

Croxton (Thetford Road), Level Crossing Upgrade

Planning, Design and Access Statement

December 2022

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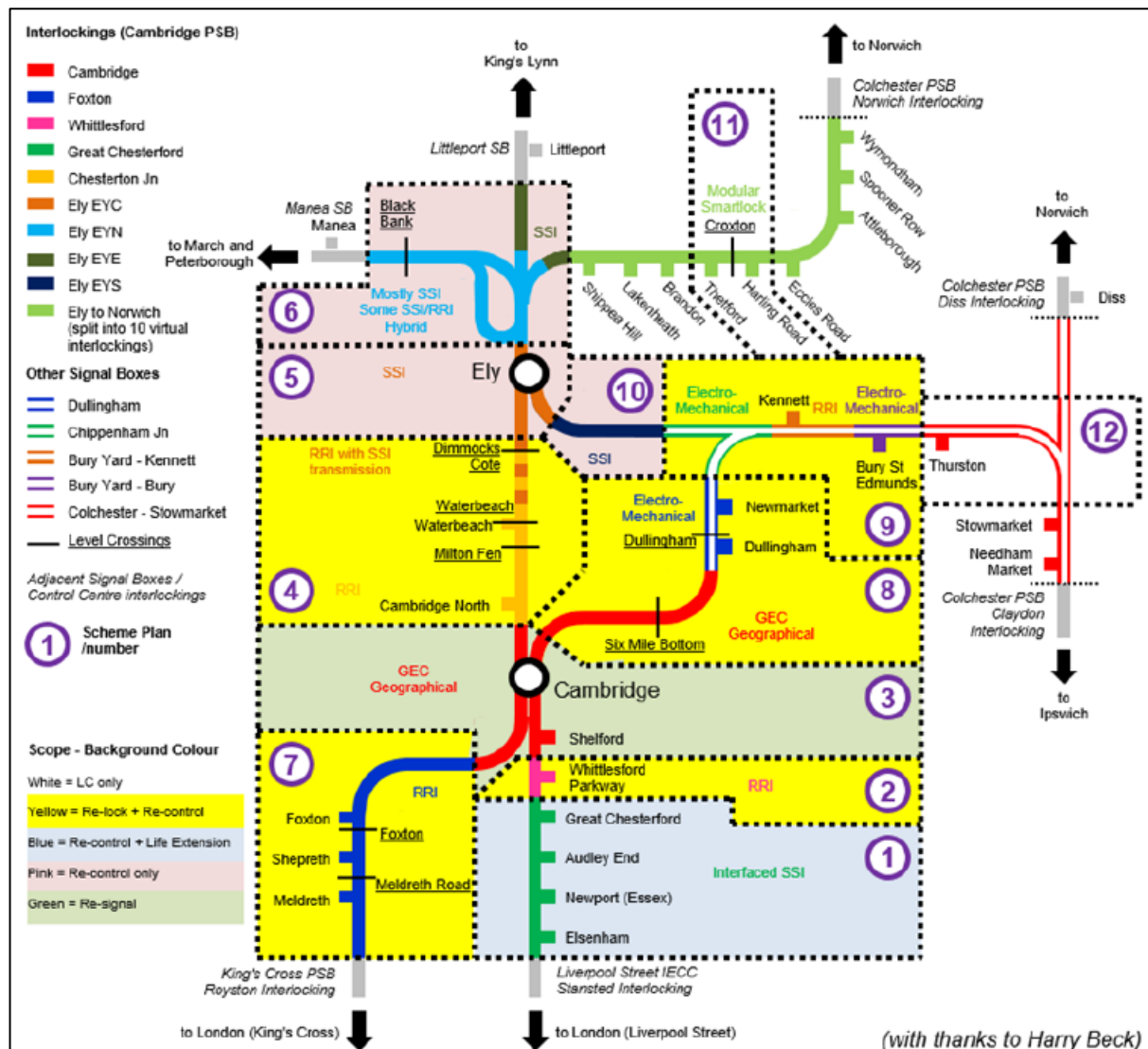
For and on behalf of Avison Young (UK) Limited

1. Introduction

- 1.1 This Planning Statement has been prepared in order to support a Full Planning Application in relation to the proposed upgrade works located at *Croxton (Thetford Road) Level Crossing, A1075, Thetford, IP24 2RQ*. The proposal comprises the proposed upgrade of Network Rail's Croxton Level Crossing from an Automatic Half Barrier (AHBC) Level Crossing to a Manually Controlled Barrier (MCB-CCTV) type.
- 1.2 The proposal is located within the administrative area of Breckland District Council.

The Cambridge Re-signalling, Re-lock and Re-control Project (C3R)

- 1.3 Network Rail are investing £194 million to renew the signalling system for the Cambridge area and improve efficiency and reliability for passengers and freight users. Signalling systems are essential to the safe and efficient operation of the railway. With the demands to run more trains, there is a need to modernise the existing signalling systems which are coming to the end of their operational life and replace them with a modern system that can unlock the ability to operate the railway more efficiently. The extent of the project locations is shown below in **Figure 1**.



- 1.4 Network Rail's Cambridge Re-signalling, Re-lock and Re-control project (C3R) aims to deliver state-of-the-art signalling technology for the railway which will mean better reliability and reduced

maintenance, while providing a platform ready for digital technologies such as the European Train Control System (ETCS). The CR3 project is an upgrade/renewal scheme covering an area which includes 125 miles of track, from Meldreth and Elsenham to the south, through Cambridge, up to Ely in the north and Thurston to the east. The project plans include the following proposals:

- Upgrade of the signalling control equipment at Cambridge power signal box;
- The upgrade of the signalling safety interlocking equipment with a modern signalling technology;
- Renewal of the telecommunications and power supplies to support the new systems;
- Decommissioning of three mechanical signal boxes and relocating control of signalling to the Cambridge power signal box; and
- Upgrade of seven level crossings from half barrier to full barriers to improve safety for all crossing users.

