioned by the local landowner for installation in the community's collective place of worship.

GPA 3: 'The Setting of Heritage Assets' provides a framework for assessing the contribution of setting towards significance of a heritage asset, and the impact of any proposals on that significance. Its aim is to provide guidance on the implementation of historic environment policies in the NPPF and guidance in the PPG. Group value, that is the association of other heritage assets with the asset being assessed, and the contribution of that grouping as part of the setting that forms part of significance, is noted. The assets listed in the first paragraph are linked historically and therefore each has a role to play in the others' significance. This assessment, however, mainly focuses on the church itself. The guidance advises four steps for assessing significance, and impact.

The second step is to do with assessing the degree to which settings and views make a contribution towards the significance of a heritage asset, and the extent and/or nature of that contribution.

The setting of the church is as discussed in the first paragraph, and it includes:

- The topography of the Somerhill estate and the setting of the church on the slopes above Tonbridge, though with limited views to and from, but including some inter-visibility with the farmstead, cottages, and oast kilns in the landscape as part of the rural setting and (usually former) workings of the estate.
- Intangible associations include the historic relationship with other heritage assets, including the listed estate cottages whose occupants most likely would have attended the church and may still, the farmstead adjacent as a parish church grouping which is likely to have been in the same ownership, the listed headstones, the Somerhill registered historic park and garden, and the listed Somerhill House.
- Views to the church from across rural agricultural fields and from within the registered park and garden.

Step 2 includes a non-exhaustive checklist of attributes of a setting which may be applicable.

The third step is to assess the effects of a proposed development, whether beneficial or harmful, on the significance or on the ability to appreciate it. In the case of the proposed allocation site, though this needs to be considered in terms of partial development in various parcels, or development across the site, the following will be a consideration:

- The location and siting of the development, which includes agricultural fields directly adjacent to the church and farmstead.
- The form and appearance of development, which is unknown but will be appropriate to a large scale residential use, including associated infrastructure, activity and movement.
- The permanence of the development, which in this case constitutes long term and likely irreversible change to the landscape surrounding the church.

Step 3 also includes a non-exhaustive checklist of attributes of the development proposal that may affect setting.

The table below considers those heritage values attributed to this church, the aspects of these values that may be affected by development in its setting, and identification of the setting. It then discusses the attributes of setting and the development as set out in the two checklists, and likely impact.

Debbie Maltby
Conservation and Urban Design Officer
6 May 2020

ELEMENTS OF SETTING	HERITAGE VALUES	ATTRIBUTES OF SETTING	ATTRIBUTES OF DEVELOPMENT AFFECTING SETTING (magnitude will depend on size of development)
<p>The topography of the Somerhill estate and the setting of the church on the slopes above Tonbridge, though with limited views to and from, but including some inter-visibility with the farmstead, cottages, and oast kilns in the landscape as part of the rural setting and (usually former) workings of the estate.</p>	<p>Historical, aesthetic and communal</p>	<p>The asset's physical surroundings:</p> <ul style="list-style-type: none"> • Topography • Other heritage assets • Definition and scale of surrounding landscape • Green space and vegetation • Openness • Functional relationships • History and degree of change over time <p>Experience of the asset</p> <ul style="list-style-type: none"> • Surrounding landscape character • Views from, towards, through, across and including the asset • Role as focal point • Tranquillity and remoteness • Movement and activity • Sense of seclusion • Land use 	<p>Location and siting of development:</p> <ul style="list-style-type: none"> • Proximity to asset • Position in relation to relevant topography • Position in relation to key views to and from <p>Form and appearance of development:</p> <ul style="list-style-type: none"> • Prominence and conspicuousness • Competition with or distraction from • Architectural and landscape style • Introduction of movement or activity. <p>Wider effects of the development:</p> <ul style="list-style-type: none"> • Change to built surroundings and spaces • Change to skyline • Noise etc • Lighting effects • Change to general character • Changes to land use and land cover, potentially tree cover <p>Permanence of the development:</p> <ul style="list-style-type: none"> • Anticipated lifetime • Reversibility

