Historic England

REPRESENTATIONS OF THE HISTORIC BUILDINGS AND MONUMENTS COMMISSION FOR ENGLAND (HISTORIC ENGLAND)

IN RELATION TO AN APPLICATION BY CAMBRIDGE COUNTY COUNCIL AND GREATER CAMBRIDGE PARTNERSHIP

FOR A TRANSPORT WORKS ORDER (TWO) FOR THE: PROPOSED CAMBRIDGE SOUTH EAST TRANSPORT ORDER (CSET) MADE UNDER THE TRANSPORT AND WORKS ACT 1992: TRANSPORT AND WORKS (APPLICATIONS AND OBJECTIONS PROCEDURE) (ENGLAND AND WALES) RULES 2006

OUR REFERENCE: PL00797507

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1.0 Introduction

1.1. The Historic Buildings and Monuments Commission for England (HBMCE), known as Historic England, is the Government's adviser on all aspects of the historic environment in England - including historic buildings and areas, archaeology and historic landscapes. We have a statutory duty to promote conservation, public understanding and enjoyment of the historic environment. We are an executive non-departmental public body, and we answer to Parliament through the Secretary of State for Digital Culture, Media and Sport (DCMS).

1.2. The development would be a sensor guided busway between the A11/Babraham Road Junction and the Cambridge Biomedical campus, comprising the primary busway, an associated emergency and maintenance access track, and a multipurpose active travel path. Additional elements will consist of a new Travel Hub, three new bus stops, drainage, lighting, and landscaping.

1.3. We highlight that Historic England has not been consulted on this project between the EIA Scoping Stage in 2020 and the receipt of the statutory consultation relating to the Transport Works Order. Whilst Historic England has been engaged on Greater Cambridge Partnership's 'Landscape, Heritage and Ecology Working Group' which informally covers CSET amongst other projects, we would have expected direct consultation on the development of this scheme as a statutory consultee.

1.4. We are now aware there have been two design reviews and informal public consultation but as far as we are aware no formal engagement with statutory consultees has taken place. The application would in our view have benefited from more discussion during the application process. Additional information may be therefore required to address our concerns.

1.5. The applicant has provided an ES with a Historic Environment chapter (see Chapter 12). This includes the results of geophysical surveys and archaeological evaluation. The baseline data is provided in the Historic Environment Chapter of the ES and its appendices (12.1 – 12.5) as well as relevant appendices to Chapter 11- Landscape and Visual Impact (11.2 – Photomontages).

1.6. We have however identified several matters that are not discussed in the ES or need further clarification, and these are set out in more detail below. We have addressed these with our remit for designated heritage assets and specialist archaeological advice.

1.7. We are pleased to note that Historic England's EIA Scoping responses informed the selection of heritage assets included in the baseline 1-1.5km baseline. The list of designated and non-designated heritage assets that have been assess, as set out in Appendix 12.2 (Desk Based Assessment) are appropriate. Similarly, we consider the methodology used to assess the historic environment datasets within Chapter 12 is adequate for the purpose.

1.8. We note the ES has identified 12 key designated heritage assets with a potential to experience either direct or indirect significant effects, and 27 non-designated heritage assets. With one exception (see 1.10 below), we confirm this accords with our own assessment of the heritage receptors that are likely to be most affected by the scheme.

1.9. We broadly agree that the proposed development will have a minimal effect on the significance of the following Scheduled Monuments:

- 1011717 The Causewayed Enclosure and Bowl Barrow at Little Trees Hill.
- 1452825 Causewayed Enclosure at Great Shelford.
- 1017884 Two Moated sites 150 m east of College Farm; and
- 1006929 Brent Ditch.

1.10. We broadly agree with the conclusions of the ES that the proposed development will not have a significant effect on the significance of these designated Heritage Assets.

- Sawston Hall (Grade I)
- Middlesfield Garden Wall (Grade II*)
- Church of St Andrew (Grade II*)
- Babraham Conservation Area
- Stapleford Conservation Area

1.11. We disagree with the exclusion of the following Scheduled Monument from the ES assessment:

- Scheduled Monument 1006891: Site revealed by aerial photography W of White Hill Farm

1.12. In Section 2 we will provide additional comment in relation to this monument

1.13. In Section 3 we will provide comment on the following Grade II listed structure, and non-designated heritage assets

- Nine Wells Monument (Grade II) (NHLE / HER No. 1127825)
- Hobsons conduit (MCB30906)

1.14. In section 4, we will provide detailed specific comments in relation to the ES Chapters which includes recommendations for actions, additional references to include and further information.

1.15. In this section we have also raised concerns about the lack of a primary deposit model and lack of appropriate assessment of the palaeoenvironmental and geoarchaeological deposits associated with peat infilled channels of the river Granta and tributaries. These have a high archaeological value and potential.

1.16. In Section 5 we have provided commentary on the mechanisms for securing a programme of archaeological works.

1.17. Section 6 provides our final conclusions and recommendations.

1.18. Please note further advice on other grade II listed buildings, non-designated assets, non-designated archaeological matters, and archaeological methodology will be provided by the Greater Cambridge Shared Planning and Cambridgeshire County Council Conservation and Archaeological Teams and these are not considered further within this written representation.

1.19. We note the applicant has provided detailed analysis of the significance of heritage assets (see paragraphs 12.1.137-2227; Tables A12.4.5 and A12.4.6 and in Appendix 12 Desk Based Assessment).

1.20. Historic England have consistently expressed concerns about the use of matrices to assess impacts and harm to heritage significance. These concerns are in relation to the translation of the formulaic language dealing with the significance of impacts from EIA assessment to the more nuanced language used in Planning Policy

documents such as the NPPF and the NPSNN. We have therefore provided additional narrative in relation to a small number of assets below, where our assessment differs from the ES.

