TRANSPORT AND WORKS ACT 1992

TRANSPORT AND WORKS (INQUIRIES PROCEDURE) RULES 2004

THE PROPOSED NETWORK RAIL (CAMBRIDGE SOUTH INFRASTRUCTURE ENHANCEMENTS) ORDER

STATEMENT OF CASE

on behalf of

CAMBRIDGE MEDIPARK LIMITED and
CBC ESTATE MANAGEMENT COMPANY LIMITED

15 September 2021

Introduction

1. This is the Statement of Case of Cambridge Medipark Limited ("CML") and CBC Estate Management Limited ("CBCManCo") in response to the requirement of the Secretary of State for Transport pursuant to Rule 7(3) of the Transport and Works (Inquiries Procedure) Rules 2004 contained in his letter dated 4 August 2021, following the letters of objection by CML and CBCManCo dated 30 July 2021 to the proposed Network Rail (Cambridge South Infrastructure Enhancements) Order ("the Draft Order"). The Draft Order, if made, would authorise a proposed new railway station with associated works in the vicinity of Cambridge Biomedical Campus ("the Scheme").

2. CML and CBCManCo received responses to their objection letters from the promoter of the Draft Order, Network Rail Infrastructure Limited ("the Promoter"), on 10 September 2021. The responses do not address any of the substantive issues in the objection letters but do provide an apparent commitment to engage with CML and CBCManCo with a view to resolving their objections.

Cambridge Biomedical Campus

3. Cambridge Biomedical Campus is recognised in the Cambridge Local Plan 2018 as "an international centre of excellence for patient care, biomedical research and healthcare education. It plays a local, regional and national role in providing medical facilities and medical research. The local plan will continue to support its continuing development as such, and as a high quality, legible and sustainable campus. It also reinforces the existing biomedical and biotechnology cluster in the Cambridge area" (paragraph 3.42). Policy 40 of the Local Plan encourages and supports research and development and research facilities to come forward at the Biomedical Campus. The Promoter's Planning Statement acknowledges Cambridge Biomedical Campus as "the largest centre of medical research and health science in Europe and…expected to grow" (paragraph 2.2.2).

4. Cambridge Biomedical Campus benefits from two outline planning consents which have been granted for 215,000m2 (Phase 1) and 75,000m2 of expansion (Phase 2). Following the approval of reserved matters, the Phase 1 development is well progressed with all floorspace either developed out or allocated for development for occupiers including the Medical Research Council, AstraZeneca, Royal Papworth Hospital and the University of Cambridge. Part of Phase 2 (the Abcam building) has also been developed. Construction of the next building on Phase 2 is targeted to commence in 2022, with further buildings to follow thereafter.

CML and CBCManCo and their objections

5. CML is the master developer for the two phases to the expansion of Cambridge Biomedical Campus. As the Scheme is anticipated by the Promoter to be constructed between late 2022 and mid 2025 (Environmental Statement chapter 4, paragraph 4.3.51), there is therefore likely to be overlap with construction of the next building on Phase 2. CML retains long leasehold ownership of the Campus infrastructure land, including the private estate roads, public realm and surface water drainage systems.

6. CBCManCo is the estate manager responsible for maintaining the Phase 1 and Phase 2 campus-expansion infrastructure land, including the private estate roads; Francis Crick Avenue and Dame Mary Archer Way. CBCManCo also manages other campus infrastructure, including substantial surface water drainage systems. All passengers for the proposed Cambridge South station will need access over one, or both, of these privately maintained roads. All maintenance costs for the roads, footpaths, drainage, and streetlights are charged to the building owners on the Phase 1 and Phase 2 expansion land, including Cambridge University Hospitals NHS Foundation Trust (CUHT).

7. While CML and CBCManCo are supportive of the Scheme in principle, they object to the Draft Order on the ground that the Promoter has not provided a compelling case in the public interest for depriving them of their interests in land and, more widely, on the grounds of adverse effect upon the existing Cambridge Biomedical Campus and its planned and permitted expansion, including by placing additional strain on Campus infrastructure. Both CML and CBCManCo recognise the sustainability benefits of a railway station in this location but it is critical that neither the operation of the existing development (and the infrastructure which serves it) nor the ability to implement the remaining development in a timely manner are impeded or otherwise prejudiced by the construction or operation of the Scheme.

8. The grounds for objecting to the Draft Order are as follows (noting that (ii) is applicable only to CML):

    (i) It has not been demonstrated that acquisition of land and rights in land, as well as the taking of powers to use land in so far as it affects CML and CBCManCo, is necessary to implement and maintain the Scheme.
    (ii) The Promoter has failed to take reasonable steps to engage with CML to acquire its land and the rights by agreement;
    (iii) There is insufficient information to demonstrate that the Scheme's drainage proposals are appropriate and would not have adverse effects on the wider drainage network which supports the use of the biomedical campus;
    (iv) There is insufficient information as to the impacts of the Scheme on the private roads and other services/utility infrastructure at the biomedical campus;
    (v) On present information, the Scheme will inhibit CML's ability to bring forward the remainder of Phase 2 of the development at the biomedical campus;
    (vi) There has been insufficient consideration by the Promoter of the impact of the Scheme in combination with other proposals for public transport links at the biomedical campus;
    (vii) The Promoter should contribute to the additional costs incurred as a result of infrastructure maintenance requirements as a consequence of the construction of the station and its subsequent use, including in respect of the private roads to the station; and
    (viii) In the light of the above, the Promoter has not provided a compelling case in the public interest for interfering with CML and CBCManCo's rights.

9. CML and CBCManCo are each statutory objectors within the definition in rule 23(5) of the Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006 and within section 11(4) of the Transport and Works Act 1992.

10. CML and CBCManCo are disappointed that the issues above have not been addressed adequately or at all by the Promoter. Despite this, they remain willing to discuss with the Promoter its proposals with a view to finding a mutually agreeable solution to allow the Scheme to proceed in a way which avoids unnecessary harm to their property and which avoids prejudice to the public interest in the continued operation and planned expansion of Cambridge Biomedical Campus.

(i) Interference with land

11. The guidance on the procedures for obtaining orders under the Transport and Works Act 1992, relating to transport systems, inland waterways and works interfering with rights of navigation published by the Department for Transport in June 2006 ("the TWA Guidance"). Paragraph 1.40 of the TWA Guidance requires that "the applicant [for an Order under the Act] must be prepared, and able, to justify all compulsory land acquisition".

12. As matters stand, CML and CBCManCo do not consider that it has been demonstrated that acquisition of their land and rights in land, as well as the taking of powers to use land in so far as it affects them, is in all respects necessary to implement and maintain the Scheme.

(ii) Lack of engagement and failure to take reasonable steps to acquire the land by agreement

13. The TWA Guidance at paragraph 1.39 encourages acquiring authorities to follow the guidance on the use of compulsory purchase powers in Circular 06/2004 (Compulsory Purchase and the Crichel Down Rules). The circular has since been replaced by the Guidance on compulsory purchase process and the Crichel Down Rules published by the Ministry of Housing, Communities and Local Government in July 2019 ("the CPO Guidance"), which states at paragraph 17 that where an Order under the Act is sought, "acquiring authorities are expected to provide evidence that meaningful attempts at negotiation have been pursued or at least genuinely attempted, save for lands where land ownership is unknown or in question."

14. While CML acknowledges that the Promoter has engaged in consultation with it, these discussions have been largely around the design and positioning of the station and in relation to land referencing rather than a genuine and meaningful attempt to reach an agreement to acquire the land that Network Rail requires from CML. CML is disappointed by the Promoter's stance but remains hopeful that an agreement can be reached should the Promoter wish to engage with it, noting the commitment to engage in this respect set out in the Promoter’s letter dated 10 September 2021.

(iii) Impact on drainage systems

15. CML and CBCManCo remain to be satisfied as to whether the Promoter has included appropriate mitigation to offset the interference with the drainage systems in respect of the land and rights it proposes to acquire both permanently and for temporary construction access, and, whether this would result in breach of CML's contractual obligations with the Hobson's Conduit Trust and thereby adversely affecting CBCManCo's interests.

16. The Promoter's proposals for the Scheme do not provide adequate information about the drainage mitigation proposed. CML has two drainage ponds situated on the land subject to the Draft Order which appear to need to be relocated or culverted but it is not yet clear how this will be carried out. It is important that CML (and CBCManCo with its maintenance responsibilities) are consulted on and agree to any changes to the drainage systems and that the replacement arrangements are put into place prior to the removal of the drainage pond(s) if they are not to remain in place but be culverted.

