The Network Rail (Cambridge South Infrastructure Enhancements) Order

Proof of Evidence

NRE 6.2

Proof of Evidence – Level Crossings (Mr John Prest)

Inquiries Procedure (England & Wales) Rules 2004

January 2022

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CASE FOR THE CLOSURE OF DUKE'S No.2 User Worked Crossing (with Telephone) and WEBSTER'S User Worked Crossing (with Telephone) LEVEL CROSSINGS

PROOF OF EVIDENCE – JOHN PREST
OF NETWORK RAIL

PINS REFERENCE: NRE6.2

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GLOSSARY OF DEFINED AND ABBREVIATED TERMS

ALCRM	All Level Crossing Risk Model
AU	Authorised User
BGK	Bethnal Green to Kings Lynn Line
CBA	Cost Benefit Analysis
Crossings	Duke's No. 2 User Worked Crossing (with Telephone) and Webster's User Worked Crossing (with Telephone
CSIE Project	Cambridge South Infrastructure Enhancements (CSIE) Project
Duke's No. 2	Duke's No. 2 User Worked Crossing (with Telephone)
FWI	Fatality Weighted Injuries
LCM	Level Crossing Manager
MCB	Manually controlled barriers
MOM	Mobile Operations Managers
MSL	Miniature Stop Light
NRA	Narrative Risk Assessment
ORR	Office of Rail and Road
POGO	Power Operated Gates
ROGS	Railways and Other Guided Transport Systems (Safety) Regulations 2006
RSSB	Rail Safety & Standards Board
RSD	Required Sighting Distance
RPT	Risk Per Traverse
SBR	Shepreth Branch Line
Webster's	Webster's User Worked Crossing (with Telephone)
UWC	User Worked Crossing

SECTION 1 - PERSONAL DETAILS

1. I, John Prest, am the Route Level Crossing Manager (West Anglia) for Network Rail Anglia Route, based at Ely Network Operations Depot, Station Road, Ely, Cambridgeshire.

2. Since joining Network Rail in 2001, I have worked in various roles within Anglia Route, including that of Level Crossing Manager from 2013 to 2018, becoming a Route Level Crossing Manager in 2018.

3. I am responsible, so far as is relevant to this public inquiry, for the day-to-day safety and management of six Level Crossing Managers ("**LCM**") who have separate portfolios of various types of level crossings comprised within the West Anglia Area of the Anglia Route. This includes a responsibility for the Narrative Risk Assessments ("**NRA**s") carried out for, and Asset Inspections of those six LCMs and the level crossings within their areas of control. In total, I am responsible for 332 level crossings within my portfolio of West Anglia.

4. My involvement in the scheme is in respect of two level crossings - Duke's No.2 User Worked Crossing with Telephone and Webster's User Worked Crossing with Telephone Level Crossings - which are proposed to be closed as part of the Cambridge South Infrastructure Enhancements (CSIE) Project ("the **CSIE Project**") (as detailed in **Section 2** below) and are within my area of Level Crossing Management as outlined in Paragraph 3 above. I shall refer to these level crossings as "**Duke's No. 2**" and "**Webster's**", and together as "the **Crossings**".

5. The scope of my Proof of Evidence covers the assessment by Anglia Route of Safety Risk at a User Worked Level Crossing ("**UWLC**"), the justification for the closure of the Crossings and their replacement with an accommodation bridge. It therefore addresses the matters identified as Issues 1 (so far as relates to the level crossings related aspects of the CSIE Project) and 3a in the Secretary of State's Statement of Matters dated 27 October 2021.

6. My evidence is structured as follows:

> **SECTION 2 – OVERVIEW: THE CSIE PROPOSALS FOR CLOSURE OF DUKE'S NO. 2 AND WEBSTER'S AND THE CASE FOR THEIR CLOSURE**
>
> **SECTION 3 - NETWORK RAIL'S OBLIGATIONS REGARDING NETWORK SAFETY AND RELEVANT LEGISLATION THAT APPLIES TO LEVEL CROSSINGS**
>
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SECTION 5 – NETWORK RAIL'S RELEVANT LEVEL CROSSING STANDARDS AND RISK ASSESSMENT AT A USER WORKED LEVEL CROSSING

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SECTION 2 – OVERVIEW: THE CSIE PROPOSALS FOR CLOSURE OF DUKE'S NO. 2 AND WEBSTER'S AND THE CASE FOR THEIR CLOSURE

(i) The CSIE Project

7. The CSIE Project is described in greater detail in Section 5 of Network Rail's Statement of Case, and Mr Barnes (Scheme and Construction) (**NRE 1.2**). Amongst others, the proposed TWAO seeks powers to build a new railway station with four platform faces. As far as is relevant to my evidence, the CSIE Project seeks powers to take the following three actions:

    a. To close Duke's No.2 and Webster's over the West Anglia Main Line at Shelford

    b. To extinguish existing private access rights over the Crossings; and

    c. To provide alternative access measures.

8. The draft Order, in Article 8, provides for the stopping up of the Crossings. Read with Schedule 5, entitled "*Closure of Level Crossings",* it would allow for the closure of Duke's No. 2 and Webster's, and for existing private access rights to be extinguished. That Article reads as follows:

> **Level Crossings to be stopped up**
>
> **8.**— (1) Subject to the provisions of this article, the level crossings listed in column (2) of Schedule 5 (closure of level crossings) are stopped up and discontinued.
>
> (2) Upon the stopping up and discontinuance of the level crossings referred to in paragraph (1) all rights of way (whether public or private) over those crossings are extinguished.
>
> (3) In respect of the level crossings listed in Schedule 5 paragraphs (1) and (2) are not to have effect until the new access specified in column (4) in relation to that level crossing has or have been provided for authorised users and is or are open for use.
>
> (4) Any person who suffers loss by reason of the extinguishment of any private right of way under this article is entitled to compensation to be determined, in the case of dispute, under Part 1 of the 1961 Act.

(ii) The Risk of Level Crossings: the Crossings in context.

9. Given the powers sought as part of the CSIE Project, it is worth setting out the risks that level crossings can pose to users. In general terms, level crossings present a degree of risk in that they are an open interface between the railway and the highway, giving rise to an increased potential for user behaviour to affect train operations. This can be in an adverse manner should users either deliberately not follow crossing signage instructions or cross in error. Network Rail has identified that one of the highest public risks on the

railway arises in conjunction with the use of level crossings. Network Rail is working to eliminate such risk or to reduce it as much as is reasonably practicable.

10. The Crossings pose a particular risk because they are both UWLCs that have telephones to contact the local signallers at Cambridge. These are a form of 'passive' crossing; that means they are not controlled, or equipped with lights, audible warnings, or barriers. There is no direct method of warning users who use either Crossing of approaching trains other than relying on the Users to follow the signage and telephone to get permission to cross from Cambridge Panel A Signallers. Such crossings pose particular risks because they rely primarily on the users of the crossing phoning the signallers to ensure that it is safe to cross. In practice, some users may not know they are required to do so, and/or assume that they can safely cross. Accidents may therefore be caused by an inadvertent failure of the user to follow crossing signage. Accidents may also be caused by the reliance upon the signallers to give the user enough time to cross once they have phoned for permission to do so when the signaller may well not know the exact location of the train in relation to the proximity of these Crossings.

11. In contrast, at an active crossing (a crossing where a warning is given of an approaching train by barriers lowering/lights/alarms etc) e.g. a manually controlled CCTV Crossing, the user is prevented from entering the Crossing by barriers which are lowered across the road and so it is unlikely that a user will enter onto the Crossing when a train is approaching unless they disregard the protection and climb the barriers.

12. At the Crossings, the signage (shown in Figures 1 and 2 below) is explicit in directing the Users to telephone the signallers to gain permission to cross before they cross the railway with their vehicles.