2. Designated Heritage Asset: 1006891 Site revealed by aerial photography W of White Hill Farm

Introduction

2.1. Historic England's primary consideration in relation to this development, is the impact upon the scheduled monument known as:

- LEN 1006891 Site revealed by aerial photography W of White Hill Farm.

Significance of the designated heritage asset

2.2. This Scheduled Monument encompasses the buried remains of a Roman Villa complex, the location and extent of which has been informed by aerial photography, field walking and some limited excavation. This work has revealed extensive crop marks, as well as an assemblage of pottery, building material, and tile fragments that are commonly associated with a Roman villa type settlement or high-status farmstead.

2.3. The area of the scheduling was based on aerial photos from the 1960s, however evidence now available shows that the settlement complex is much more extensive than the designated area and extends beyond it. The trial trenching (see Appendix 12.5 and Hinman, 1999) pick up features that demonstrate the cropmarks continue under the railway line and into the proposed development area. This is particularly evident in evaluation trench 6 (ES Appendix 12.5, 3.4.7-3.4.10), which also included a human burial.

2.4. As set out in paragraph 12.1.138 of the Desk Based Assessment, the Scheduled Monument is accompanied by non-designated buried archaeology, including identifiable Romano-British field systems and trackways, that form part of its immediate setting.

2.5. Features associated with the scheduled monument must therefore be considered as having and equivalence in value as they would help to define and refine the extent of the settlement and would hold related archaeological information. This is set out in

the National Networks Policy Statement for National Networks (NNPSNN) at Policy 5.208 and in National Planning and Policy Statement (NPPF) Footnote 75).

2.6. The remains found here are designated for the following reasons. These are also set out in the list entry,

- Period: the villa complex and its associated setting comprises a significant sequence of development which offers an important opportunity to study the economic and social activities within the Cambridge area during the Romano-British period.
- Survival: despite being subject to ploughing, survey and recent excavations have shown that archaeological features survive as buried deposits.
- Potential: deposits in infilled ditches and features, buried land surface and buildings remain will preserve important archaeological information.
- Group value: a study of the monument and its relationship to other Roman sites in the area would make a valuable contribution to the understanding of Romano-British occupation in the area to complement the investigations recently completed to the east, west and north of the site as part of the developments around Addenbrookes, Trumpington and Clay Farm.

2.7. The monument has been designated since its discovery in the latter half of the twentieth century. We confirm our view that the asset holds high heritage values in relation to, evidential and social value and has a high overall significance. This is in line with the conclusions of the ES Desk Based Assessment, which ascribed a 'High' value to it.

Impact

2.8. As set out in the Desk Based Assessment found in the ES Appendix 12, the proposed development does not intersect with the scheduled area of this heritage asset. There would be no physical impact on the significance of the remains within the designated asset.

2.9. It would however affect an area of archaeology which is likely to be associated with and forms a part of the wider settlement which includes the designated area. Related

archaeology is likely to have some equivalence and value to that of the designated asset as defined in planning policy.

2.10. In disagreement with the conclusions of the DBA (Tables 12.1.5, and 6), we also consider that the addition of a substantial linear piece of infrastructure in its immediate vicinity would result in some permanent change to its setting. This is a direct impact and would result in some harm to the significance of the asset through a development within its setting.

2.11. The degree of harm has not yet been fully assessed by the project however this would in our view be a permanent effect, and the assessment should include both the impacts upon the setting of the archaeology and on archaeology which is related and has an equivalence in policy terms. The value of the assets, and magnitude of change means that this would be a significant effect for which mitigation is required.

2.12. The development would therefore result in a further erosion and disruption of the landscape setting of the monument to the east and an increase in the separation between any associated archaeological remains to the east and the location of the villa complex.

2.13. We have concluded that this impact would need to be considered as a harmful temporary and permanent effect in EIA terms for which mitigation is required.

Cumulative Effects of CSET and East West Rail

2.14. The assessment of Cumulative Effects of the proposed development and East-West Rail Connection Stage 3 (ES 18.3.22 and Table 18.4 ID63) does not consider the potential impact on the 'Site revealed by aerial photography W of White Hill Farm' scheduled monument or its associated non-designated archaeological remains.

2.15. Historic England disagrees with this assessment, and we consider that the potential cumulative effects of the proposed development and East-West Rail Connection Stage 3 would need to be included in the assessment.

2.16. We understand from our discussions with East West Rail that this is because the location of the proposed development immediately east of the existing railway line is a contributory reason that the infrastructure required for East-West Rail has to be placed on the western side of the existing rail corridor.

2.17. East West Rail are unable to mitigate through the avoidance of impacts and therefore expansion of the rail corridor to the west would therefore involve loss of part of the scheduled monument and the archaeological remains therein, resulting is a significant permanent effect and a high harm to the monument's significance. This is likely to be in the 'substantial harm' category.

2.18. As already noted, non-designated buried archaeological remains to the east of the railway line which are directly associated with the scheduled monument should be considered to be of equivalent significance. The loss of such buried archaeological remains through the construction of the proposed development would be harmful to the significance of the scheduled monument due to removal of part of its wider archaeological context. In combination with the loss of buried archaeological remains to the west of the railway line through the construction of East West Rail, this would result in an adverse cumulative effect on the scheduled monument.

2.19. This information about EWR has been in the public domain for a number of years and would need to be given consideration.

Policy (NPSNN and NPPF)

2.20. Policy directs us towards sustaining and enhancing assets (see NPSNN 5.218) and great weight is given to their conservation in decision making (see NPSNN 5.219). Likewise, any impacts, significant effects or harm need clear and convincing justification (NPSNN 5.219).