17. The Promoter intends to install culverting to one of the ancient ditches (the Northern Ditch) which is fed by Cambridge University Hospitals NHS Foundation Trust. There is a lack of design detail within the Scheme as to how drainage will be managed. The Campus has no formal drainage rights and easements have been agreed with the Hobson's Conduit Trust to allow for drainage into the Northern and Southern Ditches. If the flow rate exceed those which have been agreed with the Trust, this will breach those obligations and risk causing flooding.

18. On behalf of CML, Aecom have reviewed the Water Resource and Flood Risk chapter of the Promoter's Environmental Statement together with the Flood Risk Assessment and Simple Index Approach. This review has identified several technical deficiencies with the Promoter's assessment of flood risk and with the proposed drainage strategy. The Aecom review has been provided to the Promoter and is attached as Appendix 2 to this Statement of Case. Reference may be made to the contents of the review in so far as the matters contained within it are not resolved.

19. It is noted that protective provisions are contained in Parts 3 and 4 of Schedule 2 to the Draft Order, along with a proposed condition in the application for deemed planning permission. The scope of Part 4 (for the benefit of the Hobson Conduit Trust) is unclear, including whether it extends to the ditches within CML land, but in any event, these provisions do not provide adequate protection for the Campus drainage system.

(iv) Impact on other infrastructure at the Biomedical Campus

20. The Promoter's proposals do not adequately mitigate the impact of the Scheme on other infrastructure at the Biomedical Campus. Most passengers arriving at the station are likely to be either working or visiting one of the businesses, medical facilities or educational buildings and will either walk, cycle or get a taxi to their destination resulting in additional demands on the Campus infrastructure.

21. The Scheme proposes a very small number of drop off car parking spaces (three in total, with an additional three taxi bays) which appears to be insufficient for the volume of likely travellers to and from the station. As such, it is unclear how the Promoter intends to avoid people waiting on Francis Crick Avenue and the other main routes within the campus while they await trains to arrive. Such behaviour is likely to create serious hazard to pedestrians and cyclists as cars will need to pull up in the cycle lane when stopping on Francis Crick Avenue.

22. Further, during peak times it does not appear that the limited number of spaces will be sufficient and risks queues of traffic, illicit parking within Campus car parks and potentially dangerous and inappropriate pick off and drop off locations. There is also no provision for buses to access the station car park directly, meaning passengers arriving by bus will be dropped at the nearest bus stop on Francis Crick Avenue which risks creating further delays and increased danger to pedestrians.

23. Temporary road closures and diversions during construction works are also likely to have a serious impact and there are particular safety concerns in regard to the impact on the Francis Crick Avenue junction with the Guided Busway during the construction of the new station access road.

24. The Scheme is also likely to result in many additional cyclists on the Campus and we note that the proposal for 1,000 cycle parking spaces, whilst necessary, may not be sufficient, based on local experience of demand for cycle parking on the Biomedical Campus. This means that the Scheme may result in bicycles being left in the facilities provided by the occupiers of the Campus for use by their staff. There is also likely to be an increased impact on the cycleways on the Campus which will require maintenance and may affect the usability of the routes for the Campus occupiers.

25. Furthermore, there is currently a Traffic Regulation Order in place to ensure that the private estate roads are not used as a cut through to Long Road and the city centre. The effects of the Draft Order upon this is unclear.

26. There is wider concern that the limited area for construction will adversely impact the road network. CML and CBCManCo remain to be satisfied as to whether these impacts have been properly considered by the Promoter.

27. On behalf of CML, Aecom have undertaken a review of the transport chapter of the Environmental Statement and the accompanying Transport Assessment. This review has identified several technical deficiencies with the Promoter's assessment of transport impacts and with the proposed mitigation strategy. The Aecom review has been provided to the Promoter and is attached as Appendix 3 to this Statement of Case. Reference may be made to the contents of the review in so far as the matters contained within it are not resolved.

28. The mechanisms contained in the Draft Order and in the proposed conditions to the deemed planning permission, in particular condition 10, do not provide sufficient assurance that the issues of concern can, and will be, adequately addressed.

(v) Impact on the ability to bring forward the remainder of Phase 2 of the development

29. Given the drainage and highways issues above, there is concern as to how this will affect CML's ability to proceed with the remainder of Phase 2 of the development.

30. The Scheme as currently devised will impact on CML's ability to bring forward the multi-storey carpark (MSCP) to replace the Abcam temporary carpark as part of Phase 2. The MSCP is designed to accommodate all parking for all the commercial Phase 2 development. The proximity of the main construction compound to the site of the future MSCP and also the proposed rerouting of the cycle route into this area of the Campus will, in the absence of appropriate arrangements by the Promoter, impede development in this area of the Campus. It is imperative that access is maintained to allow CML to construct and operate the necessary car parking facilities to service the Phase 2 development in its entirety.

31. More widely, there is simply insufficient information provided by the Promoter as to how the construction of the Scheme would be compatible with the construction of the remainder of the Phase 2 development.

(vi) Cumulative impact

32. Greater Cambridge Partnership ("GCP") has stated that it is preparing to submit an application for a Transport and Works Act Order to enable it to bring forward its Cambridge South East Transport scheme to construct a guided busway route which will run through the Biomedical Campus. The Scheme includes a permanent compound by Addenbrooke's Road which would appear to conflict with GCP's proposals and further, the GCP proposals require the remodelling of Francis Crick Avenue, which land is included with the Draft Order and from which the Promoter will take an access to the Station, to allow the guided busway route to be installed.

33. The Promoter and GCP have not explained how the two schemes will interact and it is unclear whether they have reached an agreement for working in partnership. For this reason, the Draft Order is premature.

34. It is considered on present information that the Promoter's assessment of cumulative impact with the GCP proposals is inadequate.

(vii) Additional infrastructure maintenance costs

35. The addition of a new station will certainly increase the vehicular movements upon the existing privately owned roads during construction and may increase them during operation, depending on the controls that are capable of being applied. This is likely to require additional maintenance to be carried out by CBCManCo. In addition, the proposed access way into the station located near to the Guided Busway junction on

Francis Crick Avenue and additional peak hour traffic may result in a need for additional traffic management to regulate the movement of vehicles along Francis Crick Avenue. In so far as the Promoter wishes to take the benefit of the use of the private roads by compulsion, it should also be required to accept the burden of increased maintenance costs and any other costs relevant to their use as authorised by the Draft Order. Instead, Article 14 of the Draft Order only provides for the payment of compensation for loss or damage so that increased maintenance costs attributable to the station's construction and use would fall to be paid by the campus occupiers/building owners under their lease arrangements as shareholders in CBCManCo. It is not equitable that there should be no contribution to on-going maintenance from the Promoter as a new occupier of the campus.

36. The Promoter should therefore make an appropriate contribution towards maintenance of the campus infrastructure. An undertaking should also be provided for the legal fees in relation to the works which will be necessary to ensure the operational requirements of the services and infrastructure are protected.

(viii) No compelling case

37. For the above reasons, the Promoter has not provided a compelling case in the public interest for interfering with CML and CBCManCos's interests in land.

Conclusion

38. For the reasons above, CML and CBCManCo continue to object to the Draft Order and intend to appear at the public local inquiry that the Secretary of State intends to hold into the application for the Draft Order.

39. CML and CBCManCo welcome the Promoter's letter dated 10 September 2021 in so far as it indicates that the Promoter wishes to engage on a technical level and more widely with a view to resolving their objections. CML and CBCManCo consider that such engagement is urgently required.

40. A list of documents which may be referred to in evidence is attached as Appendix 1 to this Statement of Case. Appendices 2 and 3 comprise technical notes on drainage and transport carried out by Aecom on behalf of CML, which have already been provided to the Promoter.

Fieldfisher LLP

15 September 2021

APPENDIX 1

List of Documents

The following documents may be referred to in evidence:

1. The application documents accompanying the Draft Order, including the Environmental Statement
2. CML's and CBCManCo's objection letters dated 30 July 2021
3. The Promoter's responses dated 10 September 2021
4. Relevant planning permissions
5. Relevant section 106 agreements
6. The Cambridge Local Plan 2018
7. Technical Note on Flood Risk and Drainage, Aecom, 31 August 2021
8. Technical Note on Transport, Aecom, 28 July 2021

Documents 7 and 8 are attached as Appendices 2 and 3 respectively. They have been previously provided to the Promoter.