- 1.5 Following public consultation in 2021, an application for a Transport and Works Act order (TWAo) to authorise Network Rail to compulsorily acquire land, rights in land and take temporary possession of same to facilitate the works required for the re-signalling of the Cambridge station interlocking area and the upgrade of relevant level crossings, was submitted on 5 August 2022 to the Secretary of State for Transport. Further detail on the TWAo process and all documentation can be found at <https://www.networkrail.co.uk/running-the-railway/our-routes/anglia/improving-the-railway-in-anglia/cambridge-resignalling/>

Submission Documents

- 1.6 The C3R project includes upgrade works at the site of the Croxton level crossing. As such, the following information and supporting material have been submitted as part of this application for full planning permission to Breckland District Council ('the Council'):
- Site Location Plan:
 - *'7951370 - 4 - Planning Site Location Plan_Croxton_RevG'*
 - Existing and Proposed Drawings:
 - *'157001-NRD-DRG-ESG-000013 Croxton PA-P-Ver A03'*
 - *'157001-NRD-DRG-ESG-000014 Croxton PA-E-Ver A02'*
 - *'157001-NRD-DRG-ESG-000016 Croxton PA-PSP-P-Ver A02'*
 - *'157001-NRD-DRG-ESG-000125 Croxton PA-P-Access A02'*
 - *'157001-NRD-DRG-ESG-000126 Croxton PA-P-GA-Ver A01'*
 - Transport Assessment (Caneparo Associates)
 - *'Transport Assessment - November 2022'*
 - Preliminary Ecological Appraisal Report (RSK Biocensus)

- *'CR3 Re-signalling Project – Preliminary Ecological Appraisal Report_2484080_Rev 00 - Aug 2022'*
- Ecological Impact Assessment (RSK Biocensus)
 - *'CR3 Re-signalling Project – Ecological Impact Assessment_2484080_FINAL – Nov 2022'*
- Habitats Regulation Assessment Screening (RSK Biocensus)
 - *'CR3 Re-signalling Project – Habitats Regulation Assessment Screening Report_2484080_FINAL – Nov 2022'*
- Arboricultural Impact Assessment (RSK Biocensus)
 - *'Croxtan Level Crossing - Stage 1 and 2 Arboricultural Impact Assessment Report 2484085_Rev 0 – 10 August 2022'*
- Surface Water Strategy Statement at LX Sites (Alstom)
 - *'157001-ALS-REP-EEN-000005_P02'*
- Construction Management Plan (Alstom)
 - *'157001-ALS-PLN-EEN-000007_P03'*
- Utilities Assessment (Alstom)
 - *'157001-ALS REP EEN 000004_RevP02'*
- Sustainability Statement (Alstom)
 - *'157001-ALS-REP-EEN-000002_P02'*
- Carbon Assessment Report (Alstom)
 - *'157001-ALS-PLN-EEN-000005_Rev1A'*

2. Site Context & Planning History

Site Context

- 2.1 The site, which is located at *Thetford Road (Croxton) Level Crossing, A1075, Thetford, IP24 2RQ*, is located within the village of Croxton and approx. 1.5km north of the market town of Thetford. Thetford Road crosses the railway in a north-easterly direction. The Site Location is shown below in **Figure 2**.

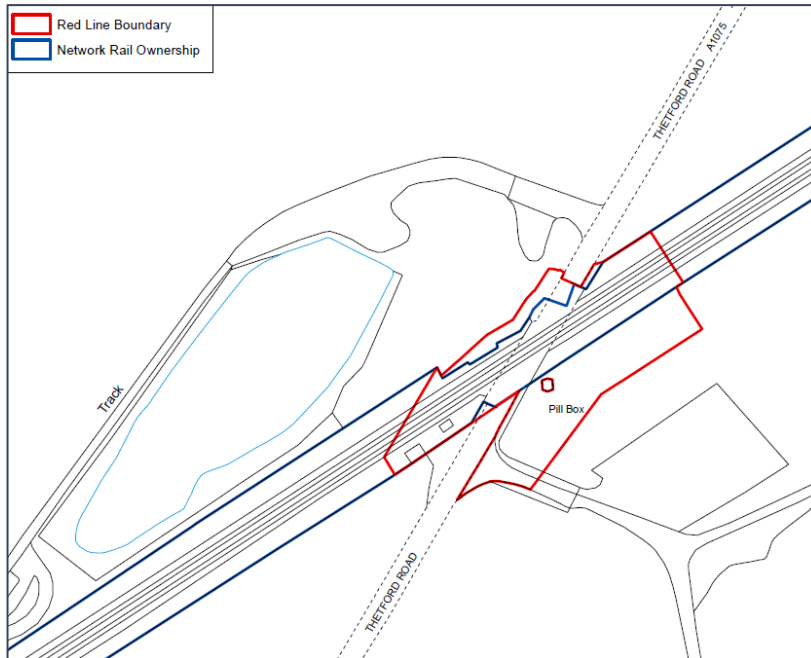


Figure 2 - Site Location of Proposed Development

- 2.2 An area of broadleaved trees lies to the west of the level crossing and an undesignated Pill Box (a blockhouse, or concrete dug-in guard post) is located to the south-east of the level crossing. A slurry pond lies approx. 50m to the west of the level crossing. The wider habitat is arable or crop fields with defunct hedgerows. Pedestrian and vehicular access to the Site is directly from an existing access along Thetford Road. A series of site context photos are provided below in **Figure 3**:





Figure 3 - Existing Site Photos

- 2.3 The site is not in a Conservation Area, no buildings within the curtilage of the site are statutorily or locally listed and there are no Tree Preservation Orders (TPOs) on site or directly adjoining the site.
- 2.4 The application site area is located within Flood Zone 1. The level crossing is surrounded to the north, east and west by the Breckland Forest SSSI and Breckland SPA which at their closest boundaries are 500m away from the crossing. The Brettenham Heath National Nature Reserve lies approx. 1.125km to the southeast which also forms part of the Bridgham & Brettenham Heaths SSSI and the Breckland SAC and SPA.
- 2.5 The railway line runs through the SSSI, SPA and SAC, approx. 800m to the north of the level crossing. Although not 'Sensitive Areas' there are a number of County Wildlife Sites located within 2km of the works area. These include:
- Kilverstone Meadows – 380m west of the level crossing
 - Woodland in East Wretham – 400m west of the level crossing
 - Adjacent to Bridgham Heath SSSI– 1km south-east of the level crossing
 - Adjacent to Bridgham Heath SSSI – 1km north-east of level crossing

Planning History

- 2.6 The following section provides a review of the site's recent planning history and has been compiled using the Council's online planning register:
- On 7th July 2021, an Environmental Impact Assessment Screening Opinion Request was submitted to the Council for the 'upgrade of Croxton Level Crossing' (ref: 3SR/2021/0003/SCR). On 16th September 2021, the Council confirmed that the proposal did not fall within the scope of the EIA Regulations and an Environment Statement was not required.