2.21. In addition, Para 5.220 recognises that 'any' harmful impact on the significance of a designated heritage asset should be weighed against the public benefit, and that the greater the harm, the greater the justification that will be needed. In this case policy 5.222 is also relevant in that 'where the proposed development will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal…'

2.22. The December 2024 version of the National Planning and Policy Framework (NPPF) is also relevant in relation to the principles required to test this development. It establishes a presumption in favour of sustainable development in the planning system (paragraphs 7, 8, 10 and 11) which also identifies protection of the historic environment as an important element of achieving sustainable development.

Further policy principles relating to the historic environment are set out in Chapter 16 of the NPPF.

2.23. Paragraph 212 requires the planning authorities to place 'great weight' on the conservation of designated heritage assets, and states that the more important the asset the greater the weight should be, 'this is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance'.

2.24. Paragraph 213 States that 'any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification'.

2.25. Paragraph 215 states that where a development proposal will lead to 'less than substantial harm' to the significance of a designated heritage asset, this harm should be 'weighed against the public benefits of the proposal…'.

2.26. Paragraph 216 also goes on to state states that 'the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'

Historic England Position

2.27. We confirm our view that the Scheduled Monument has very high heritage values, is of national importance, and therefore significant effects and harm to its significance should be avoided or where this is not possible this should be appropriately mitigated.

2.28. In relation to heritage harm, and where the harm to a high value asset will result in a significant effect and mitigation is required then we would anticipate the applicant would need to indicate what that mitigation is, and what additional heritage benefit will accrue from the scheme. Simply better revealing the information in publication form would be insufficient for a designated heritage assets and we recommend that additional heritage benefits would need to be considered.

2.29. As is set out in the NSPNN it is for the Examining Authority (ExA) to weigh that balance in relation to the harm and benefit. The ExA would therefore need to be content that the benefits would outweigh the harm and that the impact can be justified in terms of those tests set out in NPSNN, mirroring the NPPF as set out above.

2.30. We are concerned that CSET's application has not sufficiently examined the potential for impacts upon the scheduled monument through development within its setting, through impact on archaeology of equivalent value and through cumulative impacts on the Scheduled Monument associated with the intersection of CSET and East West Rail at this location. It is not therefore possible to fully weigh the impact at this time.

2.31. In our view the applicant should be asked to provide additional information to address the concerns we have set out above and to inform the Examining Authority's balancing decision, and as set out in the NPSNN and NPPF.

2.32. We have set out further a summary of our conclusions and recommendations in Section 6

3. Nine Wells Monument and Hobsons Conduit; Sawston Hall; Churches and Conservation Areas

Nine Wells Monument

3.1. We provide additional narrative relating to this grade II listed monument below. This is owing to the wider significance of the monument and it's setting as related to the scheduled Hobsons Conduit, and the proximity of the proposed development to its location and immediate setting.

Significance

3.2. The Nine Wells Monument was built in 1861 and commemorates the importance of the Nine Wells springs near Great Shelford, Cambridgeshire and their relationship to Hobson's Conduit. The springs have been a key water source since the 1600s, and are the water source that feeds Hobson's Conduit, which in itself was built to provide clean water to Cambridge and has been doing so for over 200 years.

3.3. The monument (listed at Grade II) is a granite obelisk on a brick base with iron railings, and plaques attached honour figures like Thomas Hobson himself, owing to his efforts to improve the city's water supply.

3.4. The monument and its surrounding setting of the Nine Wells springs have evidential and historic value associated with early water engineering and public health initiatives. Visually, the obelisk adds interest and character to the local landscape of the Nine Wells nature reserve in which it sits, and it represents Cambridge's historical connection with its water sources.

3.5. The monument also has social value, reminding the community of the area's history and local benefactors of note. This significance is reflected in its listing at Grade II. Outside the application boundary, the head of the conduit, located on Trumpington Street, is designated as a scheduled monument, whilst the watercourse is a non-designated heritage asset.

3.6. The Roman settlement (LEN 1006891 Site revealed by aerial photography W of White Hill Farm) also appears to have been focused on the spring and water course, which provides a wider landscape context and historical depth to the site.

Impact

3.7. There will be no physical impact from the proposed development on the listed monument, but the alignment of the busway and associated infrastructure will intersect with the alignment of the conduit watercourse as it runs south-west and underneath the railway line. The area immediately south of the Nine Wells Spring nature reserve is proposed to be used as a site compound during the construction phase.

3.8. There would therefore be some permanent change to the setting of the assets from the development during the operational phase. Our primary consideration is therefore the impact of the development upon the significance of the Nine Wells Monument from those permanent changes within its setting.

3.9. We note the ES concludes there would be impacts during construction, and this would be of a temporary and slight adverse nature. We agree that these would not be significant in ES terms.

3.10. The proposed alignment of the busway will intersect with the watercourse that comprises Hobson's Conduit's source. This is already intersected by both railway line and existing Genome Path cycle route, with culvert and bridge crossing it respectively.

3.11. We are therefore seeking assurance from the applicant that this development would not impact upon the hydrology and drainage patterns, and therefore affect the flow of water from the source to the historic conduit.

Policy and Position

3.12. In relation to this asset, we consider the primary consideration would need to be given to sustaining and enhancing assets, including the 'contribution of their settings' (see NPSNN 5.218). In addition, great weight is given to their conservation in decision making (see NPSNN 5.219), and this policy goes on to say that significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Likewise, any impacts, significant effects or harm need clear and convincing justification (NPSNN 5.219).

3.13. In addition, we highlight the NPSNN's requirement setting out that applicants should 'look for opportunities for new development…within the setting of heritage assets, to enhance or better reveal their significance (NPSNN 5.225).