APPENDIX 2

Cambridge South Flood Risk and Drainage Review

Technical Note

Cambridge South Infrastructure Enhancements Review –

Flood Risk and Drainage

Client name	Project name	Date
Cambridge Medipark Limited	60517292 – Cambridge Biomedical Campus	31 August 2021

Prepared by	Checked by	Verified by	Approved by
Alistair Goodfellow	Nathan Mitchell	Ian Hall	Ian Hall

1. INTRODUCTION

This technical note has been prepared on behalf of Cambridge Medipark Limited (CML), to review planning documents for the proposed development of a new railway station and associated infrastructure upgrades called the Cambridge South Infrastructure Enhancements (CSIE) (referred to as the 'scheme') adjacent to the Cambridge Biomedical Campus (CBC). The review will focus on the Flood Risk and Drainage aspects contained within the documents listed in the Relevant Submitted Documents section below to determine their impact on current flood risk and existing drainage infrastructure on the CBC site (which is owned by CML and managed by CBC Estate Management Ltd).

Relevant Submitted Documents

- Environmental Statement – Volume 3: Appendix 18.2 – Flood Risk Assessment (Arcadis, June 2021)
- Environmental Statement – Volume 3: Appendix 18.4 – Simple Index Approach (SIA) Assessment (Arcadis, May 2021)
- Environmental Statement – Volume 2: Chapter 18 – Water Resource and Flood Risk (Network Rail, June 2021)
- Environmental Statement – Volume 2: Chapter 4 - The Site and Proposed Development (Network Rail, June 2021)
- Environmental Statement – Volume 1: Non-Technical Summary Report (Network Rail, June 2021)

2. FLOOD RISK REVIEW

The Flood Risk Assessment (FRA) details that the proposed Cambridge South station site is in areas of fluvial (flooding from rivers) flood risk. Due to parts of the site being located in fluvial flood zone 2 and 3 the exception test will need to be applied to confirm that the development delivers wider sustainability benefits to the community that outweigh flood risk; and that the development will be safe for its lifetime, without increasing flood risk elsewhere, and where possible contribute to reducing overall flood risk. At the time of writing it is unclear if the development will pass the exception test.

Detailed fluvial flood modelling has been undertaken within the FRA to further investigate the fluvial flood risk. There is no indication if the fluvial modelling approach has been discussed or approved with the EA or the LLFA. The fluvial model has assessed the existing baseline condition, however following a review of the modelling approach it is noted that the upstream boundary condition is very close to the site and the hydraulic properties of the upstream Hospital culvert are not considered in the model. Therefore the upstream extent of the baseline model may not be sufficient to demonstrate the upstream impacts of the scheme. It should also be confirmed if any critical duration analysis been carried out outside of the recommended duration from RefH2. The latest climate change allowances provided by the EA should also be reviewed for appropriateness.

In addition to this, fluvial modelling has not been carried out with the proposed scheme included. This 'with scheme' fluvial model will need to be assessed to determine the on- and off-site flood risk impact of culverting the north ditch. If there is any increase in fluvial flood risk outside of the red line boundary as a result of the scheme then mitigation will need to be provided.

The FRA also details that the proposed Cambridge South station site is in areas of pluvial (flooding from surface water) flood risk. This includes a surface water flow path across the Cambridge South station site along the route of the North ditch. The scheme will affect this flow path as the Cambridge South station building is located in the line of this flow path

and the North Ditch which is associated with this flow path is being culverted. Further discussion is required with the LLFA to confirm what analysis is required to show there are no surface water impacts outside the site boundary. If the LLFA require further pluvial modelling and this shows there is any increase in pluvial flood risk outside of the red line boundary as a result of the scheme then mitigation will need to be provided.

On this pluvial flood risk matter the FRA states *'The surface water flow paths and areas of elevated surface water flood risk indicated by the EA Risk of Flooding from Surface Water Map have been taken into account in the design of the drainage strategy.'* However, the FRA does not make it clear how the existing surface water flow path has been dealt with within the drainage strategy therefore further clarification will be required.

The FRA indicates that the groundwater levels are high within the scheme's site boundary based on numerous sources, however it claims that groundwater flood risk is low without providing evidence to support this. Due to the anticipated presence of high groundwater, groundwater monitoring should be undertaken to confirm the on-site groundwater levels which will help determine the risk of groundwater flooding. If groundwater flooding is likely then floor levels of the station may need to be raised etc.

2.1 Potential Consequence

As described above, it is unclear if the development will pass the exception test and/or subsequently increase flood risk both within the CBC site and in off site areas as more information is required. While the consequences cannot be quantified or validated until further information is provided, an increase in flood risk could result in:

- More frequent flooding of the CBC site and off site areas,
- Greater depths and/or velocities of floodwater on the CBC site and off site,
- A reduction in the capacity of the existing surface water flow path exceedance routes and/or piped stormwater system. A reduction in the capacity of the surface water flow paths could increase flood risk both off and on site. A reduction in piped capacity could subsequently lead to increased maintenance requirements (e.g. more frequent clearing of accumulated silt within pipework), or an increased frequency of surcharge through manhole/gully pits,
- Increased potential of property damage (e.g. erosion, saturation of surface features that would otherwise remain dry, or general water damage to property).
- Increase in infrastructure required to develop land parcels in the future (e.g. diversions of stormwater infrastructure).

Further, pending confirmation on ground water levels, should the station development intercept the ground water flows, there is potential to increase the potential for ground water flooding within the CBC site. A change to the behaviour of ground water could increase the swell/shrink potential of the subgrade and impact the performance and/or longevity of the pavement in affected areas of the CBC site, and/or saturate landscaped features.

3. IMPACT ON EXISTING DRAINAGE INFRASTRUCTURE

The FRA details that in order to facilitate the new Cambridge South Station a new culvert will be required which will replace the Tibbets culvert under the railway line and then extend the culvert below the eastern station building, and connect it to the Hospital culvert. This new culvert will replace the North Ditch. By replacing the North ditch with a culvert there will be a significant loss of habitat and subsequent decrease in biodiversity to the CBC site.

The FRA also details that the existing middle attenuation basin that forms part of the existing CBC drainage system will be filled in and relocated within the scheme boundary. The existing basin will be replaced with a new basin with a gabion wall along one edge. This 'hardening up' of the basin will decrease biodiversity and visual appeal of the existing pond. It is also unclear how this relocated pond has been sized. Detailed modelling will be required to confirm the pond has been sized sufficiently to ensure no detriment of the existing CBC drainage system.

The FRA also indicates that due to the removal of the North ditch that the connection of the North basin that forms part of the existing CBC drainage system will be affected. However, the drawings within the FRA do not provide sufficient detail of how this North basin will be connected back into the proposed drainage system. Also the connection of the Hospital culvert to the new culvert is not detailed. Further detail on both of these connections is required to confirm there will be no detriment to the existing drainage system.

It is understood the AstraZeneca (AZ) site south of the proposed Cambridge South station has a collection swale along its western boundary which collects surface water from the AZ site. This will need to be retained as part of the works.

Chapter 4 The Site and Proposed Development of the Environmental Statement (June 2021) provides a discussion on the proposed strategy for constructing the new Cambridge South Station, including location of construction access points, temporary construction access roads, haul routes and construction compounds. With reference to Figures 4-3 and 4-7, the route and positioning of Site Access Road 1 and the Main Site Construction Compound (CC1) conflict with the existing South Ditch and existing attenuation basin associated with the newly constructed Abcam plc facility. Based on the information provided, it is not clear how the development proposes to interface with these two existing drainage features. Further detail is required to confirm there will be no detriment to the existing drainage system or the adjacent properties.

3.1 Potential Consequence

As described above, further information is required to clarify the impact on existing drainage infrastructure. While the consequences cannot be quantified or validated until further information is provided, the impact on existing CBC drainage infrastructure could include:

- Loss of habitat, decrease in biodiversity and decrease in visual appeal to the CBC site by culverting the North ditch and including a gabion wall in the relocated middle attenuation basin.
- Any modification to the existing CBC attenuation basins has the potential to impact the overall performance of the CBC site drainage system and detailed modelling would be required to demonstrate there is no increase in surcharge upstream, reduction in self cleansing velocities within the CBC piped stormwater system, or an increased peak discharge leaving the site. Impacts could include an increase in scour and subsequently increase in maintenance requirements, reduced capacity and subsequent surcharging of the upstream network leading to property damage.
- Loss of a connection from the existing north basin into the CBC drainage system
- Impacts on the existing South Ditch and Abcam attenuation basin from the site access roads and construction compounds.