Duke's No. 2 Signage (Fig 1)

Webster's Signage (Fig 2)

13. The Crossings are described in greater detail below at **Section 8**. In broad terms, Duke's No. 2 crosses two railway lines (to be increased to four lines as part of the CSIE Project) and Webster's already crosses four such lines. The lines are in use 24/7, including by unscheduled freight trains. Neither offer the Required Sighting Distance ("**RSD**") to all users in order to be able to safely cross (described in detail below at paragraphs 74 onwards). That is why using the telephone to check that it is safe to cross is so important. Through human error, or overconfidence, the Crossings pose a clear risk to the users. The users in question are predominantly agricultural users, and predominantly agricultural vehicles. These are large vehicles that take longer to cross than other smaller vehicles and pedestrians, which further adds to the risk posed by the Crossings.

14. Duke's No.2 is an Authorised User ("**AU**") only level crossing where both gates are padlocked to prevent any unauthorised usage. Usage appears to be seasonal, mainly during harvests, and is not particularly heavily used for any long period of time even then. The LCM responsible for Duke's No. 2 has previously spoken to the AU and the AU has said that they mainly use Webster's as it is wider, and they can get their machinery across more easily. Duke's No. 2 provides field to field access only, but the AU has to cross a cycleway with an additional set of gates to use the level crossing. There is a residual risk of trespass being so close to a cycle way although there have been no recorded incidents at this location over the last few years.

15. Webster's is a Private Use Occupation Level Crossing with Padlocked Restricted Vehicular Gates that control usage for AUs (or their invitees) only. Network Rail Mobile Operations Managers ("**MOM**s") are also key holders, but their usage is for emergencies only. Webster's Crossing has Power Operated Gates ("**POGO**") and this means the AU once they have telephoned the Cambridge Signaller to get permission to cross, can remove the padlock (which otherwise prevents access to the button control) and can push the button, allowing the Gates to automatically open away from the railway and the User can cross whilst remaining in their vehicle. This lowers the real traverse time and means the user can cross quicker than if they had to get out of their vehicle to open the gates. There is a residual trespass risk at this Crossing and there has been one deliberate act (suicide) incident recorded here on 17th February 2021. A member of the public used the vehicle gates to climb onto the railway and stepped out in front of a train to end their life. There is no right of access to members of the public to cross on foot as in 2015 a new footbridge was built, and the previous right of way was extinguished and replaced by the bridge – (see Figures 3 and 4 below).

Fig 3

Fig 4

16. As noted above the railway lines running over Duke's No. 2 and Webster's are operational and in 24-hour use. There are four running lines at Webster's with multiple opportunities for trains to be passing each other at various times on all four lines. This represents a risk in that it means the signaller will need to keep a potential user waiting longer to cross should they request to use the Crossings at these times when trains maybe passing each other. It is well known within the Railway Industry that when users are kept waiting for long periods, they are more likely to either not bother to phone again or ignore the signaller's instruction to wait and cross the railway.

17. Multiple railway lines also may confuse a user who does not phone for permission to cross, in that they may see what appears to be one or more trains pass over the Crossing in any direction, and therefore assume it is safe to cross. Unfortunately, the user may then confuse this with the other running lines being assumed to be clear of trains when this may not be the case.

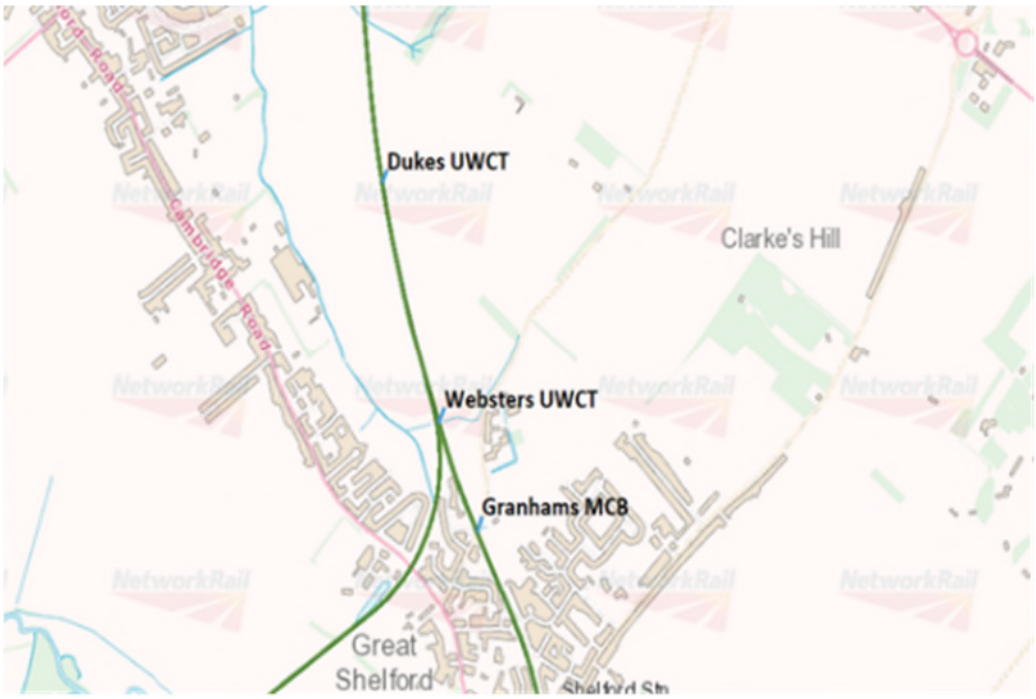
18. There are currently two running lines at Duke's No. 2 but again there will be multiple opportunities for trains to be passing each other and the risk of longer waiting times whilst potentially smaller is still a risk for the same reasons as Webster's.

19. The train service over both Crossings, consists of passenger and freight trains. There are approximately 307 trains per day, with varying service levels at the weekends. The highest permissible line speed of trains is 90mph. Additionally, there are empty stock train movements and various on-track machinery and plant that also pass over the Crossing's at any time; the latter usually at weekends or mid-week night time, operating during periods where they will not affect the running of passenger trains and will therefore be unexpected to the Crossing Users.

20. An Aerial View of the Crossings and a Crossing location map showing both Crossings are provided as Figures 5, 6 and 7 below.

Ariel View of Duke's No. 2 (Fig 5)

Aerial View of Webster's (Fig 6)



Crossing Locations Map showing both Duke's No. 2 and Webster's UWCT Level Crossings (Fig 7)

(iii) Accommodation Bridge

21. As part of the works on the Shepreth Junction (detailed in CSIE's Statement of Case (**E1**) at 5.6), Network Rail proposes to replace the existing Crossings with an accommodation bridge, which will give access to Hobson's Brook from Addenbrooke's road. The location of the proposed Accommodation Bridge can be seen from the drawings in **NR13,** Drawing, 158454-ARC-ZZ-ZZ-DRG-LEP-000053. The accommodation bridge will allow the existing AUs of the Crossings which use mainly agricultural vehicles, as detailed below in **Sections 7 & 8**, to pass over the railways safely without interfacing with the train service in any way.

22. The accommodation bridge removes all of the current risks associated with both Crossings and also removes any future risks identified by the construction of the new station and other associated works, that are detailed in **Section 9** in this Proof of Evidence, further below.

SECTION 3 - NETWORK RAIL'S OBLIGATIONS REGARDING NETWORK SAFETY AND RELEVANT LEGISLATION THAT APPLIES TO LEVEL CROSSINGS

23. Network Rail owns and operates the rail infrastructure of Great Britain (the network). Its purpose is to deliver a safe, reliable and efficient railway for Great Britain. The relevant health and safety framework can be described as follows.