3.14. In terms of the assessment Historic England can confirm that we are broadly in agreement with the applicant's assessment of this asset, in that we agree that there would be a low level of impact during the construction phase that would be 'slight adverse' in ES terms. We have also concluded that, in contrast to the conclusion found in the ES, that there would be a minor permanent impact to significance owing to development in the setting of the asset. This would be at the lower end of 'less than substantial' in terms of harm to significance as set out in the NPSNN.

3.15. We consider that, in addition to seeking assurances regarding hydrology and drainage patterns noted above, more should be done in terms of better revealing the significance of these heritage assets. We suggest that the new busway and cycle track in this location should incorporate interpretation and landscaping that identifies and celebrates the historic and archaeological interest of the Nine Wells Monument and its associated watercourse.

3.16. The Secretary of State would need to have regard to polices 5.218, 5.219 and 5.225 in coming to a decision. Given the policy considerations the ExA would therefore need to be content that the benefits outweigh the harm and that the impact can be justified in terms of those tests set out in NPSNN.

Sawston Hall, Churches and Conservation Areas

3.17. As noted above, we confirm we have also considered the Grade I listed Sawston Hall, as well as the parish churches at Shelford, Sawston and Babraham, and the Conservation Areas of Stapleford, Great Shelford, Babraham, and Great and Little Abington.

3.18. We note their significance as designated heritage assets, but we do not have any further comments regarding these assets at this time.

4. Comments on the main report

Chapter 2. Proposed development

4.1. Several of the proposed elements of the scheme could directly impact the historic environment. This could include construction activities associated with the development of new carriageways, and associated development works. The full below ground impact of the whole scheme will need to be considered to understand the nature and extent of any impact.

4.2. In addition to the physical removal or damage of buried archaeological remains, some of the proposed works could impact the local water environment. If this occurs then this may alter the preservation of nearby archaeological sites which could lead to the degradation and loss of vulnerable remains (e.g. waterlogged organic archaeological and palaeoenvironmental remains such as leather, wood, plant remains etc.).

4.3. It should be noted that the impact of changes to the local water environment may be felt outside of the red-line boundary of a scheme. The impact of the proposed project on the hydrology should be considered so that the heritage that may be impacted can be identified.

4.4. For example, changes in water levels may impact features such as the Hobson Conduit, which was established to supply clean water to Cambridge from Nine Wells (Section 9.4.8). Further details of our concerns are set out above.

4.5. It is stated that new woodland may be needed as part of the landscaping work (Section 2.1.73). The impact of tree roots on nearby archaeology will need to be considered. We recommend that reference is made to the document 'Assessing the Impact of Tree Roots on Archaeology' (2024) in the ES, in particular Chapter 6 (Tree Root Growth and Determining Factors). Impacts may be through physical impacts from the roots themselves, or by changes to the preservation of the site by removal of water from the system.

4.6. Section 2.2.29 states that the bridges will be installed using piling. Information is needed about the depth that the piles will be installed so the impact on the historic environment can be determined. We recommend that the Historic England document 'Piling and Archaeology' (2019) is referred to.

Chapter 8. Water Environment

4.7. The proposed development and study area are crossed by one main river, the River Granta (twice) and 59 ordinary watercourses (Section 8.4.1). These locations have often been popular in the past due to the resources that river valleys can provide (food, materials, transport etc.). It is therefore likely that archaeological features and remains may be present in these areas.

4.8. In addition, peat and alluvial deposits have the potential to preserve archaeological and palaeoenvironmental remains, including organic remains. The areas adjacent to the river and tributaries therefore have high potential and should be investigated carefully. However, peat and alluvium can act to mask archaeological remains which can make it difficult to identify features using some evaluation techniques (e.g. some geophysical techniques, aerial photography etc.).

4.9. It doesn't appear that this chapter has been holistic in its approach, nor has it considered the historic environment issues associated with developing in the waterlogged and riverine areas.

Chapter 9. Geology and Soils

4.10. Section 9.1.1 states the Scoping Report and Scoping Opinion identified that the Proposed Development has the potential to impact ground water, create risks of pollution and impacts from piling.

4.11. Section 9.1.2 noted that a detailed Piling Risk Assessment will be undertaken at the detailed design stage so is not available within this ES.

4.12. Information is however needed on the maximum depth of piling required in different locations to understand the potential impact to the historic environment. We recommend further information is provided to inform the mitigation strategy. We also recommend the Historic England document 'Piling and Archaeology' (2019) is referred to.

4.13. Section 9.3.8 states that 79 auger boreholes were completed to a maximum depth of 1.2 m as part of the soil and Agricultural Land Classification survey. It would be useful to know if the cores are available for archaeological assessment. The cores could provide information of value to help assess the archaeological and palaeoenvironmental potential of an area, as well as to understand the potential impacts of the proposed scheme.

4.14. Section 9.4.3 the BGS records indicate that the site is underlain by superficial deposits of Alluvium and River Terrace Deposits in the central area near the River Granta crossings. With the exception of the Travel Hub site, it is stated that superficial deposits are absent from the mapping of the remainder of the site. It should be noted that the ground investigation works carried out for the proposed development (Appendix 9.1) concluded that the distribution of alluvium and River Terrace Deposits recorded within the exploratory holes differed to that recorded within the BGS records. This indicates that the BGS records may not adequately reflect the geology in some of the areas of the proposed scheme.

4.15. It is noted in Section 9.4.23 that peat was associated with the alluvium deposits recorded in exploratory locations in close proximity to the River Granta between Sawston and Stapleford. It is our view that peat is of high archaeological and palaeoenvironmental potential and could preserve organic structures and remains as well as environmental evidence that records how the landscape and environment may have changed over time.

4.16. Further assessment should have been undertaken as part of the archaeological evaluation to characterise the deposits and provide an informed mitigation strategy.