4. PROPOSED DRAINAGE STRATEGY

The FRA details the proposed drainage strategy for the scheme. The FRA states that the 'drainage hierarchy' has been followed but makes no mention of the possible use of infiltration drainage techniques which are always top of the drainage hierarchy. Therefore, ground investigation works and infiltration testing should be carried out to confirm the ground conditions and if there is any potential for infiltration. If infiltration drainage can be used this will minimise the impact of the drainage on existing watercourses.

The FRA details that the drainage strategy will be to attenuate flows before discharging them to local watercourses in the vicinity of the scheme. The report states that 2 l/s/h will be used as the discharge rate for the scheme. As detailed in the Water Resource chapter the Lead Local Flood Authority (LLFA) have requested that discharge rates are limited to greenfield rates. Therefore further clarification on the use of 2l/s/h as opposed to greenfield discharge rates will be required. Additionally, no indication as to what control measures will be used to restrict the discharge rates into the North and South ditches has been provided.

From a review of the calculations in Appendix D and the summary of attenuation requirements in Table 7 of the FRA the impermeable areas and the attenuation volumes stated do not tie up, therefore further clarification is required. Further clarification of the catchment areas is required as the catchment area diagram in Appendix D of the FRA does not provide sufficient detail on the proposed catchments. Justification of the CV values and the safety factor of 1 in some of the Quick Storage Estimate calculations should also be justified. Full Microdrainage modelling should be undertaken (as opposed to Quick Storage Estimates) so the full impact on existing watercourses can be understood. The Microdraiange model should also detail a surcharged outfall when it connects to the new culvert so the implications of this to the proposed drainage system can be understood. Any evidence of discussions with the LLFA to confirm if the proposed discharge points and discharge rates will be acceptable should also be provided.

Within the Water Resource chapter the Lead Local Flood Authority (LLFA) have requested that underground attenuation storage should be avoided where possible. The proposed drainage strategy details an underground tank, therefore justification of the tank rather than above ground attenuation features should be provided.

The large pond east of the railway line draining to the South ditch is located in a pluvial flood zone so this will also need to be discussed with the LLFA as further analysis of this may be required. Mitigation may subsequently be required if this pond is built in a pluvial flooding area.

It is not clear how exceedance flows will be managed in the proposed scheme and therefore exceedance flow plans will need to be provided to clarify this. This is particularly important as the existing site relies on landscaped areas surrounding the existing middle basin to receive exceedance flows and retain waters during more extreme rainstorm events. If these

landscape areas are removed the FRA must confirm how exceedance will be dealt with from the relocated middle basin. This will also apply to the new impermeable areas of the proposed scheme showing how exceedance will be dealt with from these areas as well.

The Simple Index Approach (SIA) Assessment states that the station forecourt will be treated via attenuation ponds however the drainage strategy detailed in the FRA shows that the forecourt will be drained via a tank only. The SIA also states that roof drainage will be drained via a swale and basin. This is not the case for the east station building as this appears to be drained via a tank only. Therefore, the SIA needs to be re-run based on the actual drainage strategy in order to determine the impact on existing watercourses. There has also been no assessment of water quality from the track drainage into the local watercourses.

4.1 Potential Consequence

As described above, further information is required to clarify the proposed drainage strategy. While the consequences cannot be quantified or validated until further information is provided, the impact on existing CBC infrastructure could include:

- Incorrect drainage strategy (i.e no infiltration) could unnecessarily reduce capacity of existing drainage infrastructure and subsequently increase flood risk
- Incorrect discharge rates and incorrectly sized attenuation features of the proposed drainage strategy could reduce capacity of existing drainage infrastructure and also lead to increase flood risk on the CBC site and off site.
- Loss of emergency / exceedance flow infrastructure associated with the middle basin which currently service the CBC site increases flood risk and the subsequent potential for property damage. This is particularly important should the CBC stormwater network become blocked.
- Incorrect water treatment provision could cause pollution entering watercourses on the CBC site and also off site

5. Summary

Following a review of the documents the following issues have been raised with regards to current flood risk and existing drainage infrastructure on the CBC site -

- Fluvial and pluvial flood risk has not been fully assessed to determine the impact on both on- and off-site flood risk as a result of the scheme.
- No groundwater monitoring has been carried out to confirm the risk of groundwater flooding to the scheme.
- The culverting of the north ditch and the addition of the gabion wall to the relocated middle basin will provide a loss of visual appeal and a significant loss of habitat and subsequent decrease in biodiversity to the CBC site.
- Further justification for how the relocated middle basin has been sized is required to ensure no detriment to the existing CBC drainage system.
- The plan for the reconnection of the existing CBC North Basin outfall back into the updated drainage system requires clarification.
- The potential for discharge of surface water via infiltration has not been assessed fully through ground investigation. The use of infiltration drainage would reduce the impact of the scheme on local watercourses.
- Further clarification on the proposed discharge rates, catchment areas and attenuation volumes is required.
- Full Microdrainage modelling should be provided to make a full assessment of the impact on local watercourses.
- Evidence of discussions on the drainage strategy with the LLFA should be provided.
- Justification of a below ground tank as opposed to above ground surface features should be provided.
- Further detail on how exceedance flows from the relocated middle basin and the scheme itself is required.
- The simple index approach has not been carried out correctly for the station forecourt and the roofs of the east station building therefore the effect on water quality to the local watercourses as a result of the scheme is not understood.
- Additional information is required to confirm that there will be no detriment to the existing drainage system or the adjacent properties as a result of the proposed construction Site Access Road 1 and Main Site Construction Compound (CC1).

APPENDIX 3

Cambridge South Transport Review

AECOM Imagine it. Delivered.

Technical Note – CBC Cambridge South Transport Review

Project number	Client name	Subject	Date
60517292	Cambridge Medipark Limited	Transport Review	28th July 2021
Prepared by	**Checked by**	**Verified by**	**Approved by**
C Brooks & G Whitehead	C Brooks & G Whitehead	N Anderson	I Hall

Revision History

Revision	Revision date	Details	Authorised	Name	Position
1	23/07/21	Final for Issue (internally)	NA	N. Anderson	Regional Director
2	28/07/21	Final for Issue	NA	N. Anderson	Regional Director
3	19/08/21	Revised for Issue	NA	N. Anderson	Regional Director
4	27/08/21	Updated for issue	NA	N. Anderson	Regional Director

1.0 Introduction

1.1 AECOM have been instructed by Cambridge Medipark Limited to carry out a high-level review of the Transport Assessment (TA) and Transport chapter of the Environment Statement (ES) prepared by Arcadis, on behalf of Network Rail, in relation to the proposed Cambridge South railway station. The station is proposed to be located on the existing Cambridge to London mainline which borders Cambridge Biomedical Campus (CBC) to the west.

1.2 At this time, a high-level review of the documents has been carried out to determine if:

- The assessments have been carried out in line with guidance
- There are any gaps in the assessment undertaken
- The impacts identified within the assessment are broadly acceptable