3. Proposed Development

3.1 The proposal involves the upgrade of Network Rail's Croxton Level Crossing from a AHB Level Crossing to a MCB Level Crossing. The upgrade to an MCB Level Crossing will improve safety for crossing users and crossing operators, address the deteriorating condition of the current asset, improve reliability of the crossing and reduce road closure time helping to ease traffic congestion in the area.

3.2 The proposed Description of Development is stated as:

"Change of use to Operational Railway Land, plus installation of new level crossing barriers, Smart IO Housing, operational signal equipment, road traffic lighting signals, new access and associated landscaping and fencing."

Existing Arrangements

- 3.3 The existing level crossing is an Automatic Half Barrier (AHB) level crossing (shown below in **Figure 4**). This type of crossing is activated automatically by approaching trains. The level crossing has 2 barriers which close over the approach side of the carriageway only, leaving the offside of the carriageway open.
- 3.4 A Road Traffic Light Signal (RTLS) is provided in each corner of the level crossing facing along the road approach with 'keep crossing clear' signage attached to the same post. Audible warning devices are affixed to the nearside RTLS to provide audible warning to pedestrians. Telephones with associated signage are provided for emergency use and are affixed to separate posts ahead of the RTLS posts in the offside corners.
- 3.5 Signage is provided on the left-hand side of the road to give advanced warning to vehicles of the level crossing ahead and to instruct drivers to stop when the lights show. Further signage is provided on the left-hand side of the road to warn of the risk of grounding at the level crossing and to instruct drivers of large or slow vehicles to stop and request permission to cross before traversing the railway. Additional signage is provided on both sides of the road on each approach instructing users on where to park when using the telephone before and after traversing the railway.



Figure 4: Existing Level Crossing Barrier Photograph (looking north-east)

Proposed Arrangements

- 3.6 The proposed works are to replace the existing AHB, and it be renewed as a Manually Controlled Barrier crossing Supervised by Obstacle Detector (MCB-OD). This includes the removal of the existing REB module and installation of new REB (SMIO Housing) and secure compound fence. All fencing and equipment around the level crossing will be renewed.
- 3.7 This type of crossing is activated automatically by approaching trains and is protected by signals on each railway approach which clear to allow passage of trains when the obstacle detector has confirmed that the crossing area is clear.
- 3.8 All existing equipment described above, in the existing arrangement, is to be removed from site.
- 3.9 A barrier will be provided in each corner of the level crossing which lowers across the full width of the carriageway and footways. The barriers will be fitted with skirts to fence off the railway from users when lowered. The barriers will be fitted with galvanized guards/cages to shield moving parts of the barrier weights from users.
- 3.10 New RTLS will be provided in each corner of the level crossing facing along the road approach with 'keep crossing clear' signage attached to the same post. In the offside corners, pedestrian stop signals (previously known as 'standing red-men') will be provided between the RTLS and the barrier facing along the road approach. This is due to improve pedestrian warning of the level crossing operation in the offside corners.
- 3.11 Audible warning devices are to be affixed to each nearside RTLS and top the offside pedestrian stop signals to provide audible warning to pedestrians. Fitment in each corner allows or more localised sound output as the volume can be adjusted and ensures that the full crossing area meets the required audible warning levels. Surveillance cameras will be mounted to the offside RTLS posts to monitor misuse at the level crossing. Telephones with associated signage are proposed on separate posts for emergency use in advance of the RTLS in the offside corners. Examples of the proposed arrangement are shown below in **Figure 5 and Figure 6**.



Figure 5: An Example of Proposed Level Crossing Barrier DOWN Photograph



Figure 6: An Example of Proposed Level Crossing Barrier UP Photograph

- 3.12 MCB-OD level crossings are provided with RADAR scanners which scan the level crossing area for obstructions. Each RADAR Scanner (RS) is mounted to a galvanized flange mounted post which is 4m high and 0.273m in diameter. Two posts are proposed in the northwest corner and a further 2 in the southeast corner, 1 post in each corner will be mounted with a single RS, 2 Corner Reflectors (CR), a camera to monitor misuse and a disconnection box for cable management and the other in each corner will be mounted with an RS and disconnection box only (see **Figure 7** below).

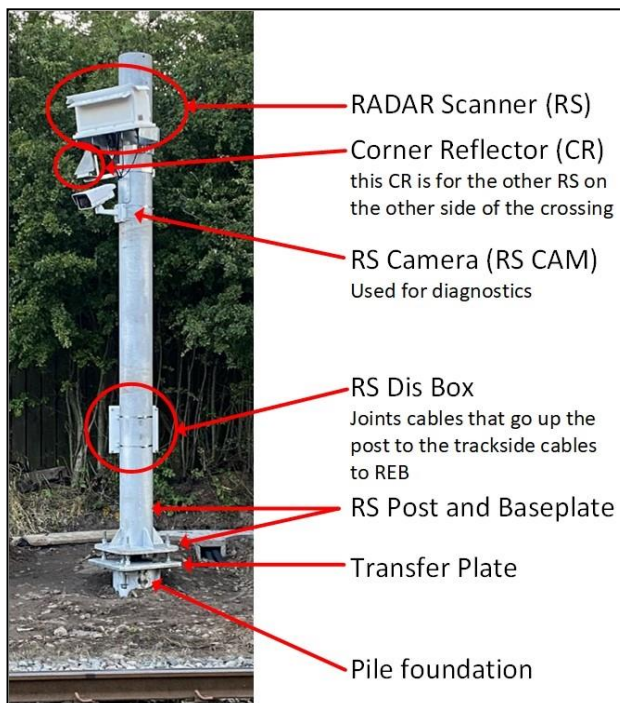


Figure 7: An Example of Proposed, Typical, RADAR Scanner (RS) with Annotations

- 3.13 Equipment will be provided inside the railway fence line in the southwest corner for the operator to locally control the level crossing. Railway and level crossing control equipment will be housed in a compound in the southeast corner containing an SMIO Housing, control and power supply apparatus as well as a second modular building containing a generator which provides an uninterrupted power

supply to the railway. These equipment buildings and the compound will be painted green in colour to reduce visual impact. Parking for on-site attendance for railway staff, and access for generator replacement and maintenance will be provided within the compound.