24. The activities of Network Rail as network operator are regulated by the Office of Rail and Road ("**ORR**") by means of a network licence granted under section 8 of the Railways Act 1993 **(B9)**. The network licence requires Network Rail to secure the renewal and replacement of the network, and the improvement, enhancement and development of the network, in each case in accordance with best practice and in a timely, economic and efficient manner so as to satisfy the reasonable requirements of persons providing services relating to railways and funders in respect of the quality and capability of the network

25. As the infrastructure manager, Network Rail is also under a duty as regards the safety of the network, principally under The Railways and Other Guided Transport Systems (Safety) Regulations 2006 ("**ROGS**") **(B10)**. The ROGS implement the EU Railway Safety Directive (2004/49/EC) and require that any Infrastructure Manager or railway operator on the mainline railway must maintain a Safety Management System ("**SMS**") and hold a safety certificate or authorisation indicating that the SMS has been accepted by the relevant safety authority, before being allowed to operate. I am advised that the ROGS are EU - derived domestic legislation which continue to have effect in accordance with section 2 of the European Union (Withdrawal) Act 2018 **(B11)**.

26. The Health and Safety at Work etc. Act 1974 (**B46**) is the primary piece of legislation which requires the management and control of risks arising from work activities. While it does not specifically regulate level crossings, the effect of the duties it imposes (so far as relevant to my role and evidence) is to require railway duty holders to reduce the level of risk from their operations so far as is reasonably practicable. As explained above at paragraph 9, level crossings present a particular challenge because they are at the interface between the railway and the highway, so require a collaborative approach between those involved, particularly as level crossing risks are not all under the direct control of the railway duty holder. It is essential that decisions and options for level crossing control measures are informed by a suitable and sufficient assessment of the risks involved at each particular type of level crossing.

27. Arrangements for managing risk at level crossings should follow the principles of prevention which are found in The Management of Health and Safety at Work Regulations 1999 (**B47**), these are

    a. Elimination (i.e. the first consideration for all level crossings should be whether there are reasonably practicable alternatives to a level crossing, this is best considered at the design stage of a level crossing as part of a whole system approach);

    b. Engineering Controls (e.g. a warning system);

c. Administrative Controls (e.g. signage);

d. Reasonable Practicability; and

e. Gross Disproportion Judgement. This refers to the relationship between the amount spent and the attendant increase in safety, i.e. the safety value for money. Where the relationship between the two are grossly disproportionate, the expenditure will not be justifiable.

SECTION 4 – ORR AND NETWORK RAIL NATIONAL POLICY ON LEVEL CROSSINGS

28. The above legal framework in Section 3 is supplemented by the following policy context. Both national policy (set by the ORR) and corporate policy (promulgated by Network Rail) are relevant. While both sets of policies dovetail in that they both generally seek to reduce risk, the detailed approach to risk assessment is largely set out in Network Rail policy.

(i) Overall policy context: risk reduction

29. The ORR has published several documents which provide guidance as to how Network Rail should manage its level crossing Portfolio. They emphasise that risk should be reduced through the design of a level crossing or through an alternative way of crossing the railway where this is reasonably practicable, and this drives Network Rail's own policies and thinking regarding level crossings.

30. The ORR Goal-setting Principles for Railway Health and Safety published in January 2017 (Appendix **JP1**) states under Principle 2.9:

> "**Level Crossings** - **the removal of a Crossing or the use of an alternative means of crossing the railway is always the first option to be considered in a risk control strategy by the duty holder.** Where there is no reasonably practicable alternative to people crossing the railway at track level, a risk assessment should identify the appropriate arrangements which should be provided to protect and warn the users of the Level Crossing and safeguard the railway." (emphasis in original)

31. A key element of Network Rail's policy on level crossings is also reflected in ORR's publication RSP7 published on 15th December 2011 (Appendix **JP2**) and also by the ORR's 15th June 2021 publication of Principles for Managing Level Crossing Safety (Appendix **JP3**). Both these publications help drive Network Rail's emphasis to a risk-based approach at level crossings and sets out principles and factors which should be considered in a Level Crossing Risk Assessment. RSP7 will be fully replaced by a new Principles document in May 2022. The main purpose of the guidance is to inform the assessment and control of risks at a level crossing, recognising that every level crossing is different, and its individual circumstances need to be taken into account in the Risk Assessments. These principles are carried through to Network Rail's NRAs that every LCM completes for their individual level crossings.

32. Network Rail has a strategy for managing and reducing level crossing risk - "Enhancing Level Crossing Safety 2019-2029" (Appendix **JP4**). The policy recognises that the only true way to eradicate risk is to close level crossings, and that public safety must be at the forefront of decision-making. In greater detail, the policy reads at p. 23:

> "The closure of a Level Crossing is the only true way to guarantee that risk has been eradicated and accidents cannot occur. Closures of passive footpath, bridleway and user worked Crossings have been a focus of strategic investment since 2009.
>
> However, we must recognise the importance of community, and how our Level Crossings do, in some circumstances, allow communities to remain connected. We will continue to work with communities, private landowners and local authorities to find safer

ways to cross the railway. Opportunities will be taken, in accordance with ALARP principles, to close Level Crossings by using legislation including, where appropriate, the Transport and Works Act 1992. The risks of traversing the railway will be balanced against the risks of diversionary proposals. We will take account of demographic needs and user convenience within option selection. Public safety will always be at the forefront of decision making."

33. The policy also explains that it is our legal duty to reduce risk:

> "As part of our licence to operate and manage Britain's railway infrastructure [under s. 8 of the Railways Act 1993], we have the legal duty to protect our passengers, the public and our workforce, and to reduce risk at our Level Crossings so far as is reasonably practicable" (p. 9).

34. That document sets out Network Rail's overall approach to managing risk at level crossings, which can be summarised as follows:

    a. Risk management: limiting/reducing the number of active open level crossings, continual risk reduction activities, risk-based prioritisation of efforts, undertaking of inspection and maintenance activities, on-going risk assessment regime, support for public education and awareness of level crossing safety

    b. Research and development: commitment to request, and participate in, research to reduce level crossing risk; to investigate and introduce new technology

    c. Co-operation with stakeholders: support for the British Transport Police (BTP) and for the ORR in order to enforce adherence to level crossing and road traffic legislation, forming partnerships with other organisations such as local highway authorities; and

    d. Learning and taking action: that Network Rail will learn from others, from accidents/incidents/recommendations and take action, where considered necessary.

(ii) Detailed policy on risk assessment

35. As above, a key part of the legal obligations on Network Rail is to reduce risks from level crossings. Network Rail has developed its own company standards to determine those risks. The Network Rail Standards focus on Asset Management (which is a reflection of the actual condition of the level crossing, i.e. the asset on the ground) and Risk Management (which is a reflection of the overall safety of the Crossing, i.e. the risk profile of the asset). These standards enable Network Rail to meet its legal obligations and underpin the health and safety management of its level crossing estate.

36. There are two key documents governing the Risk Assessment process for level crossings:

    a. NR/L2/XNG/001 (Appendix **JP5**) a high-level document that sets out Network Rail's requirements to ensure a suitably robust and consistent process for assessing risk and determining the safety requirements for both existing and new level crossings.

    b. NR/L3/XNG/308 (Appendix **JP6**) is a comparatively more detailed, process-specific document. This standard sets out the frequency of routine risk assessments, defines non-routine risk assessment triggers and details the complete assessment process. LCMs follow this compliance standard in order to satisfy the risk management of level crossings.

37. In addition to the above referred documents, there are also engineering and design specifications, further to asset maintenance and condition standards that are integral to ensuring level crossing safety and Network Rail's approach to asset management. It is not however necessary to go into those for the purposes of this proof of evidence.

SECTION 5 – NETWORK RAIL'S RELEVANT LEVEL CROSSING STANDARDS AND RISK ASSESSMENT AT A USER WORKED LEVEL CROSSING

38. When carrying out a Level Crossing Risk Assessment, in line with Network Rail and ORR policies mentioned in Sections 4 and 5 above, one must look to reduce hazard through the hierarchy of risk controls. Where practicable, this can be achieved through the elimination of level crossings in favour of bridges, under-passes or diversions.

39. There is a dedicated team of LCMs in the Anglia Route, each based locally around the Route and with between 45 – 71 Crossings under their control. This has led to a considerable development of our knowledge and understanding of our level crossings using expert judgement.