1.3 The findings of the review of each document is set out in the following sections.

2.0 Review of the Transport Assessment

2.1 The findings of the high-level review of the TA are set out in Table 1.

Table 1. Transport Assessment Review Findings

Section	Paragraph	Transport Assessment Comment	AECOM Comment
Introduction	1.1.6	Discussions have been held with CCoC on various elements of the TA scope as a means of agreeing on and finalising the scope of the assessment. A TA Scoping meeting took place in March 2020. The TA Scoping Report was agreed with CCoC in June 2020. The report provided a description of the work proposed to be undertaken as part of the TA and set out the proposed technical, spatial, and temporal scope of the assessment. The draft TA (version P01) was submitted to CCoC in October 2020. Comments from CCoC were received in February 2021. A meeting with CCoC was subsequently held on 2 March 2021 to discuss the comments and required changes to the TA which has been updated accordingly as version P03.	It is understood that a detailed scoping and consultation process with the highway authority, Cambridgeshire County Council (CCoC) has been carried out. There is, however, no evidence of this provided within the TA and therefore any agreements reached on the parameters of the assessment or the data input cannot be checked.
Development Proposals	2.3.5	The proposed timeline and phasing for the project are as follows: • January 2020 – First round of consultation on station location options and access considerations (20 January to 2 March 2020) • October 2020 – Second round of consultation on preferred station scheme (19 October to 29 November 2020) • 2021 – Submission of the TWAO application to the Secretary of State • 2022 – Anticipated decision from the Secretary of State on the TWAO • 2023 – Peak year of construction work • 2025-2027 – Potential date of station opening	The proposed timeline and phasing for the project are set out in the TA. None of the years identified have been assessed within the TA to determine the impact of the proposed development on CBC during peak construction or at the time of opening. The only year assessed is 2031 - five years post opening of the station.
	2.4.1	The proposed station is expected to comprise: • Two two-storey stations buildings • Four platforms with all-weather cover and step free access via a footbridge and lifts • Seating and shelter for waiting passengers • A station building, ticket office and ticket vending machines, along with automatic ticket gates • Facilities such as a retail/catering unit, waiting room, toilets, baby changing facilities, staff facilities • Cycle parking on both sides of the railway for a total of 1,000 cycles • Pedestrian and cycle access paths from both sides of the railway • Five parking bays for Blue Badge Holders • Two parking bays for staff • Two parking bays for maintenance • Three bays for drop-off/pick-up by private cars • Three bays for drop-off/pick-up by taxis	The development set out 2.4.1 is that which has been assessed. Walking and Cycling routes • No issues have been identified with the proposals at the station. • Concerns are raised in relation to adequacy of the facilities located at the Francis Crick Avenue / Addenbrooke's Road / Dame Mary Archer Way junction which could see an increase in movements as a result of the proposed development. As stated further in these findings, no data for movements at this location were available and therefore there is a gap in the data which could result in an underestimation of travelling to and from this junction. Cycle Parking • Based on the information contained in the Transport Assessment, cycle parking is shown to be sufficient with spare capacity provided to cater for additional demand. However, despite this, a full check of the calculations cannot be carried and therefore confirmation that the level is sufficient cannot be made. It is recommended that the calculations to derive the level of cycle parking is provided for review. The review is to ensure that demand does not exceed capacity and impact upon the availability of cycle parking spaces across the rest of the Campus. Vehicular parking • Vehicular parking at the proposed development is limited and will be managed by the Train Operating Company. Management of parking is extremely important at this site

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			to ensure that it does not overspill into the surrounding highway network or into the public car parks on CBC. • A Parking Management Plan is recommended setting out the management proposals and how the development intends to ensure that it does not impact upon the operation of CBC. • Concerns are raised that at peak times there could be a possibility of vehicles stacking back onto Francis Crick Avenue and impacting upon through traffic. This is due to the limited level of parking and the access road appears to be only wide enough for one vehicle therefore there is no ability for vehicles to pass should vehicles be dropping off in the active lane. The location of pickup is provided along the outbound section of the access road, accessed from Francis Crick Avenue. No assessment or discussion relating to this is made in the TA. Deliveries/Servicing • The station will provide retail/catering facilities for use by staff and patrons. There is however no reference to deliveries/servicing in terms of the number of, timings or where they would service the station from within the TA. No swept path analysis is included to confirm that there is sufficient space to cater for these vehicles or to manoeuvre at the access junction. This is therefore a shortfall in the assessment and the impacts identified.
	4.3.12	The pedestrian and cycle flow data obtained from Cambridge University Hospitals NHS Foundation Trust included only inbound and outbound flows to and from the CBC. Internal flows between destinations within the CBC and on Francis Crick Avenue through the Francis Crick Avenue / CGB junction were not accounted for. As such, pedestrian and cycle flows associated with pedestrians and cyclists accessing the Anne McLaren Building and Abcam Development site from the north were not included, potentially underestimating pedestrian and cycle flows along Francis Crick Avenue.	This is a limitation with the data collection and subsequent analysis of the impacts of the development on the existing pedestrian and cyclist facilities. The full impact of the development on pedestrians and cyclists has not been identified.
Existing Networks and Baseline Conditions	4.43	The closest existing bus stop to the proposed Station is located on the eastern side of Francis Crick Avenue south of the Francis Crick Avenue / CGB junction. The bus stop is in the form of a bus stop sign and timetable and serves bus route U Universal.	The existing facilities at the closest bus stop to the proposed station are limited and no proposed improvements are set out in the TA. The promotion of this stop could form an integral part of encouraging multi-modal journeys. Further to this, real time information provided within the station for the bus services could be provided to further encourage the linked trip for travel outside of CBC therefore further reducing the impact of the development on CBC.
	4.4.6	In addition, Addenbrooke's Hospital Bus Station is approximately 10-minute walk from the site and is served by approximately 60 buses per hour, serving Cambridge and the surrounding areas.	The bus station is, based on Google Maps, a 15-minute walk from the proposed development.
	Figure 4.3	Road Collision Study Area	The study area used for the review of accident data is stated to be defined to encompass local roads and junctions along the key access routes. The study area does not include Dame Mary Archer Way, Robinson Way, or the accesses to the CBC from Hills Road or Long Road. These are two of the three main accesses to

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			CBC and would likely form key routes to the proposed development. Given the increase in walking and cycling trips, a larger study area to identify any existing safety issues for pedestrians and cyclists should have been considered.
Future Baseline Conditions	5.1.2	Background traffic growth forecasts are based on planned and predicted growth in staff and visitors to the CBC up to 2031 and associated additional vehicular trips that would take place as a result of this increase. Planned transport improvements which are likely to be implemented prior to 2031 were identified and included in the future baseline based on their estimated impact on highway trips. In addition, committed developments in the vicinity of the station were identified and their traffic generation and distribution were reviewed to assess if traffic generated by them should be added to the future baseline.	Reductions to the trips generated in the future have been made to account for the planned transport improvements. These are however still only planned and not committed. Should these improvements not come forward, the impacts of the development would not have been fully assessed. A sensitivity test should be undertaken.
	5.3.3	The total impact of the Planned Transport Improvement Schemes on the highway trips to the CBC was estimated to result in 3,841 fewer one-way vehicular trips to the CBC per day factored to 2031 using the patient and staff growth figures. It is considered that the peak hours would see the most impact in terms of highway trip reduction. However, the impact would be felt across the day as trips are made by shift-workers, out of hours staff and patients and visitors at all hours of the day.	It is understood that the planned improvements to the transport network would provide opportunity to reduce the number of vehicular trips and that CCoC's guidance states that planned improvements should be included. The inclusion of the planned improvements results in a significant reduction in trips over the course of the day. The planned improvements are however not committed and therefore the impact, should these not come forward as currently planned, has not been assessed. A sensitivity test should be undertaken.
	5.3.29	The impacts of Potential Interventions identified in the CBC Transport Needs Review report have been estimated based on known impact of similar schemes, analysis of available demand and mode share data and known changes in demand due to new developments.	As per the planned transport improvement schemes, trip reductions have been applied due to the potential interventions which could be implemented. It is understood that some of the interventions could occur however some are not committed. The CCoC guidance makes no reference to potential inventions. The inclusion of the potential interventions results in a significant reduction in trips over the course of the day. The potential interventions are however not committed and therefore the impact, should these not come forward as currently planned, has not been assessed. A sensitivity test should be undertaken.
Trip Generation and Distribution	6.3.3 6.3.7	....of all trips associated with the Station, 81% of these are predicted to be destination return trips, while the remaining 19% would be origin trips. ...passengers travelling to the proposed station are likely to come from the CBC, Red Cross and nearby locations including Trumpington, Cherry Hinton and Fulbourn	Parking on CBC is limited and restricted to those working or visiting the campus. Limited parking is provided at the station. A concern with trips being identified from locations as far as Fulbourn being made by car is raised. Table 6.3 states 21% of the 19% origin trips would travel from Fulbourn. The numbers would likely be small within the peak periods and therefore have limited impact on the operation of the highway network however parking at CBC is limited and over the course of the day it is unlikely that there would be insufficient capacity available to cater for any increase associated with the station. This could result in overspill onto the highway network at CBC.
Traffic Impact Assessment	8.2.2	The model area consists of the following junction, as agreed with CCoC, which has been modified to accommodate the proposed station access: • Francis Crick Avenue / Cambridge Guided Busway	The study area for the assessment is limited to the access junction on Francis Crick Avenue. This is justified through the level of trips identified for the Design Year. Traffic associated with the proposed development will utilise the Francis Crick Avenue / Robinson Way roundabout and the Addenbrooke's Road / Francis Crick Avenue / Dame

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			Mary Archer Way roundabout however the impact of the development at these junctions is likely to be as a result of an increase in pedestrian and cyclist trips rather than vehicular trips. The proposed development is a trip attractor for which assessments for developments built on CBC would not have taken into consideration when improvements were proposed. Pedestrians and cyclists based, and to be based, at developments off Dame Mary Archer Way have to cross Francis Crick Avenue to reach the proposed development. Based on desire lines, it is considered that crossing will take place closer to the roundabout than at the signalised crossing by the site access. No improvements as a result of the development or assessment of the Addenbrooke's Road / Francis Crick Avenue / Dame Mary Archer Way junction has been carried out in relation to increased pedestrian and cyclist movements. It is noted within the Transport chapter of the ES that construction vehicles will be using the accesses to CBC from Long Road and Addenbrooke's Road as their predominant routes for construction. An assessment of each these junctions to accommodate the level and type of construction vehicles should be included within the TA.

