A47/A11 Thickthorn Junction

Scheme Number: TR010037

Volume 8
8.5 Statement of Common Ground with Norfolk County Council

APFP Regulation 5(2)(q)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A47/A11 Thickthorn Junction
Development Consent Order 202[x]

STATEMENT OF COMMON GROUND – NORFOLK COUNTY COUNCIL

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Rev 0	December 2021	Deadline 5
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STATEMENT OF COMMON GROUND

This Statement of Common Ground has been prepared and agreed by (1) Highways England Company Limited and (2) Norfolk County Council.

Signed [redacted]

Chris Griffin
Programme Director
on behalf of Highways England
Date: 18/03/2022

Signed [redacted]

David Cumming
Strategic Transport Team Manager
On behalf of Norfolk County Council
Date: 18/03/2022

CONTENTS

1 INTRODUCTION

1.1 Purpose of this document

1.1.1 This Statement of Common Ground ("SoCG") has been prepared in respect of the proposed A47/A11 Thickthorn Junction ("the Application") made by Highways England Company Limited ("Highways England") to the Secretary of State for Transport ("Secretary of State") for a Development Consent Order ("the Order") under section 37 of the Planning Act 2008 ("PA 2008").

1.1.2 This SoCG does not seek to replicate information which is available elsewhere within the Application documents. All documents are available in the deposit locations and/or the Planning Inspectorate website.

1.1.3 The SoCG has been produced to confirm to the Examining Authority where agreement has been reached between the parties to it, and where agreement has not (yet) been reached. SoCGs are an established means in the planning process of allowing all parties to identify and so focus on specific issues that may need to be addressed during the examination.

1.2 Parties to this Statement of Common Ground

1.2.1 This SoCG has been prepared by (1) Highways England as the Applicant and (2) Norfolk County Council.

1.2.2 Highways England became the Government-owned Strategic Highways Company on 1 April 2015. It is the highway authority in England for the strategic road network and has the necessary powers and duties to operate, manage, maintain and enhance the network. Regulatory powers remain with the Secretary of State. The legislation establishing Highways England made provision for all legal rights and obligations of the Highways Agency, including in respect of the Application, to be conferred upon or assumed by Highways England.

1.3 Terminology

1.3.1 In the tables in the Issues chapter of this SoCG, “Not Agreed” indicates a final position, and “Under discussion” where these points will be the subject of on-going discussion wherever possible to resolve, or refine, the extent of disagreement between the parties. “Agreed” indicates where the issue has been resolved.

1.3.2 It can be taken that any matters not specifically referred to in the Issues chapter of this SoCG are not of material interest or relevance to Norfolk County Council, and therefore have not been the subject of any discussions between the parties. As such, those matters can be read as agreed, only to the extent that they are either not of material interest or relevance to Norfolk County Council.

2 Record of Engagement

2.1.1 A summary of the meetings and correspondence that has taken place between Highways England and **Norfolk County Council** in relation to the Application is outlined in table 2.1.

Table 2-1 - Record of Engagement

Date	Form of correspondence	Key topics discussed and key outcomes (the topics should align with the Issues tables)
26/02/2018	Email (Flood Risk)	Email from NCC Lead Local Flood Authority providing a flood investigation report in the area of the Proposed Scheme.
24/05/2018	Meeting County Hall Norfolk (Flood Risk)	Initial meeting to discuss requirements of flood risk assessment and associated modelling.
16/12/2019	Meeting County Hall Norfolk (Road Design)	Initial meeting with Julian Fonseca from NCC Network Safety & Sustainability Team. Barrie Arthur presented both the Thickthorn and Tuddenham proposed schemes to provide an overview, touching on the key departures on Local Authority assets and establish a line of communication and liaison process going forward.
20/03/2020	Email (B1172 speed limit)	Email exchange between SWECO and Norfolk County Council discussing the proposal to reduce the speed limit on the B1172 from National Speed Limit to 40mph. In email 20/03/2020 SWECO outline argument for the proposed speed reduction. Email received on the 11/05/2020 from Norfolk County Council confirming acceptance of the proposed speed limit.
17/04/2020	Email (Local Authority Departures)	Email exchange between SWECO and Norfolk County Council (Julian Fonseka) discussing the scheme in principle with various comments, suggestions and points raised to inform the design development.
08/06/2020	Email (Signing Strategy – Norfolk County Council)	Email from Norfolk County Council with feedback on the proposed signing strategy to inform the design development.
16/06/2020	Email (Signing Strategy – Highways England Operations)	Email from Highways England Operations with feedback on the proposed signing strategy to inform the design development.

Date	Form of correspondence	Key topics discussed and key outcomes (the topics should align with the Issues tables)
30/06/2020	Email (Signing Strategy - SES)	Email from SES with feedback and marked up drawings (over 3 emails) on the proposed signing strategy to inform the design development.
21/07/2020	Meeting (Flood Risk)	Joint meeting with NCC and Environment Agency to discuss flood risk, geomorphological and ecological requirements of Cantley Stream diversion.
28/07/2020	Meeting (Flood Risk)	Initial meeting with NCC to introduce the Proposed Scheme and flood risk impacts.
28/07/2020	Email (Flood Risk)	Email from NCC Lead Local Flood Authority outlining comments from 21/07/2020 meeting outlining requirements for Flood Risk Assessment.
06/08/2020	Meeting (Flood Risk)	Meeting with Lead Local Flood Authority to discuss Cantley Lane culvert proposals.
24/08/2020	Meeting (Flood Risk)	Joint meeting with NCC Lead Local Flood Authority and Environment Agency to discuss Cantley Stream diversion and Cantley Lane culvert.
01/09/2020	Email (Flood Risk)	Email from NCC Lead Local Flood Authority outlining comments from 24/08/2020 meeting.
30/10/2020	Email (Local Authority Departures)	Email exchange between SWECO and Norfolk County Council (Julian Fonseka) confirming that email exchange was acceptable for approving departures as no formalised process was in place.
03/12/2020	Email (Drainage Strategy Report)	Drainage Strategy Report issued to Sarah Luff at NCC for review and comment to be provided by the Lead Local Flood Authority (LLFA) team.
03/01/2021	On-line meeting (Drainage Strategy Report)	Meeting between SWECO and Sarah Luff at NCC to discuss drainage strategy report and to present the proposed scheme to give a general understanding. It was agreed that meeting would be followed up by a formal letter from NCC to SWECO with comments.
13/01/21	On-line meeting (Drainage Strategy Report)	Meeting to discuss NCC comments on drainage strategy report.
20/01/2021	Letter (Drainage Strategy Report)	Letter received from NCC on the drainage strategy report with comments as agreed within the meeting on the 03/01/2020.

Date	Form of correspondence	Key topics discussed and key outcomes (the topics should align with the Issues tables)
25/01/2021	Email (Local Authority Departures)	Email from Norfolk County Council (Julian Fonseka) providing comments on information pack provided on proposed geometry and associated departures.
27/01/2021	Email (Local Authority Departures)	Email from Norfolk County Council (Julian Fonseka) confirming that the responses provided were acceptable and that Norfolk County Council supported the proposals.
27/01/2021	Email (Flood Risk)	Email from NCC Lead Local Flood Authority regarding reduced level of freeboard at Cantley Lane Culvert.
10/02/201	Email (Flood Risk)	Lead Local Flood Authority comments on flood modelling technical note.
23/03/2021	Email (Flood Risk)	Letter received from the LLFA following a review of the Flood Risk Assessment
16/11/21	Email (County Archaeologist)	Email from County Archaeologist confirming backfill of Trenches 138-142.
22/11/2021	Email (County Archaeologist)	Email from County Archaeologist confirming removal of Trench 115 from the programme.
26/11/2021	Teams meeting (LLFA)	Meeting between LLFA and Sweco to determine which issues are agreed.
26/11/2021	Email (LLFA)	Follow up to teams meeting above confirming position of agreement and ongoing discussion.
01/12/2021	Email (County Archaeologist)	Email from County Archaeologist confirming Trench Sign-Offs TR106-113
08/12/2021	Email (County Archaeologist)	Email from County Archaeologist confirming Trial Pit Sign-Offs TP128-142
17/12/2021	Teams meeting (LLFA)	Meeting between LLFA and Sweco to determine which issues are agreed.
20/12/2021	Teams meeting (Ecology)	Meeting between NCC Ecologist and Sweco to determine which issues are agreed.
11/01/2022	Teams meeting (LLFA)	Meeting between LLFA and Sweco to determine which issues are agreed.
17/01/2022	Teams meeting (LLFA)	Meeting between LLFA and Sweco to determine which issues are agreed.
18/01/2022	Email LLFA	Clarification of outstanding items
20/01/2022	Email LLFA	Clarification of outstanding items

Date	Form of correspondence	Key topics discussed and key outcomes (the topics should align with the Issues tables)
31/01/2022	Letter LLFA	Confirmation of agreement of LLFA items
04/02/2022	Teams meeting (Ecology)	Meeting between NCC Ecologist and Sweco to agree items on SoCG.
22/02/2022	Teams meeting (Ecology)	Meeting between LLFA and Sweco to determine which issues are agreed.
01/03/2022	e-mail (David Cumming, NCC)	Confirmation of agreed items
02/03/2022	Teams meeting (Ecology)	Meeting between LLFA and Sweco to determine which issues are agreed.
04/03/2022	Teams meeting (Ecology)	Meeting between LLFA and Sweco to determine which issues are agreed.
11/03/2022	SoCG Review and Sign off	Meeting between David Cumming and Sweco to review and agree sign off process.
18/03/22	Teams meeting (Ecology)	Meeting between LLFA and Sweco to determine which issues are agreed.

2.1.2 It is agreed that this is an accurate record of the key meetings and consultation undertaken between (1) Highways England and (2) Norfolk County Council in relation to the issues addressed in this SoCG.