40. Each LCM also undertakes all Asset Inspections – an appraisal of the level crossing Asset's physical condition – which for level crossings such as the Crossings take place on average at a 6-monthly interval (but this interval may be decreased to reflect local risks, see further paragraph 62 onwards, below). The LCM can also act as a leader at local stakeholder liaison meetings, which helps to develop a sense of 'ownership' in the local community and encourages a more proactive approach to risk management.

41. In terms of Asset Management and Inspection of all types of level crossings, their frequencies (which in part are determined by the All Level Crossing Risk Model – ("**ALCRM**"), explained in **Section 6** of this Proof at paragraph 50 and onwards) and how any faults or Issues raised are prioritised and rectified, can be found in Network Rail Standards NR/L2/XNG/19608 **(Appendix JP7)** and NR/L2/XNG/202 **(Appendix JP8).**

42. With this new LCM organisation came the introduction of the full NRA**,** which enables the LCM to take a holistic view of a level crossing, considering the qualitative and quantitative elements of the risk assessment to determine the foreseeable risk at that Crossing and make a robust assessment of appropriate intervention using expert judgement through option selection. More details regarding NRA's are found in **Section 6**, paragraph 46 onwards.

43. These NRA documents are also used on occasion to aid Network Rail in understanding the full risk associated with a level crossing, meeting the requirements of the Management of Health and Safety at Work Regulations 1999, and thus providing the necessary supporting safety information to a decision-making process for the level crossing. This will lead to recommendations as to the most suitable option to reduce the risk to as low as reasonably practicable.

SECTION 6 - THE ASSESSMENT OF LEVEL CROSSING SAFETY RISK AND FATALITY WEIGHTED INJURIES

44. The risk assessment of a given level crossing is provided in an NRA produced by an LCM. The Assessment is based on two elements: a *quantitative* one (calculated risk model) and *qualitative* one (structured expert judgement).

45. The NRA's main purpose is to support Network Rail's broader level crossing risk management process by providing a consistent methodology for assessing the safety risks to crossing users, train passengers and train staff at level crossings on Network Rail controlled infrastructure.

(i) Qualitative Assessment of risk – LCMs and NRAs

46. The qualitative aspect of the assessment (LCMs Observations/Opinions) is derived from the LCM's expert structured opinions garnered from their local knowledge of that particular crossing.

47. The local knowledge referred to in paragraph 46 above will be gained from many sources such as for example, when the LCM is out on site doing their inspections - often several times a year, relationships cultivated with the AUs who provide valuable information as to how and when they use the crossing, and interviewing local or regular users of the level crossing to identify particular day to day type issues that may not be immediately obvious etc.

48. All these sources of information are collated by the LCM and then used to understand and structure their qualitative opinions/views written into the NRA. Some examples of the information collated are - how many times over a given period the level crossing is being used (say over a year or less); whether the level crossing is being used correctly and therefore safely (that is a safe system of work is in place to use the crossing as per the signage instructions).There are other judgements or opinions that the LCM will use to put forward to the route optioneering panel, for safety elimination or mitigation improvements to the risks which they see as the key risk drivers from their assessment. These key risk drivers may well require the route to consider funding the LCM's proposed mitigations, either in the short term (which may involve changing existing planned priorities), or as a longer-term solution.

(ii) Quantitative Assessment of risk: ALCRM – The All Level Crossing Risk Model

49. *Quantitative* - The quantitative (numerical/statistical) aspect of the risk assessment is carried out using the ALCRM Tool. ALCRM was first introduced in 2007 and has been developed with regard to extensive research and risk assessment approaches since the early 1990s. The original risk model was developed as the result of a collaborative partnership between Rail Safety & Standards Board ("**RSSB**"), Network Rail and Arthur D. Little.

50. ALCRM assesses the risk profile of a level crossing based on the following metrics:

    a. Fatality Weighted Injuries (or FWI), which is a numerical value measuring Safety Performance or Safety Risk at that crossing, e.g. A fatality is weighted numerically as 1, each major injury is weighted as 0.1 of a fatality and each minor injury is weighted as 0.005 of a fatality. It gives a numerical view of the level of risk associated with level crossings and the statistical likelihood of a person, vehicle etc being struck/killed or injured by a train at that particular crossing. ALCRM collates this information from the LCM's data collection and draws on this information entered to calculate the FWI.

    b. Specific information about the Level Crossing – To calculate the level of risk for a particular level crossing, ALCRM requires specific information about the asset. Information is gathered from existing records held by Network Rail on that asset, using intelligence sources, stakeholder engagement and not least, upon a full site visit being undertaken by the LCM, during which time the presence of a defined set of observable crossing features is recorded. The features recorded during the site visit are listed in site visit pro forma and include aspects such as crossing orientation, census and users, and the visibility of the crossing on approaches. This data is input into a Mobile App on the LCM's iPad and goes directly into the ALCRM system.

    c. Pre-defined key risks - The calculated outputs of ALCRM enable Network Rail, in conjunction with the structured judgement of the LCM Assessors, to better identify the hazards and risks present at each of its level crossings. Known as key risk drivers, these include hazards such as sun glare, low sighting time or frequent trains. ALCRM also enables proposed risk control solutions to be modelled as scenarios. This option enables a comparison to be made with the current risk assessment and facilitates an understanding of how changes or improvements translate 'quantitatively' as a benefit or risk reduction. In this way, LCMs use ALCRM in order to support risk control selection and use identified key risk drivers to determine solutions which target risks and hazards.

51. The data for this assessment is derived from regular level crossing Asset Inspections conducted by LCMs, using standardised Asset Inspection questions on a mobile App device (as referred to in paragraph 50 above) – which is used to populate asset condition information into ALCRM. Also, LCMs will conduct a specific Risk Assessment on site data collection form again recorded on a mobile app device which feeds directly into the ALCRM system. Any incidents in relation to the crossings outside of these inspections are uploaded to a Safety Management Information System and from the RSSB's Safety Risk Model. The Safety Management Information System is a repository database used by Railway Group members to record details of all safety related events which occur on infrastructure managed by Network Rail.

52. ALCRM assigns each level crossing two metrics.

    a. First, a *Risk per Traverse* ("**RPT**") from A to M (with M being the least risky, and A therefore being the greater risk). This is based on the FWI measure, and the relationship between the two is explained below from paragraphs 53 to 57.

    b. Second, a *Collective Risk* (from 1 to 13, with 1 being the most risk and 13 being the least risk). These metrics are explained below from paragraphs 58 to 59

53. The **RPT** indicates how dangerous a crossing is to use regardless of usage level. RPT makes no assumptions about a 'typical user' and expresses risk in a numerical representation of FWI/Traverse. It is basically the measure of the likelihood of being struck/killed or injured by a train every time the crossing is traversed.

54. RPT is, in effect, a fraction expressed as a decimal that expresses the chance of being struck or killed by a train each time the crossing is traversed. To give an example, if the RPT is 1/500,000 i.e., that means one can expect an injury/fatality one in every 500,000 crossings – then the RPT will be 0.000002.

55. There are different RPT assessments made for different kinds of users, e.g. heavy and non-heavy vehicle users, pedestrians, train staff and passengers. Each is allocated a decimal value in ALCRM once the overall calculation is completed, and together they all form the overall alphabetic letter value allocated by ALCRM as the RPT described below.

56. Given the difficulty of working with small decimal numbers, the RPT is mapped onto an alphabetic scale for usability. A weighted average is mapped to the existing individual risk scale - A to M, with 'A' representing the highest risk and 'M' representing nil risk.

57. Active crossings such as Manually Controlled Barriers ("**MCB**") will be grouped around the lower end (towards 'L') as they are safer. By contrast, the passive crossings – like the Crossings – are generally found around the higher end (towards 'A').

58. **Collective Risk** is a measure of the total harm, or safety loss and is expressed in terms of FWI per year. For example, the value 1 represents: 1 fatality or 10 major injuries or 200 minor RIDDOR[1] injuries or 1000 minor non-RIDDOR injuries per year.