	8.2.5	An assessment of the 2031 design year represents a worst-case scenario of the potential transport impact assessment is in accordance with the Transport Assessment Requirements (2019) produced by CCoC. As agreed with CCoC, an assessment of the 2026 development year has not been undertaken in this TA.	CCoC's guidance states that it requires the following assessments to be undertaken:
			• *Base Year – The 'base year' is the year of the application. CCC requires observed evidence showing the existing conditions for the AM/PM peaks.*
			• *Future Year scenarios*
			  • *Development Year – the 'development year' is the year that the proposed development will be fully occupied. This includes committed development. CCC requires evidence showing the development year without development and with the development for the AM/PM peaks to understand its proportional impact i.e. Development Year Base + Committed Development with/without development*
			  • *Design Year – when considering the local network, the design year is 5 year post full occupation. This includes committed development. CCC requires evidence showing the design year without development and with the development for the AM/PM peaks to understand its proportional impact i.e. Design Year Base + Committed Development with/without development.*
			There is no evidence of any agreements with CCoC to confirm that only a 2031 scenario should be carried out. It is understood that 2031 represents a 'worst-case' in terms of trips for the proposed development however the background trips have been heavily reduced through the planned improvements and potential inventions which are due to come forward by 2031. The impact at opening could be greater if the planned improvements and potential interventions have not come forward by that point.
			Greater clarity on why the base and development year have not been assessed should be provided and if this cannot be provided, assessments should be carried out to determine the impact of the proposed development on CBC at opening.

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		Construction Impact	The TA makes no reference to the impacts of the construction phase or to how this will be managed. It is appreciated that there can be unknowns relating to construction however CBC is an operational site with a number of vehicular (including blue light), pedestrian, cyclist, and bus movements being made on the networks over the course of the day. There are also other developments either committed or planned to come forward during the same time period as the proposed development which will require construction vehicles to be travelling within the site. Reference to construction is made within the Transport chapter of the ES. This should be set out in the TA to confirm, as a minimum, the number of likely HGVs, routing, hours of operation, when HGVs will be on the network, compound locations, staff parking locations and any impacts on the existing pedestrian and cyclist network. The impact on CBC can then be identified. The Transport chapter sets out the compound locations and access points. The accesses are generally considered to be acceptable however no swept path analysis to confirm that the accesses proposed can cater for the vehicles which will be using has been included. No visibility splays have been provided illustrating that sufficient visibility is provided from the accesses for large vehicles to exit the sites. Given the high number of pedestrians and cyclists in CBC and on the surrounding roads this should be provided. Compound CC6 is accessed from Francis Crick Avenue just south of the Cambridge Guided Busway corridor whilst a second access point is provided just north of the corridor. It is unclear from mapping where these will be provided due to the proximity of the AstraZeneca and LMB buildings and the retaining feature for the Cambridge Guided Busway. As mitigation, a Construction Traffic Management Plan is to be provided. The content of the plan is summarised in a single paragraph however the detail set out in the General Mitigation Measures section paragraph 17.4.5 onwards could be included within the document. Staff travel is briefly discussed in the Transport chapter. Approximately 75 car parking spaces could be provided to cater for the 150-200 staff at construction stage. A Travel Plan would be prepared to encourage the use of sustainable modes. A Framework Travel Plan should be provided with the application to set out the possible measures which could be implemented to ensure that construction staff do not park on street at CBC or within the public car parks. To accommodate one of the main compounds, the NCN Route 11 will need to be diverted. This is currently provided along the eastern side of the railway to the south of Addenbrooke's Road linking CBC with Great Shelford and other destinations to the south. This route travels under Addenbrooke's Road before exiting onto the Addenbrooke's Road / Francis Crick Avenue / Dame Mary Archer Way roundabout next to the Anne McLaren Building. Appendix 17.1 Transport Figure is supposed to illustrate the proposed diversion however the route as described in the chapter is not illustrated therefore it is not possible to determine where pedestrians and cyclists will enter the highway network. No plans or detail of this diversion are set out in the TA nor how this impacts on the users of the route.

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			An additional plan illustrating the diversion of NCN 11 has been made available, drawing reference '158454-ARC-00-ZZ-DRG-EMF-200003'. This sits outside of the Transport Assessment and is considered as being information would be beneficial to the assessment. The plan illustrates the diversion route for the cycle route, which is proposed to be shared with the vehicular access route for construction traffic using the compound. There is concern in relation to this route and how pedestrians and cyclists will interact with construction vehicles manoeuvring within the compound and especially at the point of access on the Dame Mary Archer Way / Francis Crick Avenue / Addenbrooke's Road three arm roundabout. Further details are also sought on how this route will connect in with the existing route along the southern side of CBC Phase 2 land.
Appendix A		Indicative Station Layout and Site Plan	It is not clear, from an initial review, where servicing of the station will take place for deliveries and waste collection. No swept path detail is provided in the TA to confirm if the turning head could accommodate servicing vehicles. No detail is provided in the TA on the design of the access onto Frick Crick Avenue and no swept path analysis is provided to confirm that it is of sufficient size to take the vehicles which would be servicing the development.

3.0 Review of the Transport Chapter of the Environment Statement

3.1 The findings of the high-level review of the transport chapter of the ES are set out in Table 2.

Section	Paragraph	ES Transport Chapter Comment	AECOM Comment
Introduction	-	There is no information provided in the ES Transport Chapter regarding agreement of the scope of the assessment	It is unknown whether the scope of assessment has been agreed with CCoC and whether any agreements were reached on the parameters of the assessment or the data input.
	17.1.4	Only the proposed station works have been assessed in this chapter despite other works being undertaken at Shepreth Branch Junction and a new connection between existing lines at Hills Road.	These works have been excluded as they 'do not impact transport', but no evidence of this has been provided. Evidence is required to justify that these works would not impact on transport. There is concern that these works may involve construction vehicles impacting on the local transport network and rail passenger delays while the works are being undertaken.
	17.1.6	It is anticipated that up to 95% of passengers will use sustainable, non-vehicular travel modes (walking, cycling and public transport) to travel to and from the station.	This is an anticipated figure, set out in the introduction to provide context to the chapter, but no justification / evidence of this has been provided. It is assumed that this has been assessed thoroughly in the associated TA, as the figure does seem relatively high, especially in the winter months when weather does not encourage sustainable travel i.e. walking and cycling.
	17.1.7	A number of embedded mitigation measures are proposed to limit the impacts associated with trips generated by the proposed Development and to improve accessibility during operation. These have been included in the with development assessment.	No justification has been provided as to why this mitigation is proposed and whether it successfully mitigates the impacts of the scheme and addresses any existing barriers / gap/ weaknesses in the existing sustainable travel network (i.e. limited existing controlled crossing locations on Francis Crick Avenue which will be a key desire line for crossing movements). No mitigation has been proposed to improve the public transport network, which is a key element of promoting sustainable linked trips and travel to the new station.