4.17. Table 9.6 highlights that some of the construction activities could create new pathways for contamination to reach the groundwater sources. Although the impact of this work is considered negligible, the potential impacts on the historic environment should have been and were not considered.

4.18. Contamination may alter the preservation of nearby archaeological sites, leading to the degradation and loss. Contamination may also make sites inaccessible for further work, either due to health and safety reasons or by limiting the scientific analysis that could be carried out on archaeological materials in the future (e.g. radiocarbon dating). We recommend that the Historic England document 'Land Contamination and Archaeology' (2017) is referred to.

4.19. As above this chapter has not been wholistic in its approach and it has not fully considered the historic environment implications associated with the proposal.

Chapter 10. Biodiversity

4.20. Section 10.6.7 states that the landscape design includes eight new ponds specifically designed for protected species. It should be noted that excavation of the ponds could impact buried archaeological remains and will need to be considered as part of this work.

4.21. Section 10.6.17 states that new artificial badger setts will be installed as part of the mitigation strategy. It should be noted that the excavation and installation of artificial badger setts could impact buried archaeological remains and this would need to be considered as part of this work.

4.22. Section 10.6.54 states that new ditches will be created as part of the biodiversity mitigation works. It should be noted that the excavation of ditches could impact buried archaeological remains and will need to be considered as part of this work.

Chapter 12. Historic Environment

4.23. Section 12.1.1 states that the Environmental Scoping Report identified that the proposed development has the potential to impact the historic environment through disturbance of known and unidentified heritage as well as the setting of heritage

assets. We recommend that the potential impacts of changes to the local water environment and therefore on the preservation of nearby archaeological sites should also be included in the assessment.

4.24. Changes to the preservation of an archaeological site through lowering of the water table would be considered as a direct impact on that asset, particularly if water or preservation or waterlogged remains may contribute to the significance of that asset.

4.25. It should be noted that changes to the local water environment may be felt outside of the red-line boundary of the proposed scheme. The area where any changes to the water environment may be felt needs to be defined and mapped so that it is clear which heritage assets may be impacted. We recommend that the Historic England document 'Preserving Archaeological Remains' (2016) is referred to.

4.26. Section 12.3.4 outlines the data sources that were used to identify the heritage assets within the study areas. For key parts of the proposed route, particularly in areas of peat and alluvium, a deposit model is a recognised part of the tools to identify areas of importance for further assessment. There is however no assessment or deposits model associated with this scheme.

4.27. This approach would characterise the deposits present and their archaeological and palaeoenvironment potential. A deposit model would also help to understand the potential impacts of the proposed scheme.

4.28. Given the presence of significant peat and geoarchaeological deposits along the Granta and associated challenges we recommend the applicant is asked to provide a deposit model to help inform the ES and will help to inform an appropriate programme of mitigation. Further advice in relation to what is appropriate for a deposit model can be found in our guidance 'Historic England 2020, Deposit Modelling and Archaeology'.

4.29. Several published sources of information may help provide information needed to develop a preliminary deposit model, such as the BGS Borehole register (GeoIndex), published and grey literature excavation reports, geotechnical works and the ground investigation works carried out as part of this development. We expect to see these sorts of resources included in the report.

4.30. Section 12.4.3 states that the palaeochannels, alluvial deposits and sand and gravel deposits identified within the River Granta valley have medium potential for palaeoenvironmental remains. It is not clear if these deposits were assessed as part of the evaluation as no samples were listed in Appendix C.4. The work carried out on these sorts of features and remains needs to be clarified to inform the ES.

4.31. Section 12.6 outlines the mitigation measures proposed, which includes a Heritage Mitigation Plan (HMP) and a Written Scheme of Investigation (WSI), referred to as HE1. The HMP will set out the measures required, which will include strip and record activities in key areas of the route. It is stated that the WSI will be approved by the County Archaeologist (Section 12.6.2).

4.32. We recommend additional palaeoenvironmental and geoarchaeological works is also included in the HMP and a specific WSI created to inform this area of work.

4.33. We also recommend Historic England is also given the opportunity to comment on both the HMP and WSI post-consent as per our remit for specialist advice.

Appendix 9.1: Ground Investigation report

4.34. Section 4.2 states that ground investigation works were carried out and that engineering geologists monitored each of the exploratory borehole locations. It is stated that the following investigations were carried out:

- 16 windowless samples (WLC) with bored to depths ranging from 1.3 m bgl and 5.45 m bgl;
- 75 windowless samples with rotary core-follow (WLS+RC) on bored to depths ranging from 1.1 m bgl and 30.65 m bgl;
- 11 Static Cone Penetration tests with piezocone (CPT) to depths ranging from 1.14 m bgl to 20.6 m bgl;
- 33 Dynamic Cone Penetrometer (DCP) locations with hand dig pits with depths ranging from 0.6 m bgl and 1.2 m bgl; and,
- 85 Mechanically excavated trial pit (TP) locations with depths ranging from 0.8 m bgl and 4.0 m bgl.

4.35. It would have been beneficial for geoarchaeologists to be included in this process to ensure that all opportunities were maximised to obtain relevant baseline evidence for the assessment of the historic environment. This information would contribute to the

development of deposit models to characterise and understand the archaeological potential of an area as well as the potential impacts of the proposed scheme.

4.36. It is stated that the stratigraphic logs have been recorded in the factual report, but it would be useful to know if any of the boreholes are still available for sampling. If material is still available, it may be useful to allow a geoarchaeologist direct access to any cores. It is better for a geoarchaeologist to record and assess continuous core sequences as this allows for greater reliability and confidence in the resulting conclusions.