59. Collective Risk is reported by ALCRM in a simplified form referred to as a 'Collective risk number' ranked from '1 to 13' ('1' representing the highest risk and '13' representing nil risk).

60. While both RPT and Collective Risk are measures of risks, they are different measures of risk. Collective Risk is an overall assessment of the actual injuries at a given level

[1] Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (2013). RIDDOR imposes duties on employers, the self-employed and people in control of work premises (the Responsible Person) to report certain serious workplace accidents such as fractured bones, accidental amputations, burns etc, occupational diseases (e.g. Carpal Tunnel Syndrome, HAVS – Hand, Arm, Vibration Syndrome etc) and specified dangerous occurrences (near misses - apply to all workplaces and include incidents involving, lifting equipment, pressure systems, overhead electric lines, electrical incidents causing explosion or fire).

crossing in a given year. RPT, however, calculates risk *per traverse*. To give an example, a dangerous level crossing might therefore have a high risk *per traverse*; but be used so infrequently that its Collective Risk remains low.

61. ALCRM therefore is composed of two elements, a letter (representing RPT) and a number (representing collective risk). The ALCRM score of the Crossings is set out in **Section 8** below.

(iii) Frequency of assessment

62. Since LCMs were introduced, the frequency of routine NRAs at each level crossing has been based upon the kind of level crossing and its current level of risk. In general, the risk level of a UWC requires it to be assessed between every 1.25 and 3.25 years dependent upon its ALCRM Risk Score. The higher the ALCRM score, the greater the risk and therefore the greater the frequency of the risk assessment. Both the Crossings require a new risk assessment every 2.25 years based on their current ALCRM scores. These risk scores may well either increase (a crossing becomes a bigger risk) or decrease (less risky) as new risks emerge or old ones are either of less impact or are dealt with or mitigated.

63. See Appendices **JP9** and **JP10** for the latest NRAs for the Crossings – which were collated without reference to the CSIE Project scenario

SECTION 7 – DETAILED DESCRIPTION OF THE CROSSINGS

(i*) Duke's No. 2*

64. **Duke's No. 2** is located at railway mileage 53m 34ch on the Bethnal Green to Kings Lynn Line ("**BGK**") that takes passengers from Cambridge to London Liverpool Street, and has a line speed of 90mph over 2 running lines. The crossing is situated just outside Cambridge in the Parish of Great Shelford. It has vehicle gates only (there is no public right of way by foot over the Crossing) and has controlled (padlocked gates) authorised usage only, mainly by agricultural/farm machinery several times every year.

65. Duke's No.2 is an AU only level crossing where both gates are padlocked to prevent any unauthorised usage. Usage appears to be seasonal, mainly during harvests, and is not particularly heavily used for any long period of time even then. The LCM responsible for Duke's No. 2 has previously spoken to the AU and the AU has said that they mainly use Webster's as it is wider, and they can get their machinery across more easily. Duke's No. 2 provides field to field access only, but the AU also has to cross a cycleway with an additional set of gates to use the level crossing. So, the AU may spend some additional time at the crossing through having to do this which might mean that they may be less prepared to wait once they have completed these additional "obstacles" to using the crossing itself. Willingness or lack of willingness to wait for permission to cross from the signaller is believed to be a major factor in a recent (August 2021) Kisby UWCT level crossing incident on the Ely to Peterborough Line, where a train hit a tractor and trailer and which is referenced later in this proof of evidence at paragraph 98, below.

66. At Duke's No. 2 there are 3.65m wide metal aluminium gates that are manually opened and closed by the crossing users. The lineside boundary fencing on either side of the crossing consists of metal mesh chain-link fencing that is 1.8m high. The path over the crossing is level, consisting of a mixture of Rubber non-slip Holdfast Panels on the Up Side that are 5.4m wide and Wooden panels on the Down side that are 5.7m wide and both panel types span the full length and required width across the railway. There is no Local Authority street lighting provided on either approaches for night usage. Figures 8 and 9 below illustrate the gates and decking arrangements.

Up Side Crossing Approach at Duke's No. 2 (Fig 8)

Down Side Crossing Approach at Duke's No. 2 (Fig 9)

67. At Duke's No. 2 the traverse time it takes an able-bodied user to cross from a position of safety to the other point of safety on the opposite side of the railway is the time (in seconds) that it takes to cross the 12.8 metres over the crossing to open and close the vehicle gates. The Traverse time on foot would be approximately 10.84 seconds for an able-bodied pedestrian user. The required crossing traverse time for encumbered or vulnerable Users is longer, allowing for disability, distraction, or lack of understanding of risk. Vehicular traverse time would be calculated at approximately 40 seconds (a normal vehicular user would leave the vehicle to get permission to cross, get back in their vehicle, drive across and repeat the process) hence the need to always phone for vehicular permission to cross at this crossing to ensure it can be done safely. I note that these figures are calculated as a matter of course and do not imply that there is (for example) frequent traverse on foot.

68. At Duke's No. 2 there are believed to be minimal traverses over the crossing on foot due to the absence of any associated footpath public right of way and minimal overall usage by the AU's.

(ii) Webster's UWCT

69. **Webster's** is located at railway mileage 53m 0ch on the BGK line and has a line speed of 90mph over 4 running lines. It is very close to where the Shepreth Branch ("**SBR**") line meets with the BGK line. The crossing is situated just outside Cambridge in the Parish of Great Shelford close to Granham's Road where the Addenbrooke's/Great Shelford Cycleway Path runs parallel with the railway. It has POGO gates only (the crossing gates are opened automatically once a button is pushed by the user) and there is no public right of way by foot over the Crossing; this was removed when the foot-bridge next to the level crossing was constructed in 2015. The crossing has controlled (padlocked gates) authorised usage only, mainly by agricultural/farm machinery fairly frequently every year

70. Webster's is a Private Use Occupation level crossing with Padlocked Restricted Vehicular Gates that control usage for AU's (or their invitees) only. Network Rail MOMs are also key holders, but their usage is for emergencies only. Webster's has POGOs and this means the AU once they have telephoned the Cambridge Signaller to get permission to cross, can remove the padlock (which otherwise prevents access to the button control) and can push the button, allowing the Gates to automatically open away from the railway and the User can cross whilst remaining in their vehicle.

71. Figures 10-13 below show the vehicle gate arrangements for Webster's located within Network Rail's lineside boundary fence on the north (Up) and south (Down) approaches to the Crossing. Also pictured is the signage regarding the Power Operated Gates (POGO).

Down-Side (South) Approach (Fig 10)

POGO signage at Control Point (Fig 11)

Up-Side (North) Approach (Fig 12)

POGO signage once user has crossed (Fig 13)

72. Webster's has 5m wide metal aluminium gates on both sides that are automatically opened once the access-controlled button is pressed. The lineside boundary fencing on either side of the crossing consists of metal palisade fencing that is 1.8m high and also 1.8m high concrete post and mesh fencing. The path over the crossing is level, consisting of a continuous 5.4m wide rubber non-slip deck across the railway. There is no Local Authority street lighting provided on either approaches for night usage. Figures 14 and 15 below illustrate the gates and decking arrangements

Up-Side Across the Crossing (Fig 14)

Down-Side Across the Crossing (Fig 15)

73. At Webster's the traverse time it takes an able-bodied user to cross from a position of safety to the other point of safety on the opposite side of the railway is the time (in seconds) that it takes to cross the 17.4 metres over the Crossing. The Traverse time on foot would be approximately 14.74 seconds and greater for vulnerable or encumbered users. Vehicular traverse time would be calculated at a similar 40 seconds as per Duke's No. 2 with the difference being that the vehicular user at Webster's does not need to leave their vehicle to open and close gates. As above, these figures are calculated as a matter of course.