Section	Paragraph	ES Transport Chapter Comment	AECOM Comment
			No mitigation has been proposed to improve the stations connectivity with the wider CBC site.
	17.1.11	The consideration of potential traffic impacts would focus upon the construction of the proposed Development. The Study Area will be focused upon the highway network to be used by construction vehicles and the adjacent land use and sensitive receptors. An assessment of traffic impacts during the operational phase will also be undertaken in order to quantify and assess anticipated beneficial effects.	It is understood that the study area has only been assessed for HGV construction vehicles and does not consider the impact of staff travel though CBC.
Construction Access Points	17.1.14	AP1 provides access to construction Compound (CC)1 from Addenbrookes Road to east of the railway on the Addenbrookes Road/Dame Mary Archer Way Roundabout at the end of Francis Crick Avenue	AP1 provides access to the main site compound, but within in the assessment the impacts of construction vehicles using this access, as well as other accesses has not been assessed directly. AP1 is located on one of the three accesses into CBC and is therefore a main site access. No information has been provided on whether the increase in construction vehicles at the access will affect junction operation.
Temporary Construction Access Roads	17.1.16	Construction access roads are required to provide links between Access Points off the public highway and Construction Compounds, which are described in the ES Chapter.	Despite these construction access roads being described in the chapter, the assessment / study area does not include or assess these temporary access roads (only the construction routes to the access points). Therefore, the potential impacts of these has not been assessed within the chapter.
Assessment Methodology - Guidance	17.2.25	The Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (2019) (Ref 17.1) has been used to establish the methodology for assessment.	This guidance was withdrawn from use in August 2020. Appreciate that assessment was prepared before then, but important to note.
Consultation and Scoping	Table 17-1	Greater Cambridge Shared Planning consultee raised that that the development needed to ensure that the final proposal delivers benefits both to the users of the Cambridge Biomedical Campus (CBC) and also the wider community.	The response provided does not provide evidence of how the development has been designed to deliver benefits to CBC and the wider community. This should be clearly stated within the assessment.
Consultation and Scoping	Table 17-1	CCoC has concerns that the existing crossings will be capable of dealing with the predicted increase in pedestrians and cyclists.	The chapter makes no reference to the predicted increase in pedestrians or cyclists and how they will be distributed onto the local sustainable travel network, or whether the existing infrastructure will meet the future demands. Despite proposing mitigation to widen some existing crossings (existing crossing on the southern arm of Francis Crick Avenue/Guided Busway junction and existing crossing across the Guided Busway connecting Trumpington residential area and Hobson's Park), no evidence has been provided for mitigation at these crossings. The requirement for new crossings along Francis Crick Avenue etc or footway widening on key desire lines has not been assessed or proposed. Connectivity and desire lines with CBC's sustainable transport network and the station is essential.
Methodology for Establishing Baseline Conditions	17.2.29	Existing baseline data does not include existing pedestrian / cycle movements on key construction routes /accessed and at key crossing locations.	This is a limitation to the baseline data, as the existing sustainable travel network is not known – i.e. how it operates, and which crossings / routes are used currently. Future pedestrian and cycle demand on the sustainable travel network cannot be established or assessed.

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Methodology for Assessing Impacts - Temporal Scope	17.2.37	The assessment of the operational phase was undertaken for 2031 as is the year when the projected passenger numbers using the station will be reached and CBC is fully developed. The 2031 operational assessment year has been agreed with Cambridgeshire County Council and aligns with the assessments in the Transport Assessment.	It has been assumed that the same assessment methodology for deriving the 2031 operational assessment scenario for the ES is consistent with the TA. Any comments regarding the operational scenario therefore apply to this scenario in the ES assessment. No assessment has been undertaken of the opening year of the development – i.e. 2025/26 despite the IEMA guidelines stating that 'Assessment should be undertaken in the year of opening (or first year of a phase) when, generally, the perceived environmental impact is at its greatest'. Please see comment in relation to paragraph 8.2.5 in Table 1 which highlights that an opening year may have the greatest environmental impact when compared to the 2031 scenario. No justification / evidence has been provided to confirm that 2031 is the year when the projected passenger numbers using the station will be reached and CBC will be fully developed. It is understood that the construction year has not been assessed in the TA (please see TA comments for further information on this).
Methodology for Assessing Impacts - Traffic Impact Assessment Methodology	17.2.40	It states that where Rule 1 and Rule 2 would apply, the following potential environmental effects on 'existing road users' would be considered and likely would need to be addressed'	This paragraph references the potential environmental effects on 'existing road users' and does not consider future road users. Future road users need to be considered within the assessment as the station will be a trip attractor, with the majority of trips being made to and from the development.
Assessment criteria for potentially significant effects - Pedestrian and Cycle Delay	17.2.46	The ES states "However, the IEMA guidelines note that, when existing traffic flows are low, increases in traffic of around 30% can double the delay experienced by pedestrians and cyclists attempting to cross a road.'	The statement made cannot be traced back to the IEMA guidance therefore clarification on this statement should be provided.
Assessment criteria for potentially significant effects - Pedestrian and Cycle Amenity	17.2.47	The ES refers to the IEMA guidelines and notes that changes in pedestrian and cycle amenity may be assessed as significant where the traffic flow is halved or doubled, with the former leading to a beneficial effect and the latter an adverse effect.	The IEMA guidelines do not necessarily state that where the flow is halved or doubled that this will be assessed as a significant, but more as a threshold for judging the significance of change. The guidance also suggests the inclusion of HGVs for assessment - when HGV flows are halved or doubled, and therefore this should also be assessed for judging the level of significance. The assessment criteria for HGV's has not been used in the assessment. HGV's should be considered for Pedestrian and Cycle Amenity as this is more relevant for establishing any potential impacts associated with construction.
Assessment criteria for potentially significant effects – Fear and Intimidation	17.2.51	The ES refers to the IEMA guidelines and notes that 'For average speed, increases between 10 and 15mph are considered moderate, increases between 15 and 20 mph are considered great and increases more than 20mph are considered severe.'	Speed has not been considered within the 'Assessment of Effect' despite this being included within the Fear and Intimidation assessment methodology.
Baseline	-	Existing baseline condition have been reviewed, though the ES does not consider the future baseline.	In 2023 and 2031 which are the years that have been assessed, the existing baseline could change due to new development at CBC. Committed improvements should be summarised to establish the future baseline for assessment.

Section	Paragraph	ES Transport Chapter Comment	AECOM Comment
Assessment criteria for potentially significant effects – Accidents and Safety	17.2.53	Professional judgement has been used to assess accidents and safety and that if a particular accident cluster is identified, then this may justify further analysis and the implementation of measures to mitigate effects.	The IEMA guidelines states that 'Where a development is expected to produce a change in the character of the traffic (e.g. HGV movements on rural roads), then data on existing accident levels may not be sufficient'. This has not been considered in the ES chapter, despite construction traffic temporarily changing the character of key access roads into / within CBC. This could result in new accident / road safety hot spots which would not be identified in existing accident data.
Significance Assessment criteria	Table 17-3	Medium sensitivity has been classified for traffic flow sensitive receptors, including congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycle ways, community centres, townhalls, parks, recreation facilities.	Medium sensitivity for hospitals and doctors seems to be low. This would suggest that these should be included as high sensitivity due to the presence of vulnerable users accessing these facilities. Therefore, would consider that these should be classified as 'high' sensitivity receptor rather than 'medium', therefore full sensitivity in the assessment Addenbrooke's Hospital may not have been considered.
Significance Assessment criteria	Table 17-3 and 17-14	Both criteria's provided in the table are based on an element of professional judgement, as well as using the DMRB (17-2) and IEMA (17-1) guidelines as a basis.	Through using professional judgement there is an element of subjectivity within the assessment if not evidenced sufficiently. From a high-level review these appear to be reasonable for use but are however open to interpretation upon application of the criteria.
Significance Assessment criteria	Table 17-5	The significance matrix is based on Table 3.8.1 presented in the DMRB's LA 104 Environmental Assessment and Monitoring guidance.	This guidance has now been withdrawn. In addition, this table does vary from that set out in the guidance and is therefore not purely based on the guidance.
Limitations and Assumptions - Assumptions	17.2.69	There will be other site deliveries and internal site traffic to manage other than material deliveries. The assessment assumed that that outside the start and end of shift periods, the main site compounds will generate no more than 10-20 deliveries each hour. These will be a mixture of HGVs and Vans.	No start and end times have been set out in the assessment. It is noted in the mitigation section of Construction that the day is considered to be 0700-1900. It is unclear if this has been applied for the assessment. It should be noted that the Planning Condition 26 of the CBC Phase 1 planning permission (reference 06/0796/OUT) required construction to occur between the following time periods: • 0730 to 1800 Monday to Friday • 0800 to 1300 Saturday • No construction work on Sundays, Bank or Public Holidays. The same hours were also included within Planning Condition 27 of the same consent in relation to collection and deliveries to the site for the purposes of construction. It would be expected that a similar or the same restriction be placed on this development in terms of the hours of construction and any collections or deliveries related to construction. Any assessment should use these hours to ensure that a consistent approach has been applied across the Campus.
Future Baseline	17.3.29	Table 17-10 shows 2023 Future Baseline traffic conditions for average weekday between 07:00 and 19:00 hours.	There is no justification for the use of the time period of 0700-1900 for the average weekday within the assessment, i.e. that construction vehicles will not be arriving / departing from the construction site outside of these hours.