- 3.14 A 3rd party electricity substation is required in the northeast corner to supply this apparatus and will also be provided at the level crossing.
- 3.15 Rubber pyramid type trespass guards will be provided across the railway between the barriers for a minimum distance of 2.6m from the crossing surface as a deterrent against trespass. The existing carriageway width of 6.9m will be retained and marked with a yellow box marking over the level crossing and up to the vehicular stop lines on each approach.
- 3.16 Road markings commensurate with the road and level crossing type will be maintained over the railway and on each immediate approach. Footways of 1.0m in width are to extend for the length of the crossing area on both sides of the road to provide a refuge for pedestrians from passing vehicles.
- 3.17 Fencing at the site will consist of 1.4m high white metal palisade fence around the level crossing with grey 1.4m high weldmesh fence within the barriers.
- 3.18 Retaining boards will be installed to enable installation of equipment and to provide suitable access for railway staff.
- 3.19 The works at Croxton level crossing will not impact the Pill Box structure with the proposed access located 5m to the south and the REB and PSP located 10m to the east. Noting the rural location of the crossing with limited pedestrian traffic and the layout of the permanent works, it is considered that no impact on such users appreciation of this undesigned asset will occur.
- 3.20 As part of the wider project and not within this planning application, existing signage will be renewed with larger advanced warning signs on each side of the road mounted on high visibility backing boards to provide advanced warning to vehicles of the level crossing. This single larger sign assembly will replace all existing signage and is designed to reflect the existing road approach speed. For a period of 3 months after commissioning the new level crossing, a sign stating 'new level crossing control ahead' will be provided to notify users of the conversion.
- 3.21 The designs for the level crossing works will be in accordance with Network Rail Standards.
- All works are to be undertaken with minimal disruption to members of the public, local business, passengers, NR & train operator operations and infrastructure whilst the railway remains operational (except for any possessions or other exceptional and pre-agreed circumstances).
 - The proposed works are currently programmed to commence in Mid-2023.
 - The proposed construction compound will be situated adjacent to the application site and is therefore permitted under Part 4 Class A (temporary buildings and structures).
- 3.22 For more information in relation to the proposed works please refer to the supporting documents, plans and drawings that have been submitted as part of this planning application.

4. Policy Framework

- 4.1 This section of the planning statement summarises the relevant planning policy context within which the planning application will be determined.
- 4.2 Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that proposals are determined in accordance with the Development Plan, unless material considerations indicate otherwise.

National Planning Policy and Guidance

- 4.3 The revised National Planning Policy Framework (NPPF) was published on 20th July 2021 which sets out the Government's economic, environmental and social planning policies. The NPPF outlines a presumption in favour of sustainable development as being at the heart of the planning system.
- 4.4 The National Planning Policy Guidance (NPPG) is a web-based resource that was last updated in June 2021 and provides information and guidance on planning. The NPPF and NPPG form material considerations in the determination of a planning application.

Development Plan

- 4.5 The Development Plan for Breckland District Council currently comprises the following:
- Breckland Local Plan and associated Policies Map (adopted November 2019)
 - Attleborough Neighbourhood Plan 2016-2036 (January 2018)
 - Croxton, Brettenham and Kilverstone Neighbourhood Plan 2017-2036 (January 2019)
 - Mattishall Neighbourhood Plan 2017 – 2036 (November 2017)
 - Swaffham Neighbourhood Plan 2016 - 2036 (May 2019)
 - Swanton Morley Neighbourhood Plan 2016 - 2036 (December 2019)
 - Yaxham Neighbourhood Plan 2016 – 2036 (June 2017)
- 4.6 The site is also located within Croxton, Brettenham and Kilverstone Neighbourhood Area which was designated in April 2014. The Croxton and Brettenham & Kilverstone Joint Neighbourhood Plan was adopted on 24th January 2019 and is a material consideration in the determination of this application.

Supplementary Planning Documents

- 4.7 In addition, Breckland District Council are currently preparing a supplementary planning document (SPD) on affordable housing.

Site Designations

- 4.8 The site is not allocated for development in the adopted Local Plan.
- 4.9 The site is located within a Corridor of Movement within the adopted Local Plan and within the Stone Curlew SPA Buffer area within the Croxton, Brettenham and Kilverstone Neighbourhood Plan 2017-2036.

Emerging Policy Context

- 4.10 The adopted Local Plan contains Policy INF03 which requires the Council to undertake a partial review of the Local Plan with regard to housing, non-travelling gypsy and travellers, accessibility of homes standards and economic development.
- 4.11 On 25 July 2022, the Council's Cabinet approved the publication of the Local Plan Partial Review for Regulation 19 consultation. The Partial Review amends Policy INF03 to delete the requirement for an "immediate partial review" and commits the Council to undertake an immediate full review of the Plan and to submit it by December 2024. The Full Review of the Local Plan is expected to be adopted in June 2027. Public consultation on the Proposed Submission Version Local Plan (Partial Review) closed on 23rd September 2022. A second 6 week public consultation event (Regulation 19) ran from 30th September 2022 and ended 11 November 2022. A public examination is expected in Spring 2023.