3 ISSUES

3.1 Summary of NCC issues

Ref. No.	Topic	Issue	Status	Date
1	Environmental	PEIR Transect survey limitations	Superceded	
2	Environmental	Bat activity detection	Agreed	04/03/22
3	Environmental	Biodiversity Net Gain (BNG)	Agreed	20/12/21
4	Drainage and Flooding	Various points regarding drainage and flooding	Agreed	26/11/21
5	Drainage	SuDS	Agreed	26/11/21
6	Landscape and Visual assessment	Linear landscape elements in surveys.	Superceded	18/03/22
7	Construction	Scheme interfaces.	Discussion Ongoing	
8	Traffic modelling	Cantley Lane assumptions	Agreed	01/10/21
9	WCaHR	General provision	Agreed	01/10/21
10	Environmental	Archaeology; Trial trenching	Agreed	01/10/21
11	Environmental	Environmental Masterplan	Agreed	09/03/22
12	Traffic Management	Scheme transition	Discussion Ongoing	
13	Walking Cycling and Horse-Riding (WCHaR)	Cringleford FP4a	Agreed	
14	Environmental	Additional Surveys	Agreed	20/12/21
15	Environmental	CEMP	Agreed	04/03/22

Ref. No.	Topic	Issue	Status	Date
16	Environmental	Post-construction monitoring strategy	Discussion Ongoing	
17	Environmental	Surveys and Best Practice	Agreed	02/03/22
18	Heritage	Potential for unknown assets of interest	Agreed	01/10/21
19	Heritage	Impact to heritage assets	Agreed	01/10/21
20	Drainage and Flooding	Thickthorn Roundabout	Agreed	04/10/21
21	Drainage and Flooding	Flood Risk 40% climate change allowance	Agreed	04/10/21
22	Drainage and Flooding	Flood Risk Assessment Cantley Lane, north of the A47 around Cringleford including Langley Close and Brettingham Avenue	Agreed	05/10/21
23	Drainage and Flooding	Flood Risk: use of latest policy	Agreed	26/11/21
24	Drainage and Flooding	Inclusions to future assessments	Agreed	05/10/21
25	Drainage and Flooding	Appropriate mitigation for works	Agreed	26/11/21
26	Drainage and Flooding	Strategy and Flood Risk Assessment	Agreed	26/11/21
27	Lighting	Requirements and best practice	Agreed	01/10/21
28	Project Management	Information sharing	Agreed	01/10/21
29	Heritage	Geophysical Survey submission	Agreed	01/10/21
30	Heritage	Geophysical Survey referencing	Agreed	01/10/21
31	Environmental	Mitigation measure support	Agreed	02/03/22
32	Traffic modelling	Scheme interfaces (Park and Ride)	Agreed	01/10/21

Ref. No.	Topic	Issue	Status	Date
33	Traffic modelling	Scheme interfaces (Park and Ride slip road)	Agreed	01/10/21
34	Traffic modelling	Scheme interfaces (loss of Park and Ride slip road).	Agreed	01/10/21
35	Traffic modelling	Committed and planned developments.	Agreed	05/10/21
36	Environmental	Additional Surveys identified.	Agreed	01/10/21
37	Issue resolution	Issues to be resolved prior to final DCO decision.	Discussion Ongoing	
38	Highways Impacts	Recommendation of no objection.	Discussion Ongoing	
39	De-trunking	Asset ownership and transfer.	Discussion Ongoing	
40	Socio – economic issues	Inclusive growth and social mobility	Agreed	01/03/22
41	Environmental	Air quality	Not agreed	
42	Environmental	Arboriculture impact assessment	Agreed	25/11/21
43	Environmental	Ancient Woodland	Agreed	25/11/21
44	Environmental	Ancient and veteran trees	Agreed	25/11/21
45	Environmental	Threats to remaining trees	Agreed	25/11/21
46	Landscape and visual	Environmental Masterplan	Agreed	25/11/21
47	Geology & Soils	Materials and Waste	Agreed – See post note	**07/02/22**
48	Construction	Noise and Vibration	Agreed N/A	/ 10/03/22
49	Construction	Population and Human Health	Agreed	17/11/21

Ref. No.	Topic	Issue	Status	Date
50	Environmental	Climate	Agreed	25/11/21
51	Drainage & Flooding	Cantley Lane South Culvert	Agreed	26/11/21
52	Drainage & Flooding	Cantley Stream Floodplain	Agreed	11/01/22
53	Drainage & Flooding	Intwood Road Property	Agreed	26/11/21
54	Drainage & Flooding	Groundwater: Further Survey	Agreed	26/11/21
55	Drainage & Flooding	Drainage Strategy Summary	Agreed	31/01/21
56	Drainage & Flooding	Construction Phase Mitigation	Agreed	26/11/21
57	Drainage & Flooding	Asset identification and investigation	Agreed	26/11/21
58	Drainage & Flooding	LLFA design expectation	Agreed	26/11/21
59	Drainage & Flooding	Impermeable factor	Agreed	31/01/21
60	Drainage & Flooding	Infiltration potential	Agreed	26/11/21
61	Drainage & Flooding	Run off rates	Agreed	31/01/21
62	Drainage & Flooding	Infiltration testing	Agreed	26/11/21
63	Drainage & Flooding	Ground investigation	Agreed	26/11/21
64	Drainage & Flooding	Pipe and tanked storage	Agreed	26/11/2/1
65	Drainage & Flooding	Pumping station risks	Agreed	31/01/21
66	Drainage & Flooding	Emergency storage volumes.	Agreed	31/01/21

Ref. No.	Topic	Issue	Status	Date
67	Drainage & Flooding	Surface and Foul Water	Agreed	26/11/21
68	Drainage & Flooding	Ordinary watercourse consenting	Agreed	26/11/21
69	General	Public Health	Agreed	17/11/21
70	Planning	Discharge of requirements	Agreed N/A	09/03/22
71	General	Support of scheme principles.	Agreed	01/03/22
72	Ecological	Ecological mitigation and enhancement	Agreed	18/03/22
73	Ecological	Applicant's response to the Local Impact Report	Agreed	18/03/22
74	Ecological	Barbastelle Bats	Discussion Ongoing	
75	Ecological	Ecology: Environmental commitments	Agreed with exception	

3.2 Issues related to Statutory Consultation Responses

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
1	Environmental: PEIR	Environmental Statement (TR010037/APP/6.1)	The PEIR states that two transects routes were undertaken between April and October 2017. With static detectors at two locations per transect route. It is not clear from the report how surveys will identify important linear landscape elements. Transect surveys have limited ability to identify spatial and temporal variations in bat activity as they are biased towards the dusk period, and where the surveyor is when the encounter a bat. Post Note: Post Note: Superseded by 74.	Ecological assessment and mitigation is considered in Chapter 8 - (APP-045)- Biodiversity and associated appendices (APP-094) in the Environmental Statement NCC PEIR response was issued in June 2019.	Superceded	
2	Environmental: Bat activity	Environmental Statement (TR010037/APP/6.1). Stahlscmidt & Bruhl, 2012[1]	We recommend that there is greater use of static bat detectors to record bat activity within the site/along linear landscape features (see Stahlscmidt & Bruhl, 2012[1]). We also recommend consideration is given to evaluating bat activity in sub-optimal conditions as this will affect the distribution of prey and affect bat activity patterns. We recommend the use of infra-red/thermal imaging equipment when undertaking emergence surveys of the trees to obtain more accurate population counts, and the use of IR/TI is also important for identifying the height that bats cross the landscape and collision risk modelling. No collision surveys have been undertaken to-date. We would recommend such surveys are undertaken to provide a baseline against which changes post - construction can be measured.	Ecological assessment and mitigation is considered in Chapter 8 - Biodiversity and associated appendices in the Environmental Statement **(APP-038).** Post note: surveys undertaken in 2020. Will be considered going forward.	Agreed	04/03/22

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
			We would recommend the use of detector dogs, as these have been shown to be significantly more effective at searching for animals than human surveyors. Post Note: Taken from S42 comments (June 2019).			
3	Environmental: BNG	Environment Statement Chapter 8, Biodiversity (TR010037/APP/6.1).	We would recommend that Biodiversity Net Gain (BNG) is considered that this stage so as to maximise opportunities. Post Note: Taken from S42 comments (June 2019).Superceeded by 74.	Noted. Net gains/losses will be detailed in the Environment Statement Chapter 8, Biodiversity **(APP-045)**	Agreed	20/12/2021
4	Drainage: Flooding	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(TR010037/APP/6.1)**	We suggest the following with regard to information requirements for all sources of flooding: If you intend to carry out a river survey to inform the hydraulic modelling of Cantley Stream, any collected data and model produced should include all tributaries. We have included provided information on the flowlines of surface water which may help identify these on the ground if not shown on the Ordnance Survey or Environment Agency Fluvial Flood Map. Any collected topographic survey data should extend across the watercourse and any likely flood plain to enable modelling to accurately represent pre and post development	The Applicant has incorporated the LLFA's requirements into the Flood Risk Assessment (**APP-111**) and the Drainage Strategy (**APP-112**). Annex B (Hydraulic model technical note) of the Flood Risk Assessment describes survey data incorporated into the hydraulic modelling of Cantley Stream. All relevant watercourses are included in the survey / model and adequately covers the floodplain. The model has been reviewed and accepted by the Environment Agency. Design of culverts is to the 1 in 100 year event plus climate change. The	Agreed	26/11/2021

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
			scenarios. New culverts across the tributaries should be designed to an appropriate size to pass the 100 year plus climate change allowance. Any upgrades of culverts should aim to allow the flow of 1 in 100 year plus climate change design event but must also include an assessment to show how passing any additional flow downstream will not adversely increase the current flood risk scenario. If there are any surface water flow paths identified crossing the development area, dry culverts may need to be provide up to the 1 in 100 year plus climate change design event. This would prevent ponding against infrastructure and prevent an increase of flood risk elsewhere. Any new drainage infrastructure should include appropriate sustainable drainage design to address the appropriate flood risk and water quality mitigation requirements. New drainage infrastructure that is designed to attenuate any additional surface water runoff should remain outside the 1 in100 year plus climate change flood areas for any source of flooding. This is to prevent the drainage becoming overwhelmed by flood water prior to being available for the runoff from the development. Upgrade of any small link roads or existing roundabouts e.g. Cantley Lane or	600mm freeboard requirements in the new Cantley Lane South Culvert were not possible due to the environmental and ecological considerations. This resulted in a reduction to the minimum freeboard through the culvert to 0.428m during the 100-year plus 65% climate change event (Annex A of the Flood Risk Assessment). The model shows no adverse effect on flood risk downstream. 'Dry culverts' are being assessed as part of the proposed Scheme and will be designed to convey the 1 in 100 year flow plus an allowance for climate change (section 8.3 of the Flood Risk Assessment and section 4.2, 6.4 and Appendices B, D and E of the Drainage Strategy Report). SuDS measures have been incorporated as part of the drainage design (section 5 and 6 of the Drainage Strategy Report). SuDS attenuation features have been located outside the Flood Zones. (Section 5 of the Flood Risk Assessment) Details can be found in the Drainage Strategy report which forms part of		

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
			Roundhouse Way roundabout should consider upgrading the existing drainage infrastructure. It is particularly important at the north of Cantley Lane close to the recent flooding, that the flood risk associated with overland flow paths is not made any worse, the highways drainage scheme is not overwhelmed by overland flow paths and opportunities to improve existing flooding problems are considered.	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028)** which has been reviewed by the EA and LLFA (NCC)		
5	Drainage: SuDS		Multifunctional SuDS to be provided where possible, linking to landscape and biodiversity benefits as there is the opportunity to mitigate other impacts of the development. Details of any temporary works to mitigate additional runoff e.g. through the removal of topsoil. We would like to see that adequate measures are put in place to minimise temporary additional runoff which may cause flooding and that this is diverted away from or pre-treated	Multifunctional SuDS (e.g. SuDS features that provide both a sustainable drainage benefit with benefits to biodiversity/ecology and landscape) are considered as part of the Scheme drainage design. Attenuation features such as basins will be vegetated with suitable local species mix (Drainage Strategy (**APP-050**) and in the Environmental Management Plan **(APP-128).** Mitigation of temporary changes to flood risk (during construction) The temporary drainage design strategy will be provided as part of the Environmental Management Plan (**APP-128**) and will be produced during detailed design which is secured via Requirement 4 of the dDCO (**APP-017**).	Agree	26/11/2021

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
			before discharge to a final drainage scheme. This would be to minimise siltation and blockage of newly created drainage infrastructure and ensure it performs as designed.	Delivery of the EMP will be secured through dDCO (**APP-017**) Requirement 4 'Environmental Management Plan' and Requirement 8 'Surface and foul water drainage'. Meanwhile, the Applicant will develop an outline Water Management and Monitoring Plan, which will include an outline Temporary Drainage Strategy, for Norfolk County Council to provide reassurance at this stage; the outcome will be recorded in the Statement of Common Ground.		
			We would like to highlight that; the drainage strategy should also contain a maintenance and management plan detailing the activities required and details of who will adopt and maintain the all the surface water drainage features for the lifetime of the development.	Details of the maintenance and management of the Scheme drainage (including SuDS features) is outlined in the Drainage Strategy (section 8)..		
			Any formal or informal drainage associated with existing developments or farmland should be maintained or diverted by the scheme to avoid future ponding against any embankments or within cuttings that may be created.	Informal/formal existing drainage has been considered and accommodated by the Scheme drainage design. 'Dry culverts' will be provided, where required, to avoid ponding of overland flow adjacent to the Scheme (section 8.3 of the Flood Risk Assessment and section 4.2, 6.4 and Appendices B, D and E of the Drainage Strategy Report).		