(iii) *Sighting Distances and decision points.*

74. As stated in paragraph 10, the Crossings are both 'Passive' Crossings (not controlled, equipped with lights, audible warnings or barriers). There is no direct method of warning users who use either crossing of approaching trains other than relying on the Users to follow the signage and telephone to get permission to cross from Cambridge Panel A Signallers. At both the Crossings the signage is explicit in that it directs Users that they must telephone the signallers to gain permission to cross before they cross the railway with their vehicles.

75. On passive Crossings the RSD is particularly important. This is the metric used to gauge the ability of persons and vehicles to safely cross a level crossing and indicates the distance you would need to see the train in order to cross the level crossing safely. For example, if the RSD was 500m, that means you would need to be able to see a train

from 500m away in order to traverse the level crossing safely. The RSD depends on the means by which the user intends to cross the level crossing; for example, the RSD is greater for an agricultural vehicle than for a car as it takes longer to cross in a tractor and, accordingly, the driver of the tractor needs to be able to see a train when it is further away.

76. RSD is measured from a "decision point". That is the point at which a person would make a decision to cross either on foot or in a vehicle e.g. from the gate or from the "stop look, listen sign". That distance varies between types of level crossings. The decision point is usually from a fixed point or object and for pedestrian users Network Rail has deemed this point to be at least 2m from the nearest running rail and for vehicle users it is at least 3m from the nearest running rail. The reason for the different decision points is that in both cases this is the minimum distance required so that any part of either a person or vehicle cannot be hit by any part of a train that crosses the Crossings. In this case, the decision points at both Crossings, are the gates, as that is where the telephones are located that are required to be used for permission to use either Crossing.

77. Sighting Distances at the Crossings are as follows given the line speed of 90mph on both the Up (Generally trains heading towards London Direction) and Down (Generally trains heading from London Direction) Directions

- At Duke's No. 2 with a distance to traverse the crossing of 12.8 meters, the crossing requires sightlines of 1,369 metres for vehicles and 308 meters for pedestrians in all directions in order to give the user sufficient time to cross before the train arrives.

- At Webster's with a distance to traverse the crossing of 17.4 meters, the crossing requires sightlines of 1,571 metres for vehicles and 589 meters for pedestrians in all directions in order to give the user sufficient time to cross before the train arrives

78. The actual Sighting Distances recorded at the last NRA, as well as photos showing the sighting distances for the Crossings are set out in Annex for ease of reference.

79. The RSDs are not possible to achieve on both of the Crossings. This is why they require users to phone the signallers in advance for permission to cross.

(iv) Usage of the Crossings

80. The Usage Census Details for the Crossings are below.

Duke's No. 2 –

81. The LCM has recorded only minimal usage at this Crossing, cross referencing the signal box records with a Camera Census (which recorded no usage) and from conversations with the AU.

82. The LCM census details are below in Table 1

Cars	NO
Vans / small lorries	NO
Buses	NO
HGVs	NO
Pedal / motor cyclists	NO
Pedestrians	Few Times Per Year
Tractors / farm vehicles	Few Times Per Year
Horses / riders	NO
Animals on the hoof	NO

Table 1

83. A census camera was deployed by the LCM for 9 days from the 5th October to the 14th October 2020 and recorded no usage but as stated above usage varies depending on the time of the year.

84. The crossing is locked and is for AU use only. The information indicates that the crossing does not have a high proportion of vulnerable users.

Webster's -

85. The LCM has recorded very limited usage at this Crossing, cross referencing the signal box records with a Camera Census (which recorded no usage) and from a Questionnaire completed by the AU**.**

86. The LCM census details are below in Table 2

Cars	Few Times Per Year
Vans / small lorries	NO
Buses	NO
HGVs	NO
Pedal / motor cyclists	NO
Pedestrians	NO
Tractors / farm vehicles	WEEKLY
Horses / riders	NO
Animals on the hoof	NO

Table 2

87. The letter/questionnaire was sent to the AU on the 1st October 2020, but it is recognised that usage varies depending on time of year the census is returned. The AU has stated that tractors with grain trailers/sprayers/fertiliser spreader no wider than three metres are used weekly, and that combine harvesters, 4 metres wide, are used from July-September/October. A census camera was deployed by the LCM for 9 days from the 5th October to the 14th October 2020 and recorded no usage but as stated above usage varies depending on the time of the year

88. Available information indicates that the crossing does not have a high proportion of vulnerable users. In particular, it has no pedestrian users – the crossing is locked and is for AU use only.

(iv) Safety events at the Crossings

89. No level crossing safety events are known to have occurred at the Crossings in the last twelve months. There was one deliberate act fatality at Webster's in 2020 where the individual concerned vaulted over the POGO Gates and waited for a train before deliberately stepping out in front of it and ending their life. The low incident statistics are almost certainly due to the existing Risk Controls in place at both Crossings, such as AU usage only, padlocked vehicle gates for AU Usage and low usage throughout the year by the AU's at both Crossings.

SECTION 8: CURRENT RISK ASSESSMENT OF THE CROSSINGS.

90. Duke's No. 2 has an ALCRM rating of B7 with an FWI of 0.000051023 (roughly 1 in 19,600). This means that the crossing is considered by Network Rail to be overall a medium risk crossing of its type based on its ALCRM score. The B element of the Risk Per Traverse for this crossing is considered to be high risk.

91. Webster's has an ALCRM rating of B6 with an FWI of 0.000209523 (roughly 1 in 4,775). The crossing is considered by Network Rail also to be a medium risk crossing of its type based on its ALCRM score. The B element of the Risk Per Traverse for this crossing is again considered to be high risk

92. The risks at both of the Crossings are influenced by the following elements.

93. There is the general point that the Crossings are passive level crossings. As previously described, this means that there is no direct method of warning users who use either crossing of approaching trains other than relying on the Users to follow the signage and telephone to get permission to cross from Cambridge Panel A Signallers. This is an inherently risky form of level crossing. Unlike crossing a road, it is not safe to cross the Crossings using a "stop, look, listen" approach, in part because trains can take a considerable time to stop (see paragraph 100, below). This is not immediately apparent, however.

94. Although the Stop signs are an integral Instruction System for all passive level crossings, they do not actively prevent users from demonstrating poor behaviours, for example by not phoning for permission to cross, or if a person did try to cross on foot, from walking out in front of a train. They are dependent upon users paying attention to these signs and heeding their Instructions. Unfortunately, human behaviour at level crossings shows that users do not always behave predictably when crossing the railway and people do not even always look at the signage or crossing equipment.

95. The willingness of people to wait for trains or adhere to instructions, alarms or crossing equipment, can be influenced by such things as: distractions, time pressures, perceived familiarity with a crossing or timetable, etc. Research also indicates and incidents show that human fallibility and susceptibility to distraction needs to be considered alongside deliberate misuse events and accidental human error, when considering the level of risk posed by the Crossing.

96. By way of example, there was a fatality at Grimston Lane PFP LC in Essex on 23 February 2016, where an elderly gentleman, and regular user of that Crossing, actually acknowledged the train's horn – but continued to cross with the misapprehension of having had sufficient time. This shows the risks of perceived familiarity with a Crossing. This is a concern for the Crossings, which have, as above, a small number of regular users.

97. The Crossings are predominantly used by agricultural vehicles. This poses particular risk because these vehicles types tend to be long and slow moving and so need a relatively long period of time to traverse/cross the level crossing safely. Longer time to

cross means more time for the vehicle user on the active railway lines and therefore the more risk unless they follow crossing signage and instructions. This can often result in a user being asked to wait several minutes until they are given permission to cross in their vehicles as the signaller at Cambridge will know they require a longer period of time to cross the Crossing. Such longer waiting times may mean users may not bother to wait and cross anyway before being given permission or may not call the signaller at all to cross based on their previous experiences.

98. A recent and alarming example of this type of incident appears to have happened at Kisby UWCT level crossing on the Ely to Peterborough line (EMP) at 88m 24ch, when on the 19 August 2021 a serious collision occurred between a train and a tractor with a trailer. Unfortunately, after interrogating signal box telephone records it would appear that no calls to the signaller were made on that day or any-time before the incident occurred, and it is believed that the AU and the persons employed on their behalf felt that they would be required to wait for too long to cross given the nature of their farming vehicles, and therefore elected not to follow the crossing signage and instructions. This incident is still currently being investigated by the Rail Accident Investigation Branch and Network Rail awaits their findings.