ELEMENTS OF SETTING	HERITAGE VALUES	ATTRIBUTES OF SETTING	ATTRIBUTES OF DEVELOPMENT AFFECTING SETTING (magnitude will depend on size of development)
<p>Intangible associations include the historic relationship with other heritage assets, including the listed estate cottages whose occupants most likely would have attended the church and may still, the communal ownership (culturally) of the Chagall windows, the farmstead adjacent as a parish church grouping which is likely to have been in the same ownership, the listed headstones, the Somerhill registered historic park and garden, and the listed Somerhill House.</p>	<p>Historical and communal</p>	<p>The asset's physical surroundings:</p> <ul style="list-style-type: none"> • Other heritage assets • Functional relationships • History and degree of change over time <p>Experience of the asset</p> <ul style="list-style-type: none"> • Surrounding landscape character • Role as focal point • Tranquillity and remoteness • Movement and activity • Sense of seclusion • Land use • Degree of interpretation to the public • Cultural associations • Traditions 	<p>Location and siting of development:</p> <ul style="list-style-type: none"> • Position in relation to key views to and from <p>Form and appearance of development:</p> <ul style="list-style-type: none"> • Prominence and conspicuousness • Competition with or distraction from • Architectural and landscape style • Introduction of movement or activity <p>Wider effects of the development:</p> <ul style="list-style-type: none"> • Change to built surroundings and spaces • Changes to land use • Changes to ownership arrangements <p>Permanence of the development:</p> <ul style="list-style-type: none"> • Anticipated lifetime • Reversibility

ELEMENTS OF SETTING	HERITAGE VALUES	ATTRIBUTES OF SETTING	ATTRIBUTES OF DEVELOPMENT AFFECTING SETTING (magnitude will depend on size of development)
Views to the church from across rural agricultural fields and from within the registered park and garden.	Historical, aesthetic and communal value.	<p>The asset's physical surroundings:</p> <ul style="list-style-type: none"> • Topography • Other heritage assets • Definition and scale of surrounding landscape • Green space and vegetation • Openness • History and degree of change over time <p>Experience of the asset</p> <ul style="list-style-type: none"> • Surrounding landscape character • Views from, towards, and including the asset • Role as a focal point • Remoteness • Land use 	<p>Location and siting of development:</p> <ul style="list-style-type: none"> • Proximity to asset • Position in relation to topography • Position in relation to key views to and from <p>Form and appearance of development:</p> <ul style="list-style-type: none"> • Prominence and conspicuousness • Competition with or distraction from • Architectural and landscape style <p>Wider effects of the development:</p> <ul style="list-style-type: none"> • Change to built surroundings and spaces • Change to skyline • Lighting • Change to general character • Changes to land use, land cover, tree cover <p>Permanence of the development:</p> <ul style="list-style-type: none"> • Anticipated lifetime • Reversibility

SUMMARY OF IMPACT ON SIGNIFICANCE

All Saints Church (grade I)

As set out in the table above, it is likely that the historic, communal and aesthetic (and not evidential) values that form part of the significance of All Saints Church will be adversely affected by the potential residential development in the land set out in Policy A1/CR1 of the Draft Local Plan.

This would primarily be due to:

- The close proximity of some of the site to the church, historically appreciated as being in an isolated position in terms of landscape and historic land ownership arrangements.
- The prominence of the development as seen in the context of the church, which may lose its dominance as a landmark to an extent due to competition from the residential development including associated infrastructure.
- The permanence of the development and therefore fundamental and lasting changes to the way in which the church is appreciated, and has been. This includes views from other heritage assets, such as the Somerhill Historic Park and Garden.
- Changes to the character of the area which has always been rural in nature – this includes physical changes to the landscaping, introduction of buildings, and associated increased activity and movement in a currently tranquil environment.

Five Headstones (grade II)

The development would have a similar impact on the appreciation of these assets, but mainly due to their group value as part of the setting, in turn, of the church, and the current tranquil, rural character.

Church Farmhouse (grade II) and Church Farm (non-designated heritage asset)

The historic and aesthetic values in particular of the farmhouse, and it together with the historic farmstead buildings as a grouping, and to a lesser extent the communal values, are likely to be adversely affected by the changes to setting that may occur through the proposed allocation, mainly due to their unusual close historic link with the church and the appreciation of the very rural set piece of a farmstead being located directly adjacent to a Parish Church.

Somerhill (grade I) and Somerhill Historic Park and Garden (grade II registered)

The assessment carried out for this report did not focus on these, but it is likely that historic, aesthetic and communal values that form part of the significance of these heritage assets may be affected. This is likely to be due to the change in character of the agricultural land that has historically served the estate and views from the HPG to Tudeley.