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
6	Landscape and Visual assessment: Surveys	Chapter 8 - Biodiversity and associated appendices of the Environmental Statement **(TR010037/APP/6.1)**. Chapter 7 - Landscape and efVisual and associated appendices of the Environmental Statement **(TR010037/APP/6.1).**	It is not clear from the report how surveys will identify important linear landscape elements. Taken from S42/PIER comments (June 2019)). Superseded see Ref. No. 74.	Ecological assessment and mitigation is considered in Chapter 8 - Biodiversity (APP-045) and associated appendices of the Environmental Statement Landscape and visual assessment and mitigation is considered in Chapter 7 - Landscape and Visual and associated appendices of the Environmental Statement **(APP-028)) (APP-044).**	Agreed supercede d	15/03/22
7	Construction: Scheme interfaces.		As construction period of the junction improvements are likely to overlap with construction of our transforming cities programme of schemes, we will need to coordinate our approach to street works and clearly this may impact on the preferred approach to options for road closures. Again as our respective work on scheme development continues we will want to keep up ongoing dialogue on street works.	Noted, engagement with NCC will be ongoing throughout the development of the Scheme.	Discussion Ongoing	

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
8	Traffic modelling: Assumptions.	Chapter 4 of the Case for the Scheme. (TR010037/APP/7.1).	The Cantley Lane link has the possibility of both changing the routeing of trips on the wider network and opening up land for development. The evidence and assumptions used to develop the scheme are not apparent in the consultation material.	The results of the Norwich Area Transport Strategy (NATs) Model indicate that the Scheme has a relatively minor impact on traffic flows on Cantley Lane South and Station Lane. Cantley Lane South experiences a minor traffic flow increase of around 40 to 140 PCUs in the AM and PM peaks in year 2040 but would not attract any significant rats running movements between B1172 and Cantley Land South. A majority of the traffic appearing on Cantley Lane South (then Cantley Lane Link) are the north bound traffic originated from Ketteringham, East Carleton and Mulbarton while the south bound traffic destinated at those areas would use A11 south bound then turn left into the Station Lane South. Along Station Road south of the A11 the Scheme will result in an increase in traffic of approximately 60 PCUs in the 2040 PM peak scenario. Traffic flows along the B1172 are forecasted to decrease by around 40-350 PCUs, this is due to traffic diverting on to the A11. Please see Chapter 4 of the Case for the Scheme for details of traffic modelling. **(APP-125).**	Agreed	01/10/21
9	WCaHR: General provision		Given the recent investment by the County Council through the DfT's Transforming Cities	Whilst no specific improvements are proposed at Thickthorn Junction for	Agreed	01/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
			and Cycle Ambition Grant to create a continuous walking/cycle link between the residential growth areas in Wymondham and Hethersett to the centre of Norwich, the lack of improvements to the existing NMU provision at the Thickthorn junction represents a missed opportunity to build on the recent investment in the area and encourage growth in Walking and Cycling.	walking and cycling, a new WCH overbridge suitable for use by pedestrians, cyclists and equestrians is to be provided to link Cantley Lane to Cantley Lane South. A new combined footway/cycleway will also be provided alongside the new Cantley Lane Link to provide a connection between the overbridge, Cantley Lane South and existing pedestrian and cyclist facilities on Norwich Road. This infrastructure will provide an alternative grade separate crossing of the A47 for cyclists.		
10	Environmental: Archaeology	Chapter 6 Cultural Heritage of the Environmental Statement **(TR010037/APP/6.1)**.	The PEIR Chapter sets out proposed mitigation measures identified to date and acknowledges that details of other measures are still under discussion. Of particular importance, in this respect, is the archaeological trial trenching proposed throughout the scheme area. The results of this phase of evaluation need to be considered and submitted with the DCO application in order for a fully informed decision about the historic environment impact of the scheme to be reached and for appropriate mitigation measures to be developed. In order for this process to be completed prior to the submission of the DCO application, we recommend that the trial trenching is undertaken as soon as practically possible.	Findings from the archaeological trial trenching undertaken in 2020 are presented in Chapter 6 Cultural Heritage of the Environmental Statement **(APP-028)**.	Agreed	01/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
11	Environmental Masterplan	**Environmental Statement (TR010037/APP/6.8)**.	We understand that at this stage the proposed layout does not accommodate or include any specific landscape or design proposals and will be presented in the ES. It will be important that these design interventions consider advance planting to limit views during construction, as well as long term landscape and ecological benefits that can be obtained from the scheme, especially noting its location within the Norwich Southern Bypass Protection Zone.	An Environmental Masterplan which details landscaping and planting is included in the DCO submission **(APP-123)**.	Agreed	09/03/22
12	Traffic Management: Scheme transition		Whilst it would be preferable to have the new route in place before extinguishing the old, we understand this may not be possible. Therefore, relevant temporary closures and/or diversion orders will be required.	Noted. Diversions and temporary closures will be discussed with key stakeholders when the construction phasing is developed.	Discussion ongoing	
13	Walking Cycling and Horse-Riding (WCHaR): FP4a		We note the realignment of Cringleford FP4a, and broadly support the proposed route via the new bridge.	Noted.	Agreed.	
14	Environmental: Additional Surveys.	Chapter 8 - Biodiversity of the Environmental Statement **(TR010037/APP/6.1)**	No further survey recommendations have been made for - flora, - hedgerows, - reptiles, and - great crested newts. There is no mention of additional surveys for: - aquatic invertebrate surveys - over-wintering birds - terrestrial invertebrates.	Wintering birds, aquatic and terrestrial invertebrate surveys have been undertaken late 2019, and 2020. See Chapter 8 - Biodiversity of the Environmental Statement **(APP-045)**	Agreed	20/12/21
15	Environmental: CEMP	Environmental Management Plan	We note that a Construction Environmental Management Plan is recommended.	An Environmental Management Plan is included with the DCO application **(APP-128)**. This in will form the basis	Agreed	04/03/22

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		(TR010037/APP/7.4)	Superseded: Taken from S42 comments (June 2019)	of the Construction Environmental Management Plan for when construction commences.		
16	Environmental: Monitoring	Environmental Statement **(TR010037/APP/6.1)**,	Consideration should be given now to the post-construction monitoring strategy, to ensure that pre-construction surveys and post construction monitoring are comparable. Superseded: Taken from S42 comments (June 2019)	Within the Environmental Statement **(APP-028)**, requirements for post-construction monitoring are detailed. This principally relates to monitoring of mitigation measures and enhancements provided to ensure that they are functioning as proposed. For example, long-term monitoring of planting and habitats is required to ensure that they establish. The specific monitoring requirements will be developed as part of the NE licencing process and the production of the LEMP produced during Stage 5. This will be agreed with the relevant statutory consultees where necessary.	Discussion Ongoing	
17	Environmental: Best Practice	CIEEM technical guidance	We recommend that surveys are undertaken following best practice (e.g. CIEEM technical guidance and specific species techniques as summarised on Gov.uk website) and in line with British Standards. Superseded: Taken from S42 comments (June 2019)	Environmental surveys have been undertaken in line with the relevant standards and guidelines where required.	Agreed	02/03/22

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
18	Heritage: Unknown assets	Chapter 6 - Cultural Heritage of the Environmental Statement **(TR010037/APP/6.1)**	A47/A11 Thickthorn Junction Improvement Scheme S42 - PIER Historic Environment comments. Chapter 6 of the A47/A11 Thickthorn Junction Improvement Scheme PEIR considers the Cultural Heritage implications of the proposed scheme. The chapter provides a baseline summary of the known heritage assets within the study area. However, the chapter does not really consider the potential for previously unidentified heritage assets with archaeological interest to be present within the proposed DCO application boundary. This information may be articulated more clearly in the archaeological desk-based assessment, but that document has not been submitted in support of the PEIR.	A desk-based assessment will be presented in an appendix to the Chapter 6 - Cultural Heritage of the Environmental Statement **(APP-043)**	Agreed	01/10/21
19	Heritage: Asset impacts	Environmental Statement **(TR010037/APP/6.1)**	The proposed scheme has potential to impact on both designated and nondesignated heritage assets. The potential impacts (both direct and indirect) are set out in the Chapter. However, we note that the Scheduled Monument of two Bronze Age round barrows (NHLE 1003977) is not clearly depicted on Figure B.2 in Appendix A.	The scheduled monument will be shown on the relevant plans to be produced as part of the Environmental Statement **(APP-028)**.	Agreed.	01/10/21
20	Drainage: Flooding	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement	We are aware from media reports that Thickthorn Roundabout flooded under the flyover in June 2017 but this has not formally been investigated by the LLFA. The Highways Local Area office at Ketteringham may have further information (0344 800 8020) on highways flooding incidences on surrounding	A scheme was undertaken by Highways England under their East Capital Delivery maintenance projects to alleviate the flooding of Thickthorn Junction. Flood modelling has been undertaken for the area surrounding	Agreed	04/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		(TR010037/APP/6.1)	minor roads. We also have informal reports of historical flooding on Cantley Lane near to Cantley stream where surface water runoff is channelled by the road towards the bridge and flood plain. There is also mention of high groundwater levels near the watercourse.	Cantley Stream and the drainage has been designed accordingly. See Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement (TR010037/APP/6.1)		
21	Drainage: Flood Risk Assessment	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(TR010037/APP/6.1)** Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(TR010037/APP/6.1)**	Inclusion of appropriate climate change allowances, for rainfall calculations this would Thickthorn Roundabout (whilst 20% can be modelled, 40% climate change must not leave the applicant site boundary or adverse flooding impacts. Particular regard should be given to the drainage from the embanked carriageway and toe of the embankment where it meets Cantley lane due to the mapped and historical accounts of flooding at this location.	The Flood Risk Assessment and culvert sizing has been discussed with the EA and the LLFA. This document is contained within Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028)**. The drainage strategy has been reviewed by the LLFA and includes the required allowances for climate change within the drainage design calculations. Drainage Strategy report will be included in Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028)**	Agreed	04/10/21
22	Drainage: Flood Risk Assessment	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(TR010037/APP/6.1)**	For information the LLFA have produced a flood investigation report of historical flooding off Cantley Lane, north of the A47 around Cringleford including Langley Close and Brettingham Avenue. This flooding occurred on the 23 June 2016 where we received 19 reports of flooding. We have identified 8 properties that flooded internally. The report	A drainage strategy and flood risk assessment for the scheme has been undertaken and the scheme discussed with the Environment Agency and the LLFA. See Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028)**	Agreed	05/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		[redacted]	can be found at [redacted] It has identified that significant runoff from adjacent fields and the highway affected properties on Cantley Lane. There is an unknown impact from the Roundhouse Way roundabout and it has been suggested by local residents that raising of this feature may have altered natural drainage patterns. It should also be noted that many properties thresholds are lower than the highways in this area. Any improvements to the Cantley Lane or connection to Roundhouse Roundabout must consider the recent flooding and improvements to highways drainage proposed where possible. We note that the proposed DCO boundary shown in the EIA scoping report includes this area although may not be progressed as part of this application.			
23	Drainage: Flood Risk	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(TR010037/APP/6.1)** The NSIP National Policy	The NSIP National Policy Statement for National Networks (Dec 2014) with regard to Flood Risk (Section 5.90 to 5.115) will need to be considered. These policies are aligned with the new National Planning Policy Framework (NPPF) when considering all sources of flooding (section 5.92, 5.93, 5.97, 5.102 to 5.104) and technical standards for SuDS (section 5.100, 5.110 to 5.115) . Due to the history of flooding in the area we would expect that options for improvement to local flood risk and existing runoff rates can be made. We would suggest that the NSIP policy statement,	A drainage strategy (**APP-112**) and flood risk assessment (**REP3-009**) for the scheme has been undertaken and the Scheme discussed with the Environment Agency and the LLFA See Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028).** Section 3 of the Flood Risk Assessment (**REP3-009**) presents the legislation, policies and standards considered in the assessment. Section	Agreed	26/11/2021