99. The railway tracks operate 24 hours per day at both Crossings. There are a significant number of trains over both Crossings, and there will be multiple occasions where trains pass each other. In addition, the railways accommodate untimetabled trains. These trains are not predictable, and users may assume it is safe to cross based on the timetable and not phone up the signaller at Cambridge as they are required to do to check before crossing. They are then at risk of being struck by an unexpected train.

100. Trains' stopping distances are considerable. Trains cannot rapidly slow down or stop, but over the distances involved, will generally continue to approach at the same Speed. The braking distance of a local passenger train travelling at 40 mph or greater, is approximately 850m. Braking distance for a train travelling at 100mph on level track would be approximately 2,041m. For trains with enhanced brakes (i.e. modern traction) this distance is reduced to 1,341m. These distances include thinking time from when the driver – car or train – sees something unsafe and applies the maximum brake. Consequently, from the train driver sighting a pedestrian or vehicle on the crossing and immediately applying the brakes, the train will not stop, or even materially slow down, before it reaches the crossing.

101. There is a risk because of the layout of the Crossings. In particular, Webster's has four train tracks to cross. The increased traverse distance at Webster's over 4 lines means that farm vehicles will require a longer time to cross the crossing safely and the amount of time required to cross may not be achievable at most times of the day due to train numbers etc.

102. As explained above, both Crossings have high RSDs. The RSD is not possible to achieve at Duke's No 2 and Webster's for all users. It is for that reason that the Crossings have telephones so that the signaller can inform persons seeking to cross whether they have sufficient time to clear the Crossing. However, for the reasons given above, this

system relies on the good behaviour and good practice of those seeking to cross. This makes the Crossings a higher risk profile compared to others.

103. At present, pedestrian (non-vehicular) Users at Duke's No. 2 do have sufficient sighting in all directions to cross without using the telephone. However, a pedestrian with the train in view may (mistakenly) think they have plenty of time to clear the path of the advancing train, believing it to be further away than it really is or that it is travelling at a slower speed. They then realise that the train is much nearer than thought, and possibly travelling faster than perceived, meaning they have minimal time to get clear. This is the scenario that it is believed was the cause of a fatality at Grimston Lane PFP LC in Essex on 23 February 2016, where an elderly gentleman, and regular user of that Crossing, actually acknowledged the train's horn – but continued to cross with the misapprehension of having had sufficient time.

SECTION 9 - FUTURE RISKS AT DUKE'S NO. 2 AND WEBSTER'S USER WORKED CROSSINGS

104. In my opinion, it is necessary for the Crossings to be stopped up as provided in the proposed TWAO. Simply put, should both Crossings remain open and the CSIE Project be delivered, then the Crossings would be unacceptably dangerous to the public. I say so for the following reasons.

105. There is an increase in risk from the new station itself. The extreme closeness/proximity of the new station will have several negative impacts on the risks at the Crossings.

106. It is not possible to achieve the RSDs already for all users, and there will be a further reduction in the sighting distance available for both vehicular and pedestrian users at the Crossings (i.e. a user will have less sighting to see the approach of trains in an oncoming direction) because of physical obstacles, such as the new station or trains that have stopped there. The sighting distances at both Crossings are currently insufficient for users to rely on just Stop, Look, Listen, (hence the requirement to phone the signaller prior to crossing). Reducing this sighting even further worsens that existing risk.

107. There is a risk that users could confuse trains that are not stopping in the station (what are called "Non-Stoppers"), with those that will call at the station ("Stoppers") and may well then cross in front of those trains believing they will be stopping at the station and they don't.

108. Alternatively, there is a risk that a signaller could not give the required time to cross safely at all on any occasion, or if so at very limited times – increasing the risk of either accidental or deliberate misuse of either crossing when users do not phone or ignore the signaller's instructions to wait because they know the waiting times are going to be excessive.

109. The increase in railway lines for Duke's No. 2, from two to four, increases the traverse distance and the traverse time required to cross the crossing safely, and consequently increases the RSD both for on foot users and vehicles as more time to cross means more sighting is required to cross safely. Again, these factors would limit the opportunities for signallers to give enough time to cross safely and raise the risk that a user either in a vehicle or on foot would ignore those instructions or just not phone for permission to cross.

110. This is a particular factor of concern for the Crossings as they are used predominantly for agricultural vehicles. A tractor already has a long crossing time. The addition of further railway lines would extend further that time to cross.

111. Although the CSIE Project is not proposing to run additional train services, the Increase in trains and their greater frequency under the future East/West Rail proposals that are likely to use the station (or indeed any other timetable additions) would significantly increase the overall risk at the Crossings. There will be longer waiting times for users of both Crossings – signallers will have more trains on the network and fewer opportunities to give any waiting vehicles or members of the public on foot, the time they need to cross

safely and avoid collision with the extra trains running. Again, this potential increase in waiting times means users would be less likely to call the signaller for permission to cross.

112. Further, a user is more likely to assume that as one train has passed it is safe to cross, without realising that another train will arrive at the crossing very soon thereafter from a different direction. In addition, the increase in trains also increases the signaller's workload, and the margin for signaller error.

113. Ultimately, in my view, and being consistent with Network Rail's duties as provided in the legislation and relevant policy set out above in **Sections 3 and 4**, if both Crossings remain open, the station being built in such close proximity represents an incompatibility risk that should not be allowed to occur. The risk of fatality to members of the public, passengers and train crew etc in the event of a major incident involving a train collision with a vehicle (or pedestrian) at either crossing can be reasonably foreseen and should in my view therefore be eliminated if reasonably practicable.

114. It is reasonably practicable to do this pursuant to the carrying out of the CSIE Project.

115. A new NRA is due to be completed on Dukes UWCT level Crossing by 3rd March 2022, and I will provide updates on that if it is completed by that time.

SECTION 10: THE ACCOMMODATION BRIDGE

116. Under the CSIE Project it is recognised that the closure of the Crossings will have an impact on the existing users of the crossings, and as such the CSIE Project's proposal is to facilitate closure/stopping up of the Crossings and to provide alternative access by means of a new private agricultural accommodation bridge across Hobson's Conduit, adjacent to Addenbrooke's Road, for the existing users of those Crossings.

117. The new accommodation bridge is fully described and detailed in my colleague Andy Barnes's Proof of Evidence **NRE1.2** to which I refer. A drawing of the accommodation bridge is provided in 158454-ARC-ZZ-ZZ-DRG-LEP-000053 (**NR13**). It will preserve access from the fields to the west of the railway lines over onto Addenbrooke's road, via an existing access track which will be regraded.

118. The accommodation bridge will *preserve* the AU's ability to cross the railway lines. The AU's of the Crossings can use the accommodation bridge to take the same type of vehicles that they have today at both Crossings over to their land and without restrictions placed upon them by the layout of the two Level Crossings as they are at present.

119. It will, in addition, substantially *enhance* the AU's ability to cross the lines. The accommodation bridge will ensure that AU's can continue to cross the railway lines and do so safely and without having to interact directly with the train lines. This is a significant benefit. Moreover, they will no longer require signallers to provide permission to cross the railway (a secondary benefit here will be the reduction in Signaller's workload in an already very busy Controlled Signal Box) and so will not need to be kept waiting to cross any longer. The risk of crossing the live railway lines will be removed for all those users whether they cross on foot or in a vehicle, and also the risk to train passengers of a potential collision incident is removed as well. This is, in my opinion, an overwhelming benefit in safety terms and represents a considerable improvement over the current position.

120. The AU's have already indicated to the LCM that they do not use Duke's No. 2 as much as they Use Webster's due to the wider gates at that crossing for their larger vehicles. The new bridge will remove that restriction of usage.