Level Crossing Policy

- 4.12 Network Rail operates the rail network and infrastructure in the UK under licence from the Office of Rail and Road (ORR). It is the duty of Network Rail to operate a safe and reliable railway, as well as meeting our statutory and contractual obligations. Network Rail's primary role as statutory undertaker for the railway is to maintain and upgrade every aspect of railway infrastructure.
- 4.13 Network Rail has introduced robust policy to guide and improve its management of level crossings. The policy aims to reduce risk at level crossings, reduce the number and types of level crossings, ensure level crossings are fit for purpose, ensure Network Rail works with users and stakeholders and supports enforcement initiatives.
- 4.14 The ORR has a robust policy in terms of level crossing safety. The ORR's public website (<https://www.orr.gov.uk/guidance-compliance/rail/health-safety/level-crossings>) contains a vast amount of detail in relation to level crossings.
- 4.15 The Health and Safety at Work Act 1974 together with Network Rail's and the ORR's policy and guidance detailed within the '*Legal Framework for Level Crossings*' section within their website above clearly demonstrates the safety risk associated to level crossings and Network Rail's responsibility to ensure that they are operated, maintained and renewed to an appropriate standard.
- 4.16 The ORR specifically explains that where level crossings are being renewed or altered every effort should be made to improve the crossing and reduce risk. Network Rail's proposed upgrade of Meldreth Level Crossing is not only in keeping with relevant law and policy but is required by both law and policy.
- 4.17 As infrastructure manager, Network Rail must ensure that level crossings operate correctly and are safe to use. Network Rail is fulfilling its role as infrastructure manager by upgrading Meldreth Level Crossing and providing a barrier(s) arrangement.

5. Planning Assessment

5.1 This section assesses the Proposed Development against relevant national, strategic, and local policies. It considers the following key planning considerations in turn:

- Principle of Development;
- Design;
- Transport, Access and Servicing; and
- Environmental/Technical Considerations.

Principle of Development

- 5.2 Paragraph 8 of the NPPF states that achieving sustainable development means that the planning system has three overarching objectives (economic, social and environmental), which are interdependent and need to be pursued in mutually supportive ways. Part a) notes part of the economic objective is to identify and coordinate the provision of infrastructure.
- 5.3 Policy TR01 of the adopted Local Plan supports improvements to the road and rail connections both within the District and to the wider area and promotes improved access to, and interchange between, all modes of transport to key settlements and town centres. Development must not adversely impact on the operation or safety of the strategic road network and improve accessibility to services and support the transition to a low carbon future.
- 5.4 The proposed upgrade works provide vital improvements to the safety, reliability and efficiency of the railway infrastructure in the region, ensuring sustainable transport options remain well maintained and managed. The upgrade works and associated infrastructure are required to be located within close proximity to the rail infrastructure which they serve, the proposed infrastructure updates is similarly required to be located adjacent the level crossing.
- 5.5 These works are necessary infrastructure improvements, the principle of development is therefore considered to be acceptable in policy terms.

Design

- 5.6 Policy GEN 02 requires all new development to be of high-quality design. This will require development to respect and be sensitive to the character of the surrounding area and makes a positive architectural and urban design contribution to its context and location; contributes positively to the public realm and public spaces, protecting the high levels of amenity and quality of life making Breckland an attractive, successful and vibrant place for residents, workers and visitors; creates high quality, safe and sustainably designed buildings, places and streets; and maximises connectivity within and through a development and to the surrounding areas, including the provision of high quality and safe pedestrian and cycle routes.
- 5.7 Policy COM 01 also requires new development to be designed to the highest possible standards. All new development must achieve a specification of high architectural, urban and landscape design quality and contribute to the distinctive character and amenity of the local area. The policy also includes a design criteria which development needs to fully address or it will not be permitted.

- 5.8 The proposed upgrades to the level crossing are of a contextually appropriate high-quality design that utilises the Network Rail standards to assist in ensuring the infrastructure integrates with the surrounding edge of settlement context of the development.
- 5.9 The surrounding hard and soft landscaping is non-intrusive in visual terms comprising gravel substrate and concrete pads which are required for the housing units installation and long-term access and maintenance requirements.
- 5.10 Railway and level crossing control equipment will be housed in a new SMIO modular building in the southwest corner. The building will be painted green in colour to reduce visual impact and the proposed equipment will be designed in accordance with similar structures built across Network Rail's infrastructure.
- 5.11 Given the high-quality design of the replacement level crossing and associated structures and integration with the surrounding landscape details, the proposed development is considered acceptable in policy terms.

Operational Transport, Access and Servicing

- 5.12 Paragraph 111 states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.
- 5.13 Within this context, Paragraph 112 of the NPPF that development proposals should give first priority to pedestrian and cycle movements and to facilitate access to high quality public transport. Further, Paragraph 112 states development should address the needs of people with disabilities and create places that are safe, secure and attractive which minimises the scope for conflicts between pedestrians, cyclists and vehicles.
- 5.14 Policy TR 01 confirms that the Council will work in partnership to promote a safe, efficient and convenient sustainable transport system and this will be achieved by supporting improvements to the road and rail connections both within the District and to the wider area. The policy also requires development to seek to minimise the need to travel; promote opportunities for sustainable transport modes; not adversely impact on the operation or safety of the strategic road network; improve accessibility to services; and support the transition to a low carbon future.
- 5.15 Policy TR 02 requires proposals to provide safe, suitable and convenient access for all users and avoid inappropriate traffic generation and do not compromise highway safety. The policy also notes that where potential transport impacts are identified, developers will be expected to produce Transport Assessments to assess the impacts and identify appropriate mitigation, together with Travel Plans where appropriate.
- 5.16 Policy JNP7 of the Neighbourhood Plan states that development proposals should include a statement as part of the application which sets out and demonstrates how the new development will either not add significantly to increased traffic flows or risk to highway safety, or how any increase will be minimised, and any adverse effects mitigated to ensure that no parish roads become "rat-runs".
- 5.17 The proposed development is for operational rail infrastructure and will include a new parking area which will be located to the west of the level crossing, which will allow parking for maintenance staff and be accessed/egressed in forward gear. The parking area will be utilised exclusively for operational purposes on an intermittent basis as required by Network Rail operatives.