4.37. Section 4.5 states that groundwater monitoring was carried out at 45 locations within the proposed scheme area. This information may help understand the potential for waterlogged archaeological remains to be present within an area, but also the potential impacts that the scheme may have to nearby archaeological remains by defining the zone of impact. We recommend that the Historic England document 'Preserving Archaeological Remains' (2016) is both considered and referred to.

4.38. Section 5.2.3 states that Alluvium was prevalent across the site and that the deposit was highly variable in composition. It was described as containing organic rich and peat horizons. It should be noted that peat is classed as being of high archaeological and palaeoenvironmental potential.

4.39. It is also stated that River Terrace Deposits are present within the area of the proposed scheme. It should be noted that these deposits have the potential to contain Palaeolithic archaeological and palaeoenvironmental remains. The potential for remains dating to this period should be considered as part of the archaeological assessment and we recommend that the Historic England document 'Curating the Palaeolithic' (2023) be referred to.

4.40. Section 5.4.1 notes that no exploratory holes were investigated in Route Section 1 and so the ground model is based is based entirely on existing BGS records. It should be noted that Section 5.4.2, 5.4.3 and 5.4.7 concluded that the distribution of alluvium and River Terrace Deposits recorded within the exploratory holes differed to that recorded within the BGS records. It is therefore possible that the BGS records for Route Section 1 may not adequately reflect the geology in this area.

4.41. Tables 5.4, 5.8, 5.12, 5.17 & 5.23 summarises the different strata recorded in Route Sections 2, 3, 4, 5 and 6, and Table 5.25 summarises the strata recorded at the Travel

Hub location. Alluvium is recorded in each of these different areas. The maximum depth of the Alluvium/Head was recorded from the exploratory boreholes, but it would be useful to differentiate if peat was located within the alluvial layers, as well as the depth and thickness of each of the peat layers that were identified. This could have been shown on the Geological Long Sections shown in Appendix B2.

4.42. Sections 5.4.2, 5.4.3 & 5.4.7 note that the distribution of alluvium and River Terrace Deposits recorded within the exploratory holes differed to that recorded within the BGS records. This suggests that the BGS records may not adequately reflect the geology in this area and that greater detail and resolution will be provided from the geotechnical work. This additional detail would also be of value to the archaeological assessment of the proposed scheme area.

4.43. Section 5.4.4 specifically highlights that peat is present within the alluvial deposits within Route Section 4. These deposits need to be assessed for their archaeological and palaeoenvironmental potential. These deposits should be considered as having high heritage values.

4.44. Table 8.1 summarises the strata that will be impacted by the construction of bridge foundations. It is clear that piles will be installed into the bedrock, impacting all of the deposits within the sequence. If any deposits of archaeological and palaeoenvironmental interest are present in these areas, then they will also be physically impacted, and mitigation will therefore be required.

4.45. Section 8.2 states that the alluvium and River Terrace Deposits are likely to be highly compressible and at risk of settlement. The potential impact that this may have on deposits of archaeological and palaeoenvironmental interest needs to be considered. This may relate to the physical crushing of remains or changes in preservation as water is squeezed out of a deposit.

4.46. Appendix B presents the Ground Models for the assessed sections. These models represent preliminary deposit models of value for the archaeological assessment. A deposit model characterises the deposits present, understand their archaeological potential, identify the potential impacts of the proposed scheme and identify where additional information is needed to fill in the gaps in our understanding. We recommend that this information is shared with archaeologist/geoarchaeologists as part of the archaeological assessment.

Appendix 9.2: the 'Tetra Tech Report'

4.47. UT100 samples (3.2.3) and test pits (3.2.5) were investigated from key locations for analysis. It would have been useful to include a geoarchaeologist in the planning of this work and in the assessment of the samples, as this would provide valuable information needed to assess the archaeological potential of an area.

4.48. Section 3.2.4 highlights the presence of organic soils, such as peat in near surface alluvial soils, particularly in the central areas of the site. It is stated that compression of these deposits is considered a likely factor. Compression of peat deposits could lead to the physical damage of archaeological and palaeoenvironmental remains. In addition, compression can squeeze water out of a deposit, which could alter the preservation of waterlogged archaeological and palaeoenvironmental remains.

4.49. Appendix C1 presents the borehole logs. Several of the boreholes record evidence of peat, and in some cases multiple layers of peat have been recorded (e.g. BH-PTR-01, BH-PTR-26B, BH-PTR-27, BH-PTR-32 and BH-PTR-32B). The multiple layers of peat could represent changes in the landscape and environment over time. We recommend that this information is shared with archaeologists and geoarchaeologists as part of the archaeological assessment of the proposed scheme area.

4.50. It would also be useful for any surviving cores to be assessed by a geoarchaeologist. This is because Geotechnical specialists and Geoarchaeologists record deposits in a slightly different way. In addition, it is better for a geoarchaeologist to record and assess continuous core sequences rather than isolated deposits as this allows for greater reliability and confidence in the resulting conclusions.

4.51. It is noted in the log for BH-PTR-32B that complete snail shells were present within the peat layer. In addition, a large mammal bone was recorded in test pit TP-BP-04. This indicates that there is the potential for preservation of palaeoenvironmental remains within the deposits.

Appendix 12.2 Desk-based Assessment

4.52. 12.1.10 states that BGS borehole records were consulted as part of the assessment, but a preliminary deposit model does not appear to have been produced. This this is

a significant concern and represents a missed opportunity to build appropriate baseline evidence as required by policy.

4.53. We recommend that a deposit model is produced for key areas as soon as possible and preferably to inform the ES.

4.54. This is particularly important for areas of alluvium and peat, which can obscure archaeology and prove a challenge for some of the standard evaluation approaches (e.g. some of geophysical survey techniques).