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		Statement for National Networks (Dec 2014)	updated NPPF (and PPG), SuDS technical standards and LLFA guidance are used by consultants in the review and design of the scheme. Some of these are not currently mentioned in the PEIR document.	5.3 of the Drainage Strategy (**APP-112**) presents the policies, guidance and standards considered in the assessment. The LLFA's developer guidance is referenced in paragraph 5.3.5.		
24	Drainage: Flood Risk	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement (TR010037/APP/6.1)	With regard to the PEIR document, we would expect the following to be included in future assessments as discussed within our meeting with Highways England /SWECO 24 May 2018. -A flood risk assessment that assess all sources of flooding (e.g. Fluvial flood risk on Cantley stream or tributaries, surface water flooding overland joining Cantley stream, any groundwater or sewer flooding potential).	A flood risk assessment for the Scheme has been undertaken and the Scheme discussed with the Environment Agency and the LLFA. See Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028)**	Agreed.	05/10/21
25	Drainage: Flood Risk	Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(TR010037/APP/6.1)**	Appropriate mitigation for any works occurring in areas at risk of flooding, including compensatory storage for fluvial flooding or additional attenuation for surface water flooding originating offsite or ensuring that surface water flooding / drainage channels are routed through/around the development without adverse impacts (e.g. dry culverts). Drainage strategy and subsequent detailed information that includes: Evidence that the SuDS hierarchy has been followed i.e. infiltration testing to confirm if infiltration drainage is favourable or not, prior to assuming connection to the watercourse is suitable. SuDS hierarchy has been followed to install small source control SuDS over large	A drainage strategy (**APP-112**) and flood risk assessment **(REP-009)** for the Scheme has been undertaken and the scheme discussed with the Environment Agency and the LLFA. See Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028).** Flood risk mitigation for fluvial, surface water flood risk is presented in the Flood Risk Assessment (**APP-111**). Following the collection of additional survey and modelling to better predict the flood risk impacts in the vicinity of Intwood Road, the Applicant can	Agreed	26/11/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
			site or regional based SuDS attenuation for runoff and volume equivalent to greenfield predevelopment, to prevent an increase of flood risk post development. If any brownfield drainage is assumed this must return as close to greenfield as possible and be evidenced as to why this is not possible (considering the size and nature of the scheme we would expect any brownfield runoff to be returned to pre-development greenfield runoff).	confirm that the updated flood modelling predicts the impact is negligible (< 5mm) at this property. The Applicant considers therefore that no mitigation will be required. The revised model and the updated hydraulic modelling report (Annex B of **APP-111**) was reissued to the LLFA on 15 July 2021. The Flood Risk Assessment (**APP-111**) will be updated to reflect the revised modelling output and will be sent to Norfolk County Council and the Environment Agency for review and comment and will be submitted at Deadline 4. The drainage strategy (**APP-112)** considers the SuDS hierarchy as part of the proposed drainage design. The Applicant will consult with the LLFA during detailed design to provide additional information. A revised drainage strategy will be developed at detailed design and issued to the LLFA for review and comment under dDCO (**REP2-003**) Requirements 4 and 8, under which the LLFA is a named consultee.		
26	Drainage: Flood Risk	Chapter 13 - Road Drainage and the Water Environment of the	A drainage strategy and flood risk assessment for the Scheme has been undertaken and the scheme discussed with the Environment Agency and the LLFA. See Chapter 13 - Road	A drainage strategy and flood risk assessment for the Scheme has been undertaken which will detail the methods used and the Scheme has	Agree	26/11/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		Environmental Statement (TR010037/APP/6.1)	Drainage and the Water Environment of the Environmental Statement (TR010037/APP/6.1)	been discussed with the Environment Agency and the LLFA. See Chapter 13 - Road Drainage and the Water Environment of the Environmental Statement **(APP-028)**		
27	Lighting requirements	DMRB TA 501 Road Lighting Appraisal	The need for lighting should be carefully considered. Where it is required the lighting design should be informed by current best practice guidelines Institute of Lighting Engineers.	A lighting assessment has been undertaken in accordance with DMRB TA 501 Road Lighting Appraisal, with a technical note produced of the findings. Lighting provision for the Scheme will be provided in accordance with these findings.	Agreed	01/10/21
28	Project Management	Engagement with Stakeholders' of the Consultation Report. (TR010037/APP/5.2).	The County Council requests that the evidence to support the scheme and address all the issues raised is made available to enable a constructive dialogue on these specific points and the general development of the scheme.	Engagement and information sharing with the County Council has been undertaken throughout autumn/winter of 2020. This information is presented in Annex N 'Engagement with Stakeholders' of the Consultation Report**. (APP-023).**	Agreed	01/10/21
29	Heritage: Geophysical Survey	Chapter 6 – Cultural Heritage of the Environmental Statement (TR010037/APP/6.1)	The full geophysical survey report has not been submitted with the PEIR, nor are the relevant figures included in Appendix A as stated in paragraph 6.5.4.	Noted. Geophysical Survey results are presented in the appendices of Chapter 6 – Cultural Heritage of the Environmental Statement **(APP-043)**	Agreed	01/10/21
30	Heritage: Geophysical Survey	Chapter 6 – Cultural Heritage	A geophysical survey has already been carried out and the results are summarised in Chapter	Noted. Geophysical Survey results are presented in the appendices of	Agreed	01/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		of the Environmental Statement (TR010037/APP/6.1)	6 of the PEIR. Confusingly Areas 1 and 2 referred to in paragraphs 6.5.5 - 6.5.7 do not correlate with Areas 1-8 in the 2018 geophysical survey report.	Chapter 6 – Cultural Heritage of the Environmental Statement **(APP-043)**		
31	Environmental: Mitigation	The Environmental Masterplan (TR010037/APP/6.8)	We support the potential mitigation measures mentioned and will be able to provide further specific comments on these when viewing the environmental masterplan and detailed planting design. Taken from S42 comments (June 2019) Superseded	Noted. The Environmental Masterplan **(APP-123), has been**presented as part of the DCO submission.	Agreed	02/03/22
32	Traffic modelling: Scheme interfaces.		The expansion of the park and ride site is a key part of Transforming Cites and an important element to support longer term growth. The scheme prevents the ability to provide a slip road to an expanded park and ride site. The county can agree to this situation provided assurances are given that proposals to expand the park and ride site can be accommodated by the proposed junction improvement. Evidence is needed to demonstrate how the proposed junction improvement scheme takes account of the existing planning commitments and the expansion of the park and ride site. We need to know the growth and park and ride assumptions factored into the assessment of the Thickthorn improvement scheme.	In response to this query, the Project Team held workshops with NCC to demonstrate that the Traffic Modelling reflected the proposed Park & Ride extension and catered for this growth. The strategic transport model used for the A47 Thickthorn Scheme replicates the relative growth on the Park & Ride from 2015 to the design year of 2040.	Agreed	01/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
33	Traffic modelling: Scheme interfaces	Chapter 4 of the Case for the Scheme (TR010037/APP/7.1	As you will be aware there have been a number of development proposals that have been granted with obligations to mitigate longer term impact on the junction. One such obligation is the securing of land to expand the existing park and ride site and for construction of a slip road from the A11 to reduce the impact of park and ride traffic on the existing Thickthorn Junction. The improvement proposals prevent construction of a slip road access to an expanded park and ride site across land transferred to the County Council through a planning agreement. The current proposal neither provides for any alternative or gives conclusive evidence that the proposed junction improvement scheme provides the capacity for an extended park and ride site. Highways England will need to review the existing planning and associated land agreements and regularise the situation to be compatible with the junction improvement proposed.	In response to this query, the Project Team held workshops with NCC to demonstrate that the Traffic Modelling reflected the proposed Park & Ride extension and catered for this growth. The strategic transport model used for the A47 Thickthorn Scheme replicates the relative growth on Park & Ride from 2015 to the design year of 2040. The traffic model takes account of all committed and planned developments as provided by NCC including the developments along B1172 and the planned Park & Ride expansion for its forecast opening year of 2025 and the design year of 2040. The list of all developments provided by NCC are included in Chapter 4 of the Case for the Scheme **(APP-125).** The traffic growth associated with these developments and the background growth are all reported in the in Chapter 4 of the Case for the Scheme **(APP-125)** plus a separate technical note on the proposed Park & Ride expansion. In summary, with the introduction of the Scheme, a high proportion of the forecast traffic will be removed from the Thickthorn junction due to the proposed opening of the A11/A47 Connector Road and as a result the Thickthorn junction is	Agreed	01/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
				expected to operate significantly better than without the proposed connector road.		
34	Traffic modelling: Scheme interfaces	Chapter 4 of the Case for the Scheme (TR010037/APP/7.1)	The proposals to the Thickthorn junction prevent construction of a slip road access to an expanded Park and Ride site. The Council has no objection to the loss of the slip road provided that assurances are given that the proposed scheme has been designed to create the capacity to service the committed larger Park and Ride site.	The traffic model takes account of all committed and planned developments as provided by NCC including the developments along B1172 and the planned Park & Ride expansion for its forecast opening year of 2025 and the design year of 2040. The list of all developments provided by NCC are included in Chapter 4 of the Case for the Scheme **(APP-125**). The traffic growth associated with these developments and the background growth are all reported in the in Chapter 4 of the Case for the Scheme **(APP-125)** plus a separate technical note on the proposed Park & Ride expansion. In summary, with the introduction of the Scheme, a high proportion of the forecast traffic will be removed from the Thickthorn junction due to the proposed opening of the A11/A47 Connector Road and as a result the Thickthorn junction is expected to operate significantly better than without the proposed connector road.	Agreed	01/10/21
35	Traffic modelling	Chapter 4 of the Case for the	It is clear that traffic modelling work has been undertaken and it would be helpful to	The traffic model takes account of all committed and planned developments	Agreed	01/10/21