- 5.18 To ensure the application is acceptable in highways terms, the application is accompanied by a Transport Assessment, prepared by Caneparo Associates. The Transport Assessment has been informed by baseline VISSIM modelling prepared by the Modelling Group which modelled potential highways impacts based on a 'Do Nothing' scenario which details surveyed existing conditions and a 'Do Something' scenario which models highway impacts post level crossing upgrade completion.
- 5.19 Traffic surveys were undertaken to confirm the current AM and PM peak traffic volumes through Croxton Level Crossing which suggests there is on average 5 vehicles per minute travelling westbound in both peak hours, with one vehicle every 3 minutes travelling eastbound:

Table 2.1: AM and PM Peak Flow – Croxton				
Movement	Lights	Heavies	Cyclists	Total
<i>AM Peak (07:15-08:15)</i>				
Westbound	317	10	0	327
Eastbound	182	13	0	195
<i>PM Peak (16:45-17:45)</i>				
Westbound	279	9	8	296
Eastbound	181	2	2	185

- 5.20 Upon installation, the average barrier down time will be 174 seconds (2 minutes 54 seconds) which is 99 and 121 seconds longer in the AM and PM peak periods respectively.
- 5.21 The VISSIM modelling suggests that average delays across the entire highway network will equate to an additional 11.2 seconds in the AM peak and an additional 18.1 seconds in the PM peak:

Table 5.1: Network Performance						
Peak	Average Driver Delay (s)			Average Speed (mph)		
	DN	DS	Difference	DN	DS	Difference
AM	19.4	30.6	+11.2	40.8	38.2	-2.7
PM	18.3	36.4	+18.1	41.4	37.1	-4.3
<i>Note: DN = Do Nothing. DS = Do Something.</i>						

- 5.22 The proposed barrier upgrades will have an approximate 19 second average delay to westbound traffic and an approximate 20 second average delay to eastbound traffic, which are not considered significant in highways terms. It should be noted that some vehicles would have longer delays if they arrive to the barrier as soon as it has been called, however other motorists may arrive just before the barrier lifts and therefore only a minimal delay. Details are included in the table below:

Table 5.2: Journey Times (s)				
Direction	Peak	DN	DS	Difference
EB	AM	171	184	+13
EB	PM	163	183	+20
WB	AM	164	173	+9
WB	PM	169	188	+19
<i>Note: EB = Eastbound. WB = Westbound. DN = Do Nothing. DS = Do Something.</i>				

- 5.23 Further assessment has been undertaken in terms of queue length post completion. With the upgraded level crossing in place, the queue results show that there are modest increases in the average and maximum queue lengths. The highest increase is 62m, which is observed for the

westbound direction in the AM peak and equates to approximately 12 vehicles, as shown in **Figure 9** below illustrating the additional queueing.



Figure 9: Max Queue Lengths (extracted from submitted Transport Statement)

Construction Management and Traffic Movements

- 5.24 In accordance with good practice, a *Construction Management Plan*, prepared by Alstom has been submitted with this application.
- 5.25 Full details are set out within the document but details that construction will require 30 x weekday shifts (Mon-Fri) and 1 x night shift programme of works, including the requirement to deliver and install the equipment housing during a single night shift to avoid any disruptions to the operational rail network service and to ensure safe operating conditions for operatives. The proposed programme and levels of construction traffic generation is set out below in **Table 1**:

Table 1 - Proposed Construction Programme

Week	Shift type	Description of works	Traffic movement
1	6x day shift	Site mobilisation Material load out Excavation of base & concrete blinding	1 x Hiab, 2 shifts 1 x Grab lorry, 2 shifts 1 x transit van/ 1 x welfare van, 6 shifts
2	10 x day shifts	Earth mats, Formwork and reinforcement	1 x transit van/ 1 x welfare van, 7 shifts
3	2 x day shift	Concrete to base Concrete to FSP bases	1 x concrete pump, 1 shift 1 x concrete lorries, 1 shift 1 x transit van/ 1 x welfare van, 2 shifts
4	10 x day shifts	Cable troughs and hardstanding area Site clean-up and demobilise from site	1 x Hiab, 2 shifts 1 x transit van/ 1 x welfare van, 7 shifts
5	2x day shifts	Delivery of equipment housings	1 x 7.5ton lorry/ 1 x Hiab, 1 shift

- 5.26 Overall, the proposed upgrades will seek to improve the reliability and accuracy of the level crossing and provide safe access for all users of the site. The proposals will ensure the safe and efficient operation of the railway operation and will not result in any changes to the function of the highway network and are therefore acceptable in highway terms.

Environmental/Technical Considerations

- 5.27 This application is supported by a suite of environmental and technical reports which confirm that the proposed works are acceptable and will not result in any significant negative impacts and complies with local planning policy. We summarise the conclusions of these reports below. Please refer to supporting reports for further details.

Trees

- 5.28 Policy ENV 06 states that trees and significant hedge and shrub masses form part of the green infrastructure network and should be retained as an integral part of the design of development except where their long-term survival would be compromised by their age or physical condition, or there are exceptional and overriding benefits in accepting their loss.
- 5.29 Policy JNP6 of the Croxton and Brettenham & Kilverstone Joint Neighbourhood Plan states that development proposals will be supported where it can be demonstrated that they have had regard to the following biodiversity principles:
- They avoid the loss of trees of high and moderate quality with identifiable arboricultural, landscape or cultural value as well as important hedgerows, unless their removal results in an ecological gain and/or improvement to an identified local green space; and
 - Where a loss of mature trees, hedgerows or other features of ecological importance is unavoidable, the proposal should include an on-site replacement features to an equivalent standard.
- 5.30 This application is accompanied by an Arboricultural Impact Assessment which describes the results of a survey of trees at Croxton Level Crossing in August 2022. The Assessment confirms that the proposed wall to the north west of the level crossing impinges on the vegetation and requires the removal of some of the trees within group G1. It is noted that this will not be of great detriment to the surroundings as the group are category C areas and are largely comprised of shrubs, scrub, and poorly formed trees, most of which are smothered in by climbing plants. The report concludes that the loss of the vegetation and trees within group G1 will not have any lasting visual impact to the surroundings.
- 5.31 The upgrades to the transport infrastructure at Croxton Level Crossing are essential to improve the signalling technology for the railway and will lead to better reliability and reduced maintenance on the wider network. Network Rail propose restoring the works area at a minimum in the same condition, where feasible or provide betterment with appropriate re-seeding following consultation with ecologists. Where these are exhausted, off-Site habitat creation will then be prioritised, with an accompanying management plan created to ensure success.
- 5.32 Given the above, the proposals, including the removal of a small number of Category C trees and vegetation, is considered acceptable in policy terms.