4.55. Section 12.1.124 states that some areas of the proposed scheme have not yet been evaluated, and so the potential for further archaeological sites to be present is high.

4.56. The baseline evidence discussed does not discuss the potential for palaeoenvironmental deposits and remains of interest, such as the peat recorded within the proposed scheme area. Peat is of high archaeological and palaeoenvironmental potential that can preserve evidence of how the landscape and environment has changed over time. This evidence places the remains from archaeological sites into a wider context and contributes to our understand of how people interacted with their environments in the past.

4.57. The information about the palaeoenvironmental potential of different areas of the scheme is needed to understand the impact that some of the proposed structures may have, such as the piled bridge foundations (e.g. Section 12.1.230). The impacts discussed in Section 12.1.230 focus on the setting of the historic environment and not on the direct physical impacts from the piles. The information can then be used to inform the iterative process used to design the scheme (Section 12.1.229).

4.58. The information about palaeoenvironmental potential of different areas is also needed to help inform the landscaping and planting proposed for the scheme (Section 2.1.232). The impacts of planting and root structures will need to be carefully considered to ensure that deposits of archaeological and palaeoenvironmental value are not inadvertently damaged. This could also include the removal of water from a deposit through the plant's root structure.

4.59. Section 2.1.233 states that construction mitigation measures will be carried out in accordance with the Code of Construction Practice (CoCP). It is not clear how the CoCP will relate to the HMP and the WSI. Assurances are sought from the applicant

that there is sufficient rigour within the wording of the TWO, and associated documents to ensure an appropriate programme of works post consent.

4.60. The CoCP also needs to consider emergency protocols for unexpected finds of an archaeological nature, and how this scenario would be managed, with specific reference to waterlogged finds that may be present within the peat and alluvium.

Appendix 12.3 & 4: Geophysical Survey Report No. 1 Route Alignment and Geophysical Survey Report No. 2 Travel Hub

4.61. Section 4.3 states that no superficial deposits have been identified across most of the survey area, with the exception of the central and southern extent of the scheme area, where two small areas of River Terrace Deposits, sands and gravels have been recorded. The presence of peat has not been mentioned, despite it be recorded associated with the alluvium deposits (Main Report, Section 9.4.23).

4.62. It is important to consider the presence of peat in key parts of the site as surveying over these sorts of deposits can be a challenge. It is stated in the EAC Guidelines for the use of Geophysics in Archaeology (2016) that geophysical techniques are overall less successful in wetland evaluation (Chapter 7).

4.63. It would have been useful in the report to state if any additional or alternative geophysical techniques would be needed for any of the areas, to understand the archaeology in more detail. We consider additional evaluation techniques may be needed in key areas, such as the alluvium and the peat (e.g. geoarchaeology or excavation).

Appendix 12.5: Archaeological Evaluation Report

4.64. Section 3.2.1 & 4.3.1 noted that c. 50 periglacial hollows were identified. It is stated that these features were sampled (Section 4.3.2) but it is not clear if the samples were processed as they are not listed in Appendix C.4 (Table 55).

4.65. Section 3.4.9 states that a grave (feature 610) was identified in Trench 6 in between Ditches 608 and 611. It was noted that the grave was not excavated but it is not clear why. The Historic England document 'The Role of Human Osteologist in an Archaeological Fieldwork Project' (2018) states that thorough evaluation normally

requires the excavation of burials to the base of the archaeological sequence within the trenches.

4.66. This is necessary to fully understand the nature, scale, date-range and preservation of the archaeological deposits, and to understand the significance of the archaeology and the risks associated with the proposed development.

4.67. Areas of waterlogged deposits were recorded during the evaluation excavations (e.g. Field 15, Trench 113 and Appendix C.4). This suggests that there is potential for waterlogged archaeological remains to be present.

Appendix C.4 Environmental remains

4.68. It is stated that the total volume, up to 20L of environmental samples were processed. Historic England guidance (Environmental Archaeology, 2011) states that samples size will normally be 40-60 litres or 100% of smaller features. It is not clear if 20L samples were recovered as standard or if 20L represented 100% of the feature. This needs to be clarified in the report.

5. Comments on the CoCP, CEMP, Heritage Mitigation Plan, and WSI

Introduction

5.1. Historic England considers that more information is required from the applicant regarding how they intend to develop a programme of mitigation, should consent be given for the proposal. At the moment the overall approach set out in the ES is confused, there are no draft documents and there is very little reassurance for the statutory undertakers.

5.2. There are, for example, multiple references throughout the ES to a suite of documents known variously as the Heritage Mitigation Plan, the Heritage Mitigation Strategy and an Archaeological Management Plan. It is not clear if the referring to the same document or different documents. If they are different documents, how do they differ and how would they work together, which one has the primacy and where will the direction for archaeological works come from.

5.3. The applicant also mentions about what will happen if unexpected archaeological materials and items are discovered during groundbreaking activities (piling,

excavation, trenching). This includes stopping works and contact the local authority archaeologist (see main report Section 12.6.7).

5.4. This is also an area of concern, and it is our view that this sort of thing should be governed within the CoCP and noted in the outline WSI, which will state how it will be handled, the process that will be followed, the responsibilities of the people involved (e.g. retained archaeologist, Cambridgeshire HET etc.).

5.5. Likewise, neither the management plan nor the Written Scheme of Investigation have been provided at this time.

Code of Construction Practice

5.6. The CoCP only mentioned heritage once at Section 8.1.1). It states that 3 of the 6 planned compounds are in areas of known archaeology, and that prior to the installation, the scope will include carrying out a preconstruction strip and mapping exercise. This does not take into consideration any of the other construction elements for example bridges, culvert or main route construction elements.