Ref. No.	Issues	Document References (if relevant)	Norfolk County Council position	Highways England Response	Status	Date
		Scheme (TR010037/APP/7.1)	understand how this work has considered the points made regarding the allowances for the expanded park and ride, consideration of the emerging development plan, the development of other land in the vicinity of the junction and any wider distributional effects including the impacts of the Cantley Lane link. We have already made a request for this information.	as provided by NCC including the developments along B1172 and the planned Park & Ride expansion for its forecast opening year of 2025 and the design year of 2040. The list of all developments provided by NCC isare included in Chapter 4 of the Case for the Scheme **(APP-125).** The traffic growth associated with these developments and the background growth are all reported in in Chapter 4 of the Case for the Scheme **(APP-125)** plus a separate technical note on the proposed Park & Ride expansion. In summary, with the introduction of the Scheme, a high proportion of the forecast traffic will be removed from the Thickthorn junction due to the proposed opening of the A11/A47 Connector RoadA11 Eastbound interchange link and as a result the Thickthorn junction is expected to operate significantly better than without the proposed connector road.		
36	Environmental: Additional Surveys	Chapter 8 - Biodiversity of the Environmental Statement (TR010037/APP/6.1)	The applicant has identified the need for further surveys for bats, badgers, otters, water voles, and polecats and we broadly support this.	Noted. Wildlife surveys have been undertaken. The Habitat Regulation Assessment and Chapter 8 - Biodiversity of the Environmental Statement **(APP-045)** assess the potential impact to the sensitive areas.	Agreed	05/10/21

3.3 Relevant Representation

Reference	Relevant Representation	Highways England Response
RR-016.1	While the County Council supports the principle of upgrading the existing A47/A11 Thickthorn Junction, there are a number of detailed issues in respect of, amongst other things, local highway and access matters, flood risk and environmental management, and potential impact on delivery of council services that will need to be resolved ahead of any final decision on the DCO. The most significant item of concern relates to unresolved issues around the county council taking on responsibilities for assets including significant new infrastructure comprising a link from the B1172, across the A11 trunk road and Norwich-Cambridge railway line, to Cantley Lane south and the proposed classification of this new link as a B class road. In summary the County Council supports the principle of upgrading the existing A47/A11 Thickthorn Junction subject to the implementation of appropriate highway, historic environment, and surface water conditions / requirements being resolved through the DCO process. NB the County Council will be submitting a full detailed statement to the Planning Inspectorate highlighting all issues it wishes to be resolved through the above process, through the Local Impact Report.	The Applicant welcomes Norfolk County Councils support in principle of the Scheme, and will seek to resolve all issues raised in the Local Impact Report. Engagement with the Council is ongoing with regards to handover of new assets. In accordance with the DfT Statutory guidance 'Guidance on Road classification and the primary route network 2012' it is the Local Highway Authorities responsibility to manage local road classifications, which in the case of Cantley Lane Link Road is Norfolk Country Council. Therefore the Applicant is content to amend the classification of the Cantley Lane Link Road to a classified unnumbered road.

3.4 Issues related to Written Representations

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
37	Issue resolution		The principle of upgrading the Thickthorn junction is fully supported. The junction is a well-known congestion area and improving traffic flow will reduce journey times and increase safety and resilience. The need to upgrade the junction was established in the Greater Norwich City Deal that identified a programme of infrastructure required to support the growth plans of the area. The delivery of the Thickthorn improvement is a significant investment in our infrastructure programme and is a major element of infrastructure required to enable planned growth.	Please see the Applicant's response to the Norfolk County Council's Local Impact Report submitted at Deadline 2	Discussion Ongoing	
38	Highways Impacts		The Development Consent Order (DCO) document 7.1 Case for the Scheme, sets out projected changes to traffic patterns of the A47/A11 Thickthorn Junction scheme. There does not appear to be anything within the case that would lead to the local highway authority having any concerns over the proposed scheme. Therefore, the county council is recommending no objection. Based on the assessment, it appears that the predicted traffic growth will make the A11 approach from Norwich the worst performing arm in the future in terms of capacity and delay. This appears to be exacerbated by the enhanced throughput of the junction which gives rise to additional traffic on this approach. The county council would want to discuss this issue in more detail with Highways England to see if anything	The Applicant welcomes the County Council's recommendation that there be no objections to the Scheme in relation to highways impacts. Please see the Applicant's response to the Norfolk County Council Local Impact Report submitted at Deadline 2 in relation to the traffic assessment.	Discussion Ongoing	

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
			could be done at this location as part of the scheme to minimise this effect.			
39	De trunking	(RR 001.1) (REP1-004)	No agreement has been made to accept any current Highways England assets and we will not do so until an agreement process including exchange of data and provision of funding regarding assets which may require attention in the short to medium term has been completed. The agreement should be based on the condition and number of the assets to generate either a sum of funding to be transferred to Norfolk County Council, or the asset brought up to an as new or good condition. The county council would expect to receive a commuted sum, agreed with Highways England, for future maintenance of transferred assets. The county council does not support classification of the new link from Cantley Lane South to the B1172 as a B class road. Cantley Lane South is currently effectively a single lane track with passing bays along it, predominantly used by northbound traffic. Classifying the road as a B road is likely to indicate to traffic that that this is a through route and encourage further traffic, which would not be appropriate. We would want to have further discussions with Highways England on the classification of this link and on the detail of the destinations signed along it from the B1172 Hethersett Road.	Please see the Applicant's response to the Norfolk County Council Local Impact Report submitted at Deadline 2. The comment regarding the classification of the Cantley Lane Link Road has previously been addressed within the Applicant's response to the Relevant Representations (RR 001.1) (REP1-004) The Applicant welcomes the opportunity to discuss the signing strategy with Norfolk County Council as the detailed design is developed.	Discussion Ongoing	

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
40	Socio – economic issues		The county council would certainly want to see opportunities for inclusive growth and social mobility included in the socio-economic opportunities for Norfolk. We would be willing to work with Highways England or the appropriate agency to support this. The county council will continue to work proactively with Highways England to encourage apprenticeships, work experience and internships being included at an appropriate stage in the project. Productivity and other wider economic benefits will arise from the completed schemes. These include journey time savings and reliability improvements, benefitting businesses. These are to be welcomed.	A key objective of the Scheme is to reduce congestion related delay, improve journey time reliability and increase the overall capacity of the A47. This will help contribute to sustainable economic growth by supporting regional housing and economic growth in Norwich and the surrounding areas. Section 4.13 'Walking, Cycling and Horse-riding (WCH) Assessment' of the 7.1 Case for the Scheme (**APP-125**) also demonstrates how the Scheme would provide new WCH facilities, improve accessibility for users in the local area and provide the opportunity to choose active travel modes (e.g. walking and cycling). The Applicant and Galliford Try, as the Principal Contractor, will explore opportunities to encourage direct and indirect local employment, proportionate to the scale and timescale of the project. The Applicant agrees with Norfolk County Council regarding productivity and wider economic benefits arising from the Scheme, which are reported in Chapter 5 of the Case for the Scheme (**APP-125**). The Applicant is grateful to Norfolk County Council for welcoming these positive benefits.	Agreed	01/03/22

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
41	Environmental: Air Quality		The county council supports improvements to air quality and would want to see continued monitoring including in operation of the scheme following construction.	As reported in Section 5.11 of Environmental Statement Chapter 5 (APP-042), as no significant effects on human health receptors were identified as a result of the Proposed Scheme being in place, additional air quality monitoring is not required.'	Not agreed	
42	Environmental : Arboriculture	Arboricultural Impact Assessment BS5837:2012 'Trees in relation to design, demolition and construction, recommendations' submitted by RSK ADAS Ltd, dated February 2021	The Arboricultural Impact Assessment (AIA), in accordance with BS5837:2012 'Trees in relation to design, demolition and construction, recommendations' submitted by RSK ADAS Ltd, dated February 2021 is fit for purpose (based on the information provided at the time of survey) with regards to assessing existing tree quality and calculating impacts. The report also gives clear advice with regards to relevant legislation, construction techniques, utility installation and other on-site methodology to mitigate impacts to trees. However, there are x 5 category A, x 7 category B trees and x 1 category B tree group designated for removal that should be retained should any design changes allow. In addition, 27 tree groups and two woodlands will require partial removal. These include B grade tree groups G9, G10, G11, G13, G14, G21, G22, G23, G27, G38, G88, G89 and B grade woodland W2.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	25/11/21

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
			It should be noted that B category trees might only have been downgraded from category A due to an observed impaired condition. They are still of significance and should be retained where possible or compensated adequately for if removal is unavoidable (as recommended in BS5837:2012). W2 has been described within 6.3 Environmental Statement - Appendix 8.1 Botanical Survey Report as 'a priority habitat and potentially ancient woodland (present since at least 1840).' However, this was not observed within the AIA (potentially because the Ancient Woodland Inventory only records ancient woodlands of over two hectares in size). This needs clarification as it could affect the scheme's design, mitigation and/or compensation due to the national significance of such habitats; explained in further detail below. With regards to the x 5 category A trees with veteran and/or over-mature/ancient characteristics to be removed (situated within the new Cantley Lane Link Road section of the development), T14 has a stem diameter at breast height of over two metres which is quite exceptional. These trees are open-grown individuals, likely remnants of historic parkland or wood pasture. They have high arboricultural, landscape, conservation and cultural values.			