Flood Risk

- 5.33 Policy ENV 09 Flood Risk & Surface Water Drainage seeks to minimise flood risk by be located to minimise the risk of flooding, mitigating any such risk through design and implementing sustainable drainage (SuDS) principles and incorporate appropriate surface water drainage mitigation measures to minimise its own risk of flooding and should not materially increase the flood risk to other areas.
- 5.34 A high-level Surface Water Strategy Statement, prepared by Alstom has been submitted in support of the application, which details how SMIO housing equipment will be constructed around a permeable gravel base, which ensures the proposed development will not lead to any localised or wider surface water flooding or impacts. The Surface Water Strategy Statement identifies that due to the small surface areas of the equipment building roofs it is considered that infiltration into ground provides a suitable solution for the runoff as the existing conditions.
- 5.35 Given the above, the proposals are considered acceptable in policy terms.

Biodiversity and Ecology

- 5.36 Paragraph 180 of the NPPF part c) states that development resulting in the loss of deterioration of irreplaceable habitats should be refused, unless there are wholly exceptional reasons and suitable compensation strategy exists. Footnote 63 to Paragraph 180 states *"for example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat"*.
- 5.37 Policy ENV02 requires development to not have adverse effects (either directly or indirectly) on a site of national, regional or local biodiversity, or geological interest. All development with the potential to affect biodiversity should demonstrate how such effects have been considered, by firstly demonstrating how effects have been avoided, and then how effects that cannot be avoided have been minimised. All development must also demonstrate how net gains for biodiversity are being secured as part of the development, proportionate to the scale of development and potential impacts (if any).
- 5.38 Policy ENV03 states that the Council requires that a Habitats Regulations Assessment is undertaken on all proposals for development that are likely to have a significant effect on The Breckland Special Protection Area (SPA) which is classified for its populations of Stone Curlew, Woodlark and Nightjar, and/or Breckland Special Area of Conservation (SAC), which is designated for its heathland habitats. Development will only be permitted where it can be demonstrated that the proposal will not adversely affect the integrity of the SPA or the SAC.
- 5.39 Policy JNP6 of the Croxton and Brettenham & Kilverstone Joint Neighbourhood Plan states that development proposals will be supported where it can be demonstrated that they have had regard to the following biodiversity principles:
- They would result in the enhancement of the ecological network including the management and support of designated sites and improving habitat connectivity;
 - Where possible they would result in a biodiversity net gain in the neighbourhood area.
- 5.40 This application is accompanied by a Preliminary Ecological Appraisal (PEA), Ecological Impact Assessment (EclA) and Habitats Regulation Assessment (HRA) Screening Report, prepared by RSK Biocensus.
- 5.41 The EclA outlines beyond the level crossing, dense bracken (*Pteridium aquilinum*) lines the railway sidings in the east. Elsewhere the sidings consist of tall ruderal vegetation with grasses. The

vegetation in this area had dried out considerably and there were no signs of recent management. Species present included wall barley (*Hordeum murinum*), common nettle and mugwort (*Artemisia vulgaris*). Two small buildings consisting of a container and a shed were located to west of the site. Dense scrub is located to the north-east of the site but is not included within the site itself.

- 5.42 The PEA and EcIA confirms that great crested newts, reptiles and nesting bird habitat were potentially present on or nearby the site. The PEA was also supported by a preliminary roost assessment of the neighbouring 'pill-box' which confirmed this could potential support hibernation roosts, but given the proposed works would not impact the pill-box and that no permanent lighting is proposed, that the proposed works would generate significant impacts on roosting or hibernating bats.
- 5.43 In addition the above, a habitat suitability index assessment for great crested newt (*Triturus cristatus*) (GCN) was undertaken given the site is approximately 70m from a neighbouring waterbody, which is a slurry pond associated with a neighbouring pig farm. The pond was highly polluted with no aquatic vegetation for egg laying present. Therefore, the pond was deemed unsuitable for great crested newt and other amphibians and it is considered unlikely they would be present.
- 5.44 The EcIA includes a full BNG assessment, which concluded the site has 1.32 baseline habitat area biodiversity units. To achieve a 10% biodiversity net gain, the site would be required to deliver 1.45 habitat area biodiversity units.

UK Hab Primary	Area – Ha	Condition	Baseline Biodiversity Units - BU
Bracken (g1c)	0.016980	N/A	0.03
Other neutral grassland (g3c)	0.214827	Fairly poor	1.29
Developed land, sealed surface (u1b)	0.117905	N/A	0.00
Buildings (u1b5)	0.003797	N/A	0.00
Artificial unvegetated unsealed surface (u1c)	0.035627	N/A	0.00
Total	0.389136	-	1.32

- 5.45 At present there is no ability to for habitat enhancement or creation within any of the level crossing sites post works given the limited land available. The EcIA provides an estimate of the BU required to achieve 10% net gain project wide for all level crossing applications within Cambridgeshire. However, it should be noted to satisfy the Defra 3.0 metric trading rules habitat created will need to have a distinctiveness of equal or greater value than the baseline habitats. The applicant will seek to agree appropriate off-site biodiversity enhancement in consultation with the LPA during determination of the application.
- 5.46 Regarding designated sites, Croxton Level Crossing is located c. 480 m west of Breckland Special Protected Area (SPA) and Breckland Site of Special Scientific Interest (SSSI); 790 m north-east of Breckland Special Area of Conservation (SAC) and East Wretham Heath SSSI; and 915 m north-east of Bridgham and Brettenham Heaths SSSI.
- 5.47 In terms of potential impacts to statutory designated sites listed above, the EcIA concludes at para 5.2.7-5.2.9:

"5.2.7 - Breckland SPA and Breckland Forest SSSI (which form the same area) are located 480 m from Croxton LX. These sites are primarily designated for nesting woodlark and nightjar which occur at internationally important numbers. Both of these birds are sensitive to visual disturbance. The SPA is visible from the LX, however, it is partially screened by a plantation woodland on either side of the road. Therefore, it is considered unlikely that these species would be impacted during the construction phase of the works. The SPA is at such a distance that it is not anticipated that the lights from the crossing would impact these species. Furthermore, the SPA is also directly adjacent to the A1075 which is reasonably busy and likely already causes light-spill into the SPA from passing cars and lorries. Therefore, no impacts are anticipated to these designated sites as a result of the proposed works. The full details of this assessment are provided within the Habitat Regulations Assessment Screening report (RSK Biocensus, 2022J).