121. In my view, given that the accommodation bridge allows AU's existing access over the railway lines, and allows them to cross at will without having to telephone the signallers in advance, and without crossing the rails, the accommodation bridge is not only an acceptable alternative but a substantial improvement – for all concerned – on the current position.

122. With the building of the bridge, a "blocker" (the Crossings) is removed from the path of future East/West Rail services being increased in train numbers through the Shepreth Junction Improvement works. If both Crossings were to remain open, then their additional safety challenges would in my view need to be addressed by that project before they could implement their plans – which in all likelihood would mean the need to build the accommodation bridge that the CSIE Project is delivering.

SECTION 11: OBJECTIONS

123. Only one objection has been received in relation to the Crossings. One objector, St John's College, Cambridge (**OBJ01**) has raised concerns relating to the closure of the Crossings, and in particular the provision of an Accommodation Bridge. They raise the following issues –

    a. The College object to being granted a right of way from the public highway to use the proposed accommodation bridge which is restricted to agricultural use. They argue that they currently enjoy an unrestricted access over the Crossings, and the same should be provided over the Accommodation Bridge;

    b. Lack of design information that has been provided to show how the existing users of the Crossings could make use of the Accommodation Bridge;

    c. Lack of information regarding access to the Accommodation Bridge and how it will be protected from obstruction by the general public (and attendance health and safety risks).

124. In relation to the status and extent of the right of way that the College enjoys over the Crossings, I understand that is a legal matter on which I am not able to advise. I understand that this will be addressed by Network Rail by way of legal submission.

125. As to design information (b) and access issues (c), these matters are fully dealt with in evidence of my colleagues Mr Barnes in his Proof of Evidence **NRE1.2** and Mr Simms in his Proof of Evidence **NRE10.2**

SECTION 12 – CONCLUSIONS AS TO WHY THE CLOSURE OF THE CROSSINGS IS JUSTIFIED

126. The Crossings are currently considered to be medium to high risk crossings based on their ALCRM scores and for the reasons outlined above in section 8 and summarised below.

    a. First - the Crossings are passive Level Crossings - they are not controlled either by CCTV or by obstacle detection devices, or equipped with lights, audible warnings or barriers to physically prevent a person or vehicle from accessing the railway. They are an inherently risky Crossings as they rely entirely on users following instructions.

    b. Second - the Crossings are used predominantly by agricultural vehicles. This is risky because these vehicle types tend to be long and slow moving. Webster's, further, has four train tracks to cross which further adds to the risk.

    c. Third, the train tracks operate 24 hours per day at both Level Crossings, and there will be multiple occasions at both Crossings when trains pass each other. This train crossing risk is one where a user can make a mistake assuming that the Crossings are clear to use after a single train passes, without realising that another will follow in a short time period

    d. Fourth, at both Crossings, it is not possible to achieve the current RSD for all users and users must rely on the signaller's permission being given to cross.

127. The Crossings will become riskier if they are left as is, and the CSIE Project goes ahead, as described in **Section 9**.

128. The closure of both Crossings will satisfactorily control both the existing (and future) public safety risk, so far as is reasonably practicable at both locations.

129. The accommodation bridge will allow the current users to safely cross the track and will lead to the closure of two Crossings which are risky at present and will only pose yet greater risk in the future in the event that the CSIE Project goes ahead.

130. Leaving both Crossings open would increase the levels of risk from their current manageable levels and pose an unacceptable risk to the public. The accommodation bridge would, by closing the Crossings, totally eliminate the risk to the public incurred in crossing the railways.

STATEMENT OF TRUTH AND DECLARATION

131. This proof of evidence includes all facts which I regard as being relevant to the opinion that I have expressed and that the Inquiry's attention has be drawn to any matter which would affect the validity of that opinion.

132. I believe the facts that I have stated in this proof of evidence are true and that the opinions expressed are correct.

133. I understand my duty to the Inquiry to help it with matters within my expertise and I have complied with that duty

Signed:

John Prest Dated: 7 January 2022

ANNEX

1. As referred to above in paragraphs 74 onwards, these are the sighting distances from the most recent risk assessments for the Crossings.

2. Table 3 – Duke's No. 2 Vehicular Sighting at 3m Decision Point (3m distance away from the nearest running rail)

Risk Assessment Date of 04/07/2019

Table 3:

All distances are recorded in metres	Minimum sighting distance required	Measured sighting distance	Sighting distance measured to	Is sighting compliant?	If deficient, is sighting distance mitigated?	Notes on deficient sighting time mitigations
Up Side looking toward up direction train approach	1,369m	379m	6th OLE structure	No	Yes	telephone provided
Up Side looking toward down direction train approach	1,369m	265m	7th OLE structure	No	Yes	telephone provided
Down Side looking toward up direction train approach	1,369m	1,931m	Long Road Bridge	Yes	N/A	Sighting Compliant
Down Side looking toward down direction train approach	1,369m	514m	radio mast at 1044 points	No	Yes	telephone provided

3. 8.25 **-** Table 4 – Duke's UWCT No. 2 Pedestrian Sighting at 2m Decision Point (2m distance away from the nearest running rail)

Risk Assessment Date of 04/07/2019

Table 4:

All distances are recorded in metres	Minimum sighting distance required	Measured sighting distance	Sighting distance measured to	Is sighting compliant?
Up Side looking toward up direction train approach	308m	379m	6th OLE structure	Yes
Up Side looking toward down direction train approach	308m	379m	8th OLE structure	Yes
Down Side looking toward up direction train approach	308m	1,931m	Long Road Bridge	Yes
Down Side looking toward down direction train approach	308m	514m	radio mast at 1044 points	Yes

4. Table 5 – Webster's Vehicular Sighting at 3m Decision Point (3m distance away from the nearest running rail) and Pedestrian Sighting (2m distance away from the nearest running rail)

Risk Assessment Date of 14/10/2020

Table 5:

All distances are recorded in metres	Minimum sighting distance required	Measured sighting distance	Sighting distance measured to	Is sighting compliant?	If deficient, is sighting distance mitigated?	Notes on deficient sighting time mitigations
Upside looking toward up direction train approach	Vehicles					
	1,571m	315m	8th OHLE Structure BGK	No	Yes	Telephones provided and POGOs
	Pedestrians					
	589m	223m	4TH OHLE Structure on DN.	No	Yes	Telephones provided and POGOs

Upside looking toward down direction train approach	Vehicles					
	1,571m	215m	5th OHLE Structure BGK branch 5th OHLE Structure SBR branch	No	Yes	Telephones provided and POGOs
	Pedestrians					
	589m	301m	Granhams CCTV	No	Yes	Telephones provided and POGOs

Downside looking toward up direction train approach	Vehicles					
	1,571m	567m	Back of train	No	Yes	Telephones provided and POGO's
	Pedestrians					
	589m	583m	CA141 Signal	No	Yes	Telephones provided and POGO's

Downside looking toward down direction train approach	Vehicles					
	1,571m	176m	5th OHLE Structure BGK branch 5th OHLE Structure SBR branch	No	Yes	Telephones provided and POGO's
	Pedestrians					
	589m	197m	5th OHLE Structure BGK	No	Yes	Telephones provided and POGO's

5. Duke's No. 2 Sighting Pictures are below. The photograph below is showing sighting for Up Direction Up Trains approaching

(Fig 16)

6. The Photograph below is showing sighting for Up Direction Down Trains Approaching

(Fig 17)

7. The photograph below is showing sighting for Down Direction Up Trains Approaching

(Fig 18)

8. The photograph below is showing sighting for Down Direction Down Trains Approaching

(Fig 19)

9. Webster's Sighting Pictures are below. The photograph below is showing sighting for Up Direction Up Trains approaching

(Fig 20)

10. The Photograph below is showing sighting for Up Direction Down Trains Approaching

(Fig 21)

11. The photograph below is showing sighting for Down Direction Up Trains Approaching

(Fig 22)

12. The photograph below is showing sighting for Down Direction Down Trains Approaching

(Fig 23)