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
43	Environmental: Ancient Woodland		Highways England should give consideration to wood pasture identified as ancient in planning decisions in the same way as other ancient woodland. 'Wooded continuously' does not mean there's been a continuous tree cover across the whole site. Not all trees in the woodland have to be old. Open space, both temporary and permanent, is an important component of ancient woodlands.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	25/11/21
44	Environmental: Ancient and veteran trees	The National Planning Policy Framework (NPPF), (paragraph 175c). 5.2 Consultation Report Annex M: Table Evidencing Regard had to Statutory Consultation Responses	The National Planning Policy Framework (NPPF), updated in 2018, includes a provision that "development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons" (paragraph 175c). It is understood that this development is seeking a Development Consent Order to prove its 'wholly exceptional' status, but it must: 1. Avoid impacts 2. Reduce (mitigate) impacts 3. Compensate as a last resort. In response to an earlier consultation (noted in document 5.2 Consultation Report Annex M: Table Evidencing Regard had to Statutory Consultation Responses), the Forestry Commission noted the loss of the veteran trees and suggested the felled timber should be moved to adjacent shared green space where	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	25/11/21

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
			'the material can decay by natural processes and continue to provide natural deadwood habitat'. This prescription provides a degree of mitigation to the overall impact and is supported.			
45	Environmental: Threats to remaining trees	AIA	The AIA has identified that a site compound is shown within the RPA of A grade trees T16, T18, T19, T20, G20, T21, T23, T25; and B grade trees T17, T24 and G26. Should this location not be subject to change, these trees will be under threat from damage such as compaction and pollution. The AIA gives guidance and methodology to avoid and reduce these impacts. Threats to the health of remaining trees have also been identified with regards to construction of fence lines, change of soil levels, installing utilities and close proximity working. *AIA Update* - Should the proposals be approved, it should be conditioned (and submitted for approval prior to works commencing) that the AIA will be updated to include: • Tree Constraints Plan • Tree Protection Plan • Arboricultural Method Statement • Timetable for Implementation of Tree Protection Works.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	25/11/21

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
46	Environmental Masterplan	Environmental Masterplan	The Environmental Masterplan details replanting proposals in a clear visual format but without species detail or quantification. It is not clear at this stage, how planting design has been calculated to ensure adequate replacements for losses incurred will be achieved. This requires clarification. Trees and woodlands are part of the wider landscape mitigation that will be required and it should be the quality and resilience of the resulting landscape, taking all habitats into account, rather than the number of replacement trees that will dictate whether the mitigation is acceptable. We would expect a minimum 30-year compensation strategy to be submitted, based on a calculation of habitat loss and demonstrating net gain. Landscape – Comments made from a landscape perspective to be reviewed.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	25/11/21
47	Geology & Soils: Materials and Waste		In conclusion, the MPA considers that the Mineral Impact Assessment appropriately assesses the safeguarded mineral resources for the proposed scheme and contains an appropriate strategy for identifying suitable material for reuse in the construction phases of the scheme. Norfolk County Council, in its capacity as the Mineral Planning Authority, considers that if the scheme is required to follow the strategy outlined in the Mineral Impact Assessment this will effectively address mineral	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed – see NCC post note	07/02/22

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
			safeguarding issues relating to resource sterilisation. Post Note: Subject to the Thickthorn Junction scheme being required to follow the strategy outlined in the Mineral Impact Assessment.			
48	Construction: Noise and Vibration		The county council would expect disruption to be kept to a minimum during the A47 dualling construction period and would want to work with Highways England, or its contractors, on managing traffic during the works.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed Not applicable	
49	Construction: Population and Human Health		The county council welcomes discussions with Highways England about options for construction. The works have the potential for significant impacts, not just to the operation of the trunk road, but also over a wider area of the local transport network. The council accepts that such works will cause some impacts and wishes to work with highways England on how these best be mitigated.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	17/11/21

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
50	Environmental: Climate		The county council would want to work closely with Highways England to identify measures to reduce carbon emissions on the trunk road network, eg by installation of electric vehicle charging points to encourage electric vehicles, and understand how these will be brought forward, their impact on emissions reduction and how they dovetail with measures that local partners are taking on the local transport network and across other sectors. There is the potential for biodiversity and landscape to provide mitigation factors, although these would need to be significant, above baseline net gain requirements.	Please see the Applicant's response to the Norfolk County Council Local Impact Report (LIR) submitted at Deadline 2.	Agreed	25/11/21
51	Drainage and Flooding: Cantley Lane South Culvert		Page 36 of 43 The LLFA acknowledge the 600mm freeboard requirements in the new Cantley Lane South Culvert were not possible due to the environmental and ecological considerations. This resulted in a reduction to the minimum freeboard through the culvert to 0.428m during the 100-year plus 65% climate change event.	This comment is acknowledged and no response is required from the Applicant.	Agreed	26/11/21
52	Drainage and Flooding: Cantley Stream Floodplain	(Figure 8-4 in the Flood Risk Assessment (FRA)	The LLFA acknowledge there will be significant improvements to the floodplain extents and the level of flood risk posed due to the new Cantley Lane South Culvert (Figure 8-4 in the Flood Risk Assessment (FRA)). However, the LLFA also observe some variation in the floodplain within	Response to first paragraph: This comment is acknowledged and no response is required from the Applicant.	Agreed (asset ownership discussed	11/01/22

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
			agricultural land and water compatible areas (Figures 8-5 and 8-6 in the FRA). It appears from the information presented that the existing water level in these locations could increase by up to 15mm along with minor variation in the location marginally. This could be influenced by the sensitivity of the hydraulic model to the ground model used. Even so, it would be prudent for the developer to liaise with the affected landowners to confirm they are aware and accept this potential change to their properties. The FRA should provide detail on the maintenance plan for the mitigation measures proposed by the scheme. No information is provided regarding the inspection frequency, monitoring measures or structure ownership and operational responsibility. The LLFA would expect this information to be included in the FRA. It is noted that the drainage strategy provides some high-level information about who will have maintenance responsibility for the drainage assets on the different sections of road.	Response to second paragraph: The Applicant continues to engage with the LLFA on ownership of assets and agreements will be agreed within the Statement of Common Ground. The Applicant notes the LLFA comment on inclusion within the FRA of text relating to the maintenance plan for mitigation measures proposed for the Scheme. Additional text relating to culvert maintenance will be added to the FRA (**APP-111**) and issued by Deadline 4. **Update**: A revised FRA was issued at Deadline 3 (**REP3-008** and **REP3-009**). An outline maintenance plan for the proposed Cantley Lane South culvert was provided in section 10.2 of the revised FRA. The maintenance for the proposed drainage system will be incorporated into the Drainage Strategy at detail design.	under item 39)	

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
				Norfolk County Council will be a named consultee under the DCO Requirement 4 (**REP2-003**) 'Environmental Management Plan' and will be able to review and comment on the detailed design. The Applicant is liaising with landowners that are significantly affected by the change in flood risk impacts.		
53	Drainage and Flooding: Intwood Road Property	FRA ES	The potential impacts and the implications of the flood risk at the property on Intwood Road varies between the FRA and the ES. The FRA reports an 8mm increase while the ES chapter 13 reports 15mm. While the increase in water level is small, both documents report that further survey at the property is required to fully determine the impact of this change in water level. The LLFA would expect to review the future survey results, the updated impact assessment for this property and any mitigation proposed, should it be necessary.	Following the collection of additional survey and modelling to better predict the flood risk impacts in the vicinity of Intwood Road, the Applicant can confirm that the updated flood modelling predicts the impact is negligible (< 5mm) at this property. The Applicant considers therefore that no mitigation will be required. The revised model and the updated hydraulic modelling report (Annex B of **APP-111**) was reissued to the LLFA on 15 July 2021. The Flood Risk Assessment (**APP-111**) will be updated to reflect the revised modelling output and will be sent to Norfolk County Council and the Environment Agency for review and comment and will be submitted at Deadline 4.	Agreed	26/11/21
54	Drainage and Flooding:		There is the remaining supplementary groundwater investigation that is yet to be	The supplementary ground investigation is complete and the results are being	Agreed	26/11/21

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
	Groundwater Further Survey		undertaken due to the unknown water levels in the chalk aquifer. The LLFA would expect to review these results and, if required, any further mitigation measures proposed to address any further groundwater flood risks identified by this study.	processed. There is ongoing water monitoring on site and the data will be reviewed monthly for 12 months. This will provide a full understanding of ground water levels over a 12 month period. Additional groundwater level monitoring is also ongoing. Updated geotechnical design will be undertaken during the detailed design stage, in order to also identify any refinements to the design. The geotechnical designs undertaken to date are considered appropriate as these consider a worst-case scenario. A revised drainage strategy will be produced and detailed design stage and would include any additional relevant information from the supplementary ground investigation will be revised at detailed design stage. Norfolk County Council will be a named consultee under the DCO Requirement 4 (REP2-003) 'Environmental Management Plan' and will be able to review and comment on the detailed design.		
55	Drainage and Flooding: Drainage Strategy Summary	Page 37 of 43 the FRA	A summary of the proposed drainage catchments is provided in section 8.3 of the FRA. However, no information relating the pre and post development runoff rates, volume of attenuation required and information relating to infiltration testing is provided. The drainage strategy does not provide a summary of pre and post development runoff rates, a summary of the volume of attenuation required and proposed or information relating to infiltration testing. This	The Applicant notes the LLFA comment on inclusion within the FRA of text relating to the development runoff rates, volume of attenuation required and information relating to infiltration testing. Additional information can be added to the FRA (**APP-111**). **Update**:	Agreed	31/01/22

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
			should be provided in Page 37 of 43 the FRA to ensure that the assessment is joined up with the drainage design presented in the drainage strategy.	Section 8.3 of the revised FRA (**REP3-008** and **REP3-009**) has been updated to include further information on the Proposed Scheme drainage. A summary of pre-development and post-development flow rates using the FEH approach for each catchment is provided in Appendix 1. Maps of the drainage catchment areas are provided in Appendix D and E of the Drainage Strategy Report (**APP-112**). Whilst the resultant greenfield flows are less than what was used during the preliminary design using the IH124 method (**APP-112**), the Applicant is able to increase the size of the attenuation features as required to accommodate this within the constraints of the scheme. Norfolk County Council are a named consultee under DCO Requirement 4 and 8 and will be able to review and comment on the detailed drainage design.		
56	Drainage and Flooding: Construction Phase Mitigation	FRA	The construction phase mitigation measures presented in the FRA are “high level generic” approaches and do not relate specifically to the phased construction of the junction improvements. There is no explanation of what the proposed temporary drainage works will include or where the different temporary features will be located. It is indicated in the FRA that	Managing potential future flood risk is informed by the FRA (**APP-111**) and the Drainage Strategy Report (**APP-112**). The temporary drainage design strategy will be provided as part of the Environmental Management Plan (**APP-128**) and will be produced during detailed	Agreed	26/11/21

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			elements of the scheme “must be constructed in a phased manner to avoid additional flood risk”. However, there is no further information about the phasing of either the temporary or permanent drainage works or information about how this relates to the construction phasing of the proposed scheme. Further information is expected by the LLFA to demonstrate that flood risk will not be increased elsewhere in the relevant catchments during the construction phase. The LLFA seeks assurances that further information and work will be undertaken in the future in the interests of managing potential future flood risk that could be derived from the construction of this scheme. In relation to the drainage strategy, no information regarding the proposed drainage approach is provided for the construction stage. Therefore, the information presented in the ES chapter 13 is not substantiated by the current evidence base presented. The LLFA seeks assurances that further information will be provided regarding the construction drainage strategy to ensure there is no increase in flood risk during the construction phase, prior to the permanent surface water drainage system becoming operational.	design which is secured via Requirement 4 of the dDCO (**APP-017**). Delivery of the EMP will be secured through dDCO (**APP-017**) Requirement 4 'Environmental Management Plan' and Requirement 8 ‘Surface and foul water drainage’. Meanwhile, the Applicant will develop an outline Water Management and Monitoring Plan, which will include an outline Temporary Drainage Strategy, for Norfolk County Council to provide reassurance at this stage; the outcome will be recorded in the Statement of Common Ground.		