5.2.8 - Breckland SAC and East Wretham Heath SSSI (which form the same area) are also located 790 m north from the crossing. This SAC is primarily designated for the Annex I habitat "inland dunes with open Corynephorus and Agrostis grasslands". Great crested newts are also designated as an Annex II species for this SAC. These designated sites are not hydrologically linked to the LX. Furthermore, the great crested newt ponds within the SAC are located over 1 km away making it unlikely that great crested newts would be impacted by the proposed works. Therefore, given the reasoning for these sites designation, the small-scale nature of the works and lack of impact pathways no impacts are anticipated to these designated sites as a result of the proposed works.

5.2.9 - Bridgham and Brettenham Heath SSSI and Brettenham Heath NNR are located 915 m and 1.06 from this LX. There are no impact pathways that link this SSSI and the LX sites, therefore no impacts are anticipated to this SSSI as a result of the proposed works."

- 5.48 Regarding potential impacts to non-statutory designated sites, the Kilverston CWS and Woodland in East Wretham CWS are located 560 m and 570 m, respectively from Croxton LX. As the works are relatively small scale and there are no direct impact pathways linking the LX to the CWS, no impacts are anticipated to these CWS as a result of the proposed works.
- 5.49 An HRA Screening (Stage 1) has also been undertaken for the proposed works. The HRA screening report concluded that no Likely Significant Effects on the designated/qualifying features of the Breckland SAC/SPA, or the three SSSI's which they encompass. As such, it is considered that no significant adverse effects in relation to statutory sites are likely in either the construction or operational stages of the Proposed Scheme and as such no Appropriate Assessments are required.
- 5.50 The recommended ecology mitigation measures have also been specified in the site-specific *Construction Management Plan* (CMP), prepared by Alstom, which has been submitted in support of this application, which stipulates that in accordance with the PEA/EcIA recommendations, during the construction period, the following mitigation measures will be implemented to ensure any potential impacts to the local environment are avoided:
- *Cautious approaches to vegetation clearance to mitigate against potential impacts to birds during nesting season*
 - *Avoiding aiming any temporary lighting towards trees*
 - *Covering excavations at night/ capping pipework with a diameter greater than 120mm*
 - *Keeping vegetation cut short throughout the duration of the works.*
- 5.51 Subject to the proposed mitigation measures being implemented as set out within the PEA, EcIA and CMP, and suitable on or off-site biodiversity enhancement measures being implemented, it is

considered the proposed works would have negligible impact on local ecology and the proposals are therefore acceptable in policy terms.

Historic Environment

- 5.52 NPPF Paragraph 199 states when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance. Development which results in substantial harm (or total loss) of a designated heritage asset, permission should be refused (Para 201), and where the proposed development would lead to less than substantial harm, the harm should be weighed against the public benefits of the proposed development.
- 5.53 Policy ENV 08 (Non-Designated Heritage Assets) states that development should be expected to conserve, or wherever possible enhance the historic character, appearance and setting of non-designated historic assets. Proposals that could affect previously unrecognised heritage assets will be expected, through agreement with the Council, to undergo an appropriate assessment, proportionate to the significance of the asset. The assessment must provide sufficient information for any impact to be fully assessed. In weighing applications that are likely to directly or indirectly affect non-designated heritage assets, a balanced judgement will be undertaken, having regard to the scale of any harm or loss and the significance of the heritage asset.
- 5.54 There is an existing 'pill-box' located adjacent to the site which was utilised for defensive purposes during wartime. The pill-box is non-designated and given no harm would be generated on the character or setting of the non-listed asset, the proposed development is considered acceptable in policy terms.

Sustainability

- 5.55 Policy TR01 promotes a safe, efficient and convenient sustainable transport system by reducing the need to travel by private car in towns and villages and increasing the proportion of shorter journeys made on foot or cycle; thereby providing a genuine alternative to the car and helping to facilitate a modal shift and commensurate reduction in carbon emissions. Development should improve accessibility to services; and support the transition to a low carbon future.
- 5.56 A project wide *Sustainability Statement*, prepared by Alstom has been submitted alongside this application, outlining the various sustainability initiatives that have been integrated within the project across the various level crossing sites.
- 5.57 Furthermore, a project wide *Carbon Assessment* has been prepared by Alstom to assess the carbon impact associated with the entire C3R project. The Carbon Assessment confirms that the overall capital carbon footprint of the design using *conventional* concrete products is estimated to be in the region of 153 tonnes of CO2 equivalent across the entire project. Based on the review of alternative and available low carbon products, the proposed methods of construction and materiality (across the entire C3R project) will allow for a further 45 tonnes of CO2 equivalent from the conventional baseline carbon footprint of the project.
- 5.58 The report confirms that carbon efficiency can be made through the provision Glass Granulated Blast Furnace Slag (nominal 65% used) into the concrete mix of substructure elements. It also notes that GRP or recycled plastic troughing also has a major role to play in reducing the carbon on the C3R project. Further savings around signal installation using screw piling over concrete and introducing

innovation such as TechnoCrete and Macrebur are also being considered for other construction elements of the project and will be implemented where feasible allowing for further CO2 reductions.

6. Conclusion

- 6.1 The proposed works to upgrade Croxton Level Crossing are considered to be acceptable in the context of the modernisation of level crossing control and the associated safety, efficiency and reliability. The works are an important component of the overall C3R project which will modernise rail infrastructure across Cambridgeshire.
- 6.2 The proposed works are necessary to allow Network Rail to fulfil its role and remit as infrastructure manager by upgrading this signalling equipment and ensuring its supporting infrastructure is fit for purpose. By undertaking the proposed works, this will create a safer and more efficient operation and there will be wider community benefits as a result of the proposal. These include the upgrading of necessary infrastructure for the rail network, introducing more appropriate and advanced modern technology and improvements to safety requirements and reliability of the railway.
- 6.3 Network Rail's proposed upgrade of Croxton Level Crossing is not only in keeping with relevant law and policy but is required by both law and policy. The Health and Safety at Work Act 1974, level crossing policy and guidance detailed within this statement clearly demonstrates the safety risk associated to level crossings and Network Rail's responsibility to ensure that they are operated, maintained and renewed to an appropriate standard.
- 6.4 To conclude, the development proposals represent a high quality, well designed scheme that accords with the principles of sustainable development and should be approved in accordance with the presumption in favour of sustainable development and the approach to decision-making set out in paragraphs 10 - 11 of the NPPF.

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