5.7. In order to address the issues above we recommend the CoCP is updated with additional wording that includes a more detailed reference to heritage issues, and how they will be secured prior to works commencing,

5.8. The CoCP should include a reference to the Heritage Mitigation Plan or Strategy, the WSI and wording to support an emergency protocol for unexpected finds.

5.9. The CoCP should include reference to a paleoenvironmental and geoarchaeological strategy

Construction Environment Management Plan

5.10. Section 12.1.3 of Appendix 2.5: (CEMP) states that the Heritage Mitigation Strategy will be produced and agreed with Cambridgeshire Historic Environment Team. This will also include the WSI, and HMS and WSI will be in place prior to any works on site commencing.

5.11. We recommend Historic England are also included in this work in order to provide advice within our specialist and scientific remit.

Heritage Mitigation Plan and WSI

5.12. The Main Report notes that that a Heritage Mitigation Plan and WSI will be the key documents and will be followed as part of the mitigation, and measure HE1 states that 'a heritage mitigation plan will be produced and submitted to the County Archaeologist for approval' (Section 12.6.2).

5.13. This goes on to say that the Heritage Mitigation Plan will include a WSI which will set out the measures, such as planned strip and record activities in the areas along the route (Section 12.6.3).

5.14. In addition to the Heritage Mitigation Plan the applicant also mentions that an Archaeological Management Plan will be produced and agreed with Cambridgeshire Historic Environment Team. This will outline the locations within the Proposed Development that will require archaeological investigations, the archaeological investigation/recording methodologies that will be used and the research questions that will be applied (Section 12.6.5).

5.15. It is not clear how these documents will work alongside the Heritage Mitigation Strategy, which document will have primacy, and how this relates to the TWO heritage condition.

5.16. We recommend that the range of documents is simplified, and that a coherent strategy is put forward at ethe examination for how archaeology will be managed during the project, how and where mitigation will be applied.

5.17. We also recommend that both the HMP or HMS and the WSI are included in the examination documentation as Outline or Draft documents. This is so that it is clear what is expected post consent for all parties prior to work commencing. Draft documents would need to be approved by the CHET and Historic England prior to being submitted.

5.18. The OWI would need to include a section on the deposit model and management of works for and to mitigate the impact upon the paleoenvironmental and geoarchaeological deposits previously identified.

6. Conclusion

6.1. We have set out the specific policies that relate to the impact upon the designated heritage asset above in section 2. It is however also worth looking at the broader policy context in relation to what is proposed at this location, as set out in the ES and the justification that is provided in that report and associated documents.

6.2. The NPSNN sets out that the Secretary of State should consider the impacts on non-designated heritage assets on the basis of clear evidence that the assets have a significance that merits consideration in the process.

6.3. The 2024 revised version of the NPPF is more helpful in direction with regard to this situation and for example paragraph 216 states that:*'…the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*

6.4. Paragraph 5.212 of the NPSNN does however state that, '*A documentary record of our past is not as valuable as retaining the heritage asset and therefore the ability to record evidence of the asset should not be a factor in deciding whether consent should be given.*'

6.5. NPSNN 5.213 also says that '*Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State should require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the importance and the impact.*'

6.6. In this case there are a number of matters that Historic England recommends are addressed in order to support the ExA in coming to a balanced decision, and in order to provide clarity to the applicants approach with regards to non-designated heritage assets and to ensure that the applicants approach is proportionate.

Recommendations

6.7. We have concluded that the development would potentially result in a direct permanent and harmful change to a designated heritage asset. This would be a significant effect.

6.8. The applicants have not given this matter the consideration that is required in terms of providing appropriate information to inform the examination. Therefore, further information is required in relation to the impact upon the assets setting, upon deposits of equivalent value and in relation to cumulative effects of this scheme alongside that of East West Rail.

6.9. Likewise, mitigation and heritage benefits are not considered in relation to this asset.

6.10. We consider this information is necessary in order to fully inform the decision-making process, and the planning balance as set out in the relevant policies, and recommend the applicant is asked to prepare material to address this issue and to either make changes to the baseline and ES reports or provide an addendum document. The detail on this matter is set out in Section 2 (above).

6.11. We have raised a concern with regards to Nine Wells Monument and Hobsons conduit, for which reassurance is sought in relation to the permanent impacts from construction and wider heritage benefits are sought.

6.12. We have noted a number of issues and missing references and lack of crosscutting comments in the ES and again we recommend the applicant is asked to note and address these comments and explain how the main issues will be considered post consent.

6.13. Given the presence of significant peat and geoarchaeological deposits along the Granta and associated challenges we recommend the applicant is asked to provide a deposit model to help inform the ES.

6.14. An appropriate programme of mitigation is also required in relation to the geoarchaeology and a mechanism for managing this work needs to be provided, and We recommend additional palaeoenvironmental and geoarchaeological works are also included in the HMP and a specific WSI created to inform this area of work.

6.15. We have raised concerns over the way in which heritage will be managed should the Order be granted. We recommend the applicant look at providing additional wording in the TWO condition to strengthen and clarify the archaeological mitigation programme. That they are asked to provide additional wording in the CoCP and CEMP documents to support the TWO condition and provide a clear link to the work programme.

6.16. In addition, the applicant should be asked to clarify the role of the variously named heritage documents and be asked to produce an overarching draft strategy and outline WSI as part of the ES and before the end of the examination.

6.17. We also recommend Historic England is also given the opportunity to comment on both the HMP and WSI post-consent as per our remit for specialist advice.

For further information or you would like further clarity with regards to our advice please do not hesitate to contact us.

Historic England's CSET team consists of Dr Will Fletcher (Regional Infrastructure Lead), Edward James (Historic Places Adviser), Dr Zoe Outram (Science Advisor) and Dr James Albone (Inspector of Ancient Monuments)

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