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57	Drainage and Flooding: Asset identification and investigation	Paragraph 13.7.56 to 13.7.58 of ES Chapter 13 (**APP-050**) Drainage Strategy (**APP-112**)	The drainage strategy confirms that not all existing drainage assets (such as soakaways and commercial fishponds) have been identified and investigated. Further work is ongoing to identify and survey these and other assets. The LLFA seeks reassurance that this work will be undertaken, and the subsequent assessment reported and discussed with the LLFA.	The Highways Agency Drainage Data Management System (HADDMS) shows the presence of existing assets and this is documented in paragraph 13.7.56 to 13.7.58 of ES Chapter 13 (**APP-050**). A drainage survey is required to confirm the information on DDMS is correct. A drainage survey was undertaken during the spring and summer of 2021. A review of the survey will be completed at the start of the detailed design stage. The principal uncertainties are the confirmation of the location of surface water outfalls and the confirmation of presence of soakaways and their contributing areas. However, the preliminary drainage design has considered that all of the existing and proposed highway drainage would discharge, via attenuation, into Cantley Stream; further details can be found in the Drainage Strategy (**APP-112**). The impact assessment therefore considers the worst case scenario in terms of drainage area. Should existing soakaways be found during the drainage survey, these would likely be decommissioned as part of the Proposed Scheme.	Agreed	26/11/21
58	Drainage and Flooding: LLFA design expectation	LLFA's Developer Guidance	The drainage strategy has been developed in accordance with the Design Manual for Roads and Bridges (DMRB) guidance. However, there	This comment is acknowledged and no response is required from the Applicant.	Agreed	26/11/21

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		5.2.22 of the drainage strategy	appears to be no consideration or review of the LLFA's design expectations or the alignment of these with the DMRB guidance. The LLFA's design expectations that apply to all schemes are presented in the LLFA's developer guidance. The LLFA notes the drainage strategy does not refer to the LLFA's Developer Guidance. This is supported by the developer's reported use of the FSR approach rather than the more relevant and updated FEH approach within the MicroDrainage calculations to design the piped network. The FEH data includes more recent rainfall records and improved accuracy in the hydrological assessment. The LLFA seeks assurances that testing of the proposed drainage network using the FEH rainfall approach is undertaken to confirm that the network is appropriately sized.	The Applicant will test the proposed drainage network using FEH rainfall and engage with the LLFA through the detailed design. Detailed design is secured via Requirement 8 of the dDCO.		
59	Drainage and Flooding: Impermeable factor	5.2.22 of the drainage strategy and section 5.4.4 Requirement 8 of the dDCO	In section 5.2.22 of the drainage strategy, an impermeable factor 26% is used for soft surfaces, inferring that the majority of surface water is able to infiltrate into Page 38 of 43 the ground, while for hard surfaces a 100% impermeable factor is used. However, later in section 5.4.4 infiltration was dismissed as infiltration testing was unsuccessful. These two approaches oppose each other, based on the information provided. Further assessment is required to address this conflict. It is possible that the soft surface impermeable factor would need to be revised upwards and that a review of	The 0.26 factor used allows for water entering the positive drainage system over a longer period. Unlike a road surface where the water will enter the drainage system quickly, water from a vegetated surface takes time and as is significantly slower. Additionally, not all the water from a vegetated surface will ultimately enter the drainage system due to permeability. The 0.26 factor considers low permeability and high antecedent wetness and this is therefore considered to be conservative approach.	Agreed	31/01/22

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			the implications is necessary to ensure that there is no increased risk of flooding.	The infiltration testing refers to the detention basins where the resultant positive drainage network outfalls and the soils ability to infiltrate the full outfall rate from the full catchment area that is being drained within the small footprint of the basin. Additional information on the derivation of this factor is to be provided the Applicant. The Applicant will engage with the LLFA through the detailed design. Detailed design is secured via Requirement 8 of the dDCO. **Update**: To expand upon section 5.2.22 of the Drainage Strategy (**APP-112**), the DMRB standard CD 521 relates to the sizing of pipes and channels to accommodate peak flows. Peak flows occur during high intensity, short duration storm events. Rainfall onto vegetated areas, such as cut slopes and verges, contribute to this peak flow differently than impermeable areas. Flows into pipes and ditches are modelled such that peak runoff will reach the pipe within 4 to 5 minutes, as it is expected to do from an impermeable surface. Runoff from vegetated areas will not behave the same way and the DMRB standard CD 521 attempts to quantify the difference in behaviour using Volume 1 of the Wallingford Procedure and the SOIL class		

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				of the ground. The result of this method evaluates that worst case soil runoff contributing to peak flow from cuttings in a catchment with low permeability and high antecedent wetness shall be the equivalent of an impermeable catchment 0.26 of the size (see Table 5.6.2 extract from DMRB CD 521 below). This is the factor used in the preliminary design When using the specific properties for this location, which is defined under DMRB CD521 (and the Wallingford Procedure) as a low antecedence wetness in a high permeability area, a factor of 0.07 is applicable thus demonstrating our conservative approach. Pipes and channels shall therefore be designed to accommodate peak runoff from 100% of contributing impermeable catchment and 26% of contributing permeable catchment (except engineered soft embankments which will be assumed to be 100% impermeable as requested by the LLFA). Any drainage features, such as filter drains and basins, shall be modelled as impermeable as they collect rainfall directly. With respect to the comment made with regards to unsuccessful permeability testing at the detention basin, this relates to the ability of the soil to infiltrate full		

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				catchments within the footprint of the basin. The designer considers the potential for infiltration at basins and run-off factors when sizing drainage systems to be unrelated design criteria and are considered separately within the design approach. Norfolk County Council are a named consultee under DCO Requirement 4 and 8 and will be able to review and comment on the detailed drainage design.		
60	Drainage and Flooding: Infiltration potential	Section 5.9 Drainage Strategy Report (**APP-112**). Requirement 8 of the dDCO.	There is no obvious discussion on the infiltration potential of the ground prior to reporting on the potential discharge options in section 5. Therefore, it is not possible to understand the context and evidence base that the selection of the discharge locations was founded upon.	Infiltration potential is reported in section 5.9 of the Drainage Strategy Report (**APP-112**). During the detailed design, the Drainage Strategy Report will be updated and will include infiltration testing results to provide context. Detailed design is secured via Requirement 8 of the dDCO.	Agreed	26/11/21
61	Drainage and Flooding: Run off rates	Requirement 8 of the dDCO	The drainage strategy provides a summary of post development runoff rates and attenuation volumes for the post development scenario. However, the equivalent information is not available for the pre-development situation. Both sets of information should be provided for each	Additional information on pre-development and post-development runoff rates is to be provided the Applicant. The Applicant will engage with the LLFA through the detailed design phase and make this information available for review and agreement. Detailed design is secured via Requirement 8 of the dDCO.	Agreed	31/01/22

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			discreet drainage catchment to enable a suitable comparison.	**Update**: A summary of pre-development and post-development flow rates using the FEH for each catchment is provided in Appendix 1. Maps of the drainage catchment areas are provided in Appendix D and E of the Drainage Strategy Report (**APP-112**). Whilst the resultant greenfield flows are less than what was used during the preliminary design using the IH124 method (**APP-112**), the Applicant is able to increase the size of the attenuation features as required to accommodate this within the constraints of the scheme. Norfolk County Council are a named consultee under DCO Requirement 4 and 8 and will be able to review and comment on the detailed drainage design.		
62	Drainage and Flooding: Infiltration testing	Requirement 8 of the dDCO	The drainage strategy does not provide information relating to infiltration testing that has been reported to have been undertaken. The LLFA would expect relevant information and results to be reported in both the drainage strategy and FRA to support the proposed drainage design.	The supplementary ground investigation which includes further infiltration testing is complete and the results are being processed. There is ongoing water monitoring on site and this will provide a full understanding of ground water levels over a 12 month period. Additional groundwater level monitoring is also ongoing. During the detailed design, the drainage strategy report will be updated and will	Agreed	26/11/21

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				include infiltration testing results from the supplementary ground investigation. Detailed design is secured via Requirement 8 of the dDCO.		
63	Drainage and Flooding: Ground investigation	ES Appendix 13.3 Groundwater assessment (APP-113) Section 5 Drainage Strategy Report	A ground investigation is mentioned within section 5. However, again, no information or evidence is provided to support the statements made. There is a limited mention of the groundwater levels, although no further information or evidence is provided. It would be reasonable for relevant information from the ground investigation to be provided in the drainage strategy to support the design decisions.	A summary of groundwater levels from the 2018 ground investigation is provided in ES Appendix 13.3 Groundwater assessment (**APP-113**). In addition, as part of the supplementary GI undertaken in 2021, there is ongoing groundwater level monitoring.	Agreed	26/11/2021
64	Drainage and Flooding: Pipe and tanked storage	Section 6.2 of the drainage strategy report (**APP-112**) DCO Requirement 8	On the land to the west of the diverge of the A11 with the link road the use of a pipe and piped storage rather than a ditch is proposed. The LLFA requests that further evidence to justify the selection of a pipe and tanked storage through this woodland area is provided.	Within section 6.2 of the drainage strategy report (**APP-112**), it states 'At the next design stage, consideration will be given to providing an open ditch solution to provide the required attenuation in favour of an underground pipe solution.' During the detailed design phase, the Applicant will undertake a design review in this area and will liaise with the LLFA under DCO Requirement 8 to ensure that the solution is agreeable.	Agreed	26/11/2021
65	Drainage and Flooding: Pumping station risks	DCO Requirement 8	In relation to the residual risks associated with the proposed pumping station, further information is being sought by the developer to determine the normal operation design storm	The pump station is located within a deep cutting which would be capable of retaining significant amounts of water	Agreed	31/01/22

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			criteria and failure provision, which may include additional emergency storage provision to mitigate flooding on the carriageway. Once this is determined, it is likely to require the assessment of the potential exceedance flow paths due to asset failure or design exceedance. This would identify where the water would flow and the impacts on the highway infrastructure likely to occur.	during pump failure combined with an extreme storm event. During the detailed design stage, the Applicant will engage with the LLFA under DCO Requirement 8 to outline contained volumes (storm events) and ultimate exceedance flow paths. **Update**: The pumping station requirements in terms of both capacity and failure mitigation are currently being discussed within Highways England. The Applicant has provided a drawing (HE551492-GTY-HDG-000-SK-CD-30011) to the LLFA which shows: • Expected flooding extents and flood volumes during pump failure for the 30 year, 100 year and 200 year plus 40% climate change up to a 24 hour storm event. • Exceedance flow path once the A11-A47 cutting is breached, however the volume of water associated with this significantly exceeds any reasonable storm event which would normally be considered. If flooding was to occur on the A11-A47 connector road, the connector road can be closed and traffic would continue on		

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				the A11 to Thickthorn interchange as per the current situation. During the detail design, a pump failure contingency plan will be prepared and made available to the LLFA for review. The contingency plan will highlight the proposed risk mitigation measures proposed as part of the scheme. The contingency plan will also give consideration to expected flood levels during pump failure coinciding with a 100 year event plus 40% climate change for an appropriate length of storm to allow repair or contingency measures to be put in place. This will be provided as part of the updated drainage strategy report at detail design and under DCO Requirement 4 and 8 the LLFA will be able to review and comment on the drainage strategy.		
66	Drainage & Flooding: Emergency storage volumes.	DCO Requirement 8	The LLFA note that the emergency storage for the pumping station is being considered. Should this be necessary, the LLFA would require further information that identifies the design capacity of this storage.	The Applicant will engage with LLFA under DCO Requirement 8 with regards to emergency storage volumes. **Update:** Please see response to ref. no.: 66 above.	Agreed	31/01/22