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Sensitivity of Roads	17.3.31	Sensitivity of roads along the proposed construction routes was assigned based on the presence of sensitive receptors which took account of accident black spots	Although accident data has been obtained from Crashmap, it is not included within the ES chapter. Therefore, it is not clear how accident black spots have been considered with the assessment of sensitivity of roads.
Design and Mitigation	17.4.1 -17.4.2	The design development of the proposed Development is on-going and as such an agreed set of detailed mitigation measures has still to be fully developed and assessed. Despite this initial mitigation measures have been considered within the assessment, for construction and operational.	The design and mitigation measures have been included in the assessment assuming that they are in place, however it states that the detailed mitigation measures have not been fully developed / agreed. Therefore, there is no guarantee that these measures will be implemented. Consequently, the potential impacts reported on in the ES may not fully capture the impacts if the mitigation included within the assessment is not provided / conditioned. The residual impact after mitigation / design measures has only been assessed.
Construction Approach and Mitigation of Construction Effects - Staff Travel	17.4.25	As a worst case estimate, the proposed Development is likely to have an average of 150-200 workers and staff on site during the project. There will be some car parking at the two main compounds – accessed from Addenbrookes Road / Addenbrookes Road / Francis Crick Avenue / Dame May Archer Way Roundabout. The site compounds have been envisaged to have a maximum of around 75 car parking spaces.	Only 'construction routes' have been assessed as part of the study area. Construction staff will not be restricted to these construction routes and will have a choice of how to access these two main sites by car. Some staff could therefore travel through CBC to access the compound parking. These trips would occur on internal roads within CBC however have not been assessed and any potential impacts identified. In addition, arrival and departure times of construction staff has not been identified within the assessment. There is reference to a construction staff Travel Plan, which would be implemented to encourage staff to consider other sustainable travel modes before driving to help minimise the use of these parking spaces. The measures likely to be implemented have not been set out to illustrate that during construction staff trips will be managed to reduce the impacts on CBC.
Residual Effects from Construction- Construction Traffic - Addenbrooke's Road	Table 17-14 – severance / pedestrian delay	Main desire lines across Addenbrooke's Road were identified including: • a desire line between two parts of Clay Farm development located on both sides of the road; and • a desire line from the north to Great Shelford and trip generators along the A1301 Shelford Road. These and other desire lines are served by the existing controlled crossings	This does not reference the desire line on the Addenbrooke's arm of the Addenbrooke's Road / Francis Crick Avenue / Dame May Way roundabout, whereby pedestrians could cross to access the south of Dame May Archer Way for access into Abcam / CBC Phase 2 – which is an uncontrolled crossing currently which would be affected by severance and pedestrian delay. No mitigation is proposed at this roundabout to assist pedestrians crossing the carriageway at this location.
Residual Effects from Construction- Construction Traffic - Addenbrooke's Road	Table 17-14 Driver delay / public transport user delay	It is acknowledged that potential delay will be associated with vehicles needing to give way to construction traffic at the roundabout and side road junctions, and with delay associated with additional traffic demand for signalised junctions. It was concluded that this would be a 'Slight Adverse - Not Significant' impact.	No evidence to suggest 'Slight Adverse Not Significant' as delay associated with additional demand at signalised junctions along Addenbrooke's Road and also Addenbrooke's Road / Francis Crick Avenue / Dame May Way roundabout has not been modelled or assessed. Addenbrookes Road has an increase in 6.6% of total traffic, across the day, (486 vehicle movements across 12 hours (0700-1900) – an average of 40 vehicles per hour which could have an effect on delay at junction that are operating at / close to capacity.

Section	Paragraph	ES Transport Chapter Comment	AECOM Comment
Residual Effects from Construction- Construction Traffic - Addenbrooke's Road	Table 17-14 Pedestrian and cycle amenity	No reference has been made to the predicted increase in HGV's along Addenbrookes Road, which would lead to doubling of the existing HGV traffic. Assessment of HGV's is suggested for assessment within the IEMA guidelines (Ref 17-1).	HGV movements are more than doubled, therefore this should be considered within the assessment. It demonstrates that HGV's along this route could actually lead to a significant effect as a result of doubling of HGV's over the 12-hour period assessed.
Residual Effects from Construction- Construction Traffic - Addenbrooke's Road	Table 17-14 accident data	Accident data is briefly summarised but not evidences in the ES chapter.	No evidence of accident data is provided in the ES. The exact locations of accidents are therefore unknown based on the brief accident data summary provided. It is also unknown whether they were in a specific location / close to construction access points. Limited information has been provided to justify as 'slight adverse' impact. Two of incidents involved cyclists and no justification as to whether the increased traffic would increase this potential existing issue.
Residual Effects from Construction- Construction Traffic - Addenbrooke's Road	17.5.12	It has been concluded that the predicted effects on existing road users along Addenbrooke's Road are assessed as 'Not Significant'.	There are some effects which require additional evidence to support the 'professional judgement' provided as limited evidence has been provided for some effects.
Residual Effects from Construction	Table 17-14 And Table 17-15 and Table 17-16	As part of mitigation, within the CTMP it is stated that drivers will be instructed to • Give way to pedestrians and cyclists using uncontrolled crossings at the Francis Crick Avenue/Addenbrooke's Road roundabout. • When driving along Francis Crick Avenue and turning into and out of the proposed access route to the construction compound off Francis Crick Avenue to pay special attention to cyclists using mandatory cycle lanes • To pay specific attention to pedestrians and cyclists	This measure will be difficult to implement. The CTMP will only advise / highlight this to drivers and will not be enforceable. This therefore may not actually be implemented by drivers, putting pedestrians / cyclists at risk. This is relied on heavily as a mitigation measure within the assessment. It is unknown whether other mitigation options have been explored to minimise impacts with cyclists and pedestrians which would be more enforceable. In addition, where construction vehicles are to give way to pedestrians and cyclists using uncontrolled crossings at the Francis Crick Avenue/Addenbrooke's Road roundabout other vehicles will not be expecting this causing a dangerous safety issue.
Residual Effects from Construction- Construction Traffic - A1309 Hauxton Road (between M11J11 and the junction with Addenbrooke's Road)	Table 17-16 driver delay / Public transport users delay	It is referenced that the A1309 Hauxton Road is expected to continue to operate under capacity in 2023 including additional construction traffic generated by the development.	No evidence has been provided to justify that junctions along the A1309 Hauxton Road will operate under capacity as no junction modelling has been undertaken. Hauxton Road has an increase in 508 total traffic, across 12 hours (0700-1900) – an average of 42 vehicles per hour which could have an effect on delay at junctions that are operating at / close to capacity.
Residual Effects from Construction	Table 17-14, Table 17-15 and Table 17-16	In these tables, reference is made to the CTMP, with one of the measures including for the planning of HGV movements to avoid peak hours.	It is unknown what peak hours this is referring to, i.e. peak highway network, development, pedestrian, and cycle network peak. Given the nature of shift work at CBC, further clarification on this is required. Reducing construction traffic in highway peak hour, may not coincide with pedestrian / cyclist peak hours on the network and therefore could result in more construction traffic in the more critical hours for pedestrian and cyclist movements.
Summary of Cumulative Effects	17.5.50	Three developments were identified as having overlapping construction phases with the construction phase for the proposed Development, and potentially using the same proposed construction routes.	These have not been included in the assessment due to unavailable construction data and is therefore a limitation of the assessment. A high-level assessment could have been provided based on construction assumptions for the developments to assess potential impacts as this was raised by DfT for inclusion in the assessment.

4.0 Summary

4.1 A high-level review of the TA and Transport Chapter of the ES has been carried with the findings set out in Table 1 and 2 of this note. There are a number of items of concerns which have been raised in relation to both documents in terms of the assessment undertaken and the resulting impacts identified including the lack of a baseline and opening year assessment and detail on how the construction of the development will impact on CBC.