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67	Drainage & Flooding: Surface and Foul Water requirements	dDCO Requirement 8	The LLFA considers there to be an issue regarding the requirements section for surface and foul water drainage. The LLFA would like the draft DCO to be updated to recognise the right organisations by naming them rather than the planning authority (which does not normally have involvement in these aspects). Please see the proposed wording below. Requirements Surface and foul water drainage 8.—(1) No part of the authorised development is to commence until for that part written details of the surface water drainage system, reflecting the drainage strategy and the mitigation measures set out in the REAC including means of pollution control, have been submitted to and approved in writing by the Secretary of State following consultation by the undertaker with Norfolk County Council as Lead Local Flood Authority on matters related to its function as statutory consultee. (2) No part of the authorised development is to commence until for that part written details of the foul drainage system, reflecting the drainage strategy and the mitigation measures set out in the REAC including means of pollution control, have been submitted to and approved in writing by the Secretary of State following consultation by the undertaker with Anglian Water on matters related to its function. (3) The surface water drainage system must be constructed in accordance with the approved	Requirement 8 has been updated in the version of the dDCO submitted at Deadline 2 (REP2-003). Requirement 8 has been updated in the version of the dDCO submitted at Deadline 2 (REP2-003) to include this wording. The Scheme does not include any foul water components, so this element of the requirement is not needed. Requirement 8 has been updated in the version of the dDCO submitted at Deadline 2 (REP2-003) to include this wording.	Agreed	26/11/21

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			details, unless otherwise agreed in writing by the Secretary of State following consultation by the undertaker with the Norfolk County Council as Lead Local Flood Authority on matters related to its function as statutory consultee, provided that the Secretary of State is satisfied that any amendments to the approved details would not give rise to any materially new or materially different environmental effects in comparison with those reported in the environmental statement. (4) The foul water drainage system must be constructed in accordance with the approved details, unless otherwise agreed in writing by the Secretary of State following consultation by the undertaker with Anglian Water on matters related to its function, provided that the Secretary of State is satisfied that any amendments to the approved details would not give rise to any materially new or materially different environmental effects in comparison with those reported in the environmental statement.	The Scheme does not include any foul water components, so this element of the requirement is not needed.		
68	Flood and Drainage: Ordinary watercourse consenting		It is noted that there is no mention of the ordinary watercourse consenting process. Therefore, the LLFA would like to include the proposed wording below into the DCO: Works in a watercourse(s) x.— (1) No stage of the works involving the crossing, diversion, alteration, replacement and installation of new structures of any designated main river or ordinary watercourse may commence until a	The ordinary watercourse consenting process is dealtoutwith the dDCO. It is listed in the Consents and Agreements Position Statement as an additional consent that the Applicant must secure. RD3 of the REAC table in the Environment Management Plan (**APP-128**) requires the Applicant to secure	Agreed	26/11/21

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			scheme and programme for any Page 40 of 43 such permanent or temporary crossing, diversion, alteration, replacement and installation of new structure in that stage has been submitted to and, approved by the Secretary of State in consultation with Norfolk County Council, the Environment Agency, relevant drainage authorities and Natural England. (2) The designated main river or ordinary watercourse must be crossed, diverted, alteration, replacement and installation of new permanent or temporary structures in accordance with the approved scheme and programme. (3) Unless otherwise permitted under paragraph (x.1), throughout the period of construction of the works, all ditches, watercourses, field drainage systems and culverts must be maintained such that the flow of water is not impaired or the drainage onto and from adjoining land rendered less effective. Furthermore, we note that there is no mention of the need to involve the LLFA in relation to the review of the temporary surface water drainage plan as part of the EMP. This needs to be addressed. We request that this be added as a requirement, maybe as a part 3 to 8 for the temporary works.	ordinary watercourse consent and compliance with the EMP is secured by Requirement 4 of the dDCO (**APP-017**). Therefore, the Applicant does not consider the wording proposed to be necessary. The temporary drainage strategy will be developed as part of the Environment Management Plan (EMP) (**APP-128**). The EMP will be delivered under DCO Requirement 4. An updated version of the dDCO (**REP2-003**) was submitted at		

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				Deadline 2 naming the LLFA as a consultee under Requirement 4.		
69	General: Public Health		The county council makes the following general comments in respect of its role as having public health responsibilities: • Welcome reductions in driver stress for both general well-being and accident reduction potential • Residents currently or likely to be affected by noise, vibration and potential increased pollution are screened for impact and potential mitigating action.	No comment is required from the Applicant.	Agreed	17/11/21
70	Planning: Discharge of requirements		There are ongoing discussions with the applicant and the district councils affected by this scheme as to how best the discharge of requirements should be undertaken. One option might be that there is a single “lead” Authority discharging the requirements. An alternative option would be that each local authority discharge those Requirements within their respective area / statutory remit. It is understood that the applicant is prepared to fund the above “discharging” work given the significant resource implication.	The Applicant is prepared to discuss this issue with the County Council.	Agreed Not applicable	

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
71	General: Support of scheme principles.		In summary the County Council supports the principle of upgrading the existing A47/A11 Thickthorn Junction subject to the implementation of appropriate highway, historic environment, and surface water conditions / requirements being resolved through the DCO process.	The Applicant welcomes the County Council's support of the Scheme and will continue to engage with the County Council on any outstanding issues.	Agreed	01/03/22
72	Ecological: Ecological mitigation and enhancement	Environmental Actions and Commitments (REAC) 7.4 Environmental Management Plan (First Iteration) December 2021. Masterplan (APP-123)	REP6-02 (BIO.2.6) The following initiatives which would potentially complement the schemes ecological mitigation and enhancement plans: -The Norfolk Mink Control Project Redacted would potentially complement the scheme. The project aims to reduce mink population densities which help halt the decline in water vole populations (and Water Life Recovery East). The Norfolk Mink Project would welcome the opportunity to discuss potential opportunities. -Norfolk County Council has an ambition to plant '1 Million Trees for Norfolk' see Redacted Regard has been given to the Record of Environmental Actions and Commitments (REAC) in Table 3-1 in Volume 7 7.4 Environmental Management Plan (First Iteration) December 2021.	The Applicant can confirm that the Norfolk Mink Control Project will be consulted as the detailed design develops regarding thewater vole mitigation and opportunities for collaboration. As part of the Scheme design, an extensive Landscaping planting plan is proposed as shown on the Environmental Masterplan (APP-123) (revised AS-032).	Agreed	18/03/22

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
73	Ecological: Applicant's response to the Local Impact Report	Local Impact Report Application FUL/2021/0064 Arboricultural Impact Assessment AECOM (2017) bat survey report TR010037 EXAM9.24	Application FUL/2021/0064 Thickthorn Park and Ride extension has been submitted to Norfolk County Council for determination. Comments on REP2-008 Applicant's response to the Local Impact Report • Ancient Woodland - Pages 21, 24 and 29 of the report. The Woodland Trust note that many ancient woods under 2 ha are not currently included in the Ancient Woodland Inventory (AWI). Where botanical surveys suggest potential for ancient woodland (as is the case for Unit 9 and Unit N) additional evidence is required to demonstrate whether it is likely or unlikely to be ancient. Such evidence should include old maps and other documentary evidence as well as any remnant manmade features onsite. • 8.7.55 does not elaborate on how areas assessed as having 'high' levels of bat activity was quantified (apologies I put 8.7.5 in the LIR) (see Richardson et al 2019 for discussion on determining high, medium and low levels of bat activity.) Redacted provides a tool for the standardised, rigorous interpretation of bat activity data.	Unit N and Cantley Wood (referenced as W2 in the Arboricultural Impact Assessment) have not been identified as Ancient Woodland. Natural England and Forestry Commission Guidance: "Ancient woodland, ancient trees and veteran trees: protecting them from development" identifies Ancient Woodland as any area that's been wooded continuously since at least 1600 AD. Cantley Wood is first mapped in 1836 and can be reliably shown not to have been extant in 1826. It is not part of the Registered Park and Garden at Intwood Hall, and not part of any relevant HER asset. The historic mapping does not identify any areas of extant woodland within the study area that can be shown to have existed continuously from 1600 AD. See appendix 2 The approach to assessing levels of bat activity is outlined in the AECOM (2017) bat survey report submitted as part of the Examination Deadline 7 submission (Ref number: TR010037 EXAM9.24). No guidance is available on what constitutes low, moderate or high bat activity based on number of passes. As such a relative scale is used by AECOM in this report where: • Very Low Activity is a mean of less than 2 passes per hour (at each survey location) • Low Activity is a mean of 2 to 25 passes per hour	Agreed	18/03/22

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
				• Moderate Activity is a mean of 26 to 99 passes per hour • High Activity is a mean of over 100 passes per hour		
74	Ecology: Barbastelle Bats	Applicant's response (REP2-006) REP4-015 British survey guidelines (Collins, 2016) (Berthinussen and Altringham, 2015) (Elmeros et al 2016) Christensen, et al, 2016 (Barataud 2015) BS42020:2013 Wray, Wells, Long and	REP6-02 (BIO.2.9) With regards to the Applicant's response (REP2-006) regarding barbastelle activity (BIO 3.6) 1. The aim of pre-construction surveys is to collect robust data to allow an assessment of the potential impacts of the development on the bat species using the area. As acknowledged in 3.2.1(REP4-015) current British survey guidelines (Collins, 2016) are not designed for liner developments and, as noted in REP4-015, WC1060 Development of Cost Effective Method for Monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure (Berthinussen and Altringham, 2015)1 and Fumbling in the Dark (Elmeros et al 2016) 2 was used to inform survey design. 2. 'Best practice principles for surveying' developed by Berthinussen and Altringham (2015) recommends survey methods designed to provide comparable pre- and postconstruction data – to assess potential impacts, to be used alongside other pre-construction surveys including acoustic surveys, and radio tracking surveys' 3. The guidelines recommend that transect surveys are undertaken over at least two seasons where possible and that a minimum of six dusk or dawn surveys at each location where mitigation is to be installed should be undertaken.	Survey effort was determined by professional judgement based on guidelines in Berthinussen and Altringham (2015) and upon research undertaken on barbastelle bats in the area for the Norwich Western Link Road (NWLR). Two surveys, one dusk and dawn survey and one either dusk or dawn survey, were undertaken at each potential crossing point with different survey times and lengths to target different species. 'Survey one' comprised a 1.5-hour dusk survey starting 15 minutes before sunset and ending one hour and 15 minutes after sunset, and a 1-hour dawn survey starting one hour before sunrise. These surveys targeted earlier emerging species (such as pipistrelle species) which may sometimes emerge before sunset. 'Survey two' comprised either a dusk survey (crossing point one) starting at sunset and ending approximately 2.5 hours after sunset or a dawn survey (crossing point two) starting approximately 2.5 hours before sunrise and ending at sunrise. These surveys targeted later emerging species (such as the rarer barbastelle bat). The research undertaken for the NWLR revealed that barbastelle bats in the area spend time foraging near the roost location after emerging and don't commute further afield until later in the evening.	Discussion Ongoing	

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
		Mitchel Jones (2019) REP2-006 Appendix G of WC1060 CIEEM Advice Note on the lifespan of ecological reports & Surveys (April 2019)	The absence of transects and only three activity surveys at crossing points falls short of the standard advised in the guidelines. It is also not clear how pre and post-construction surveys have been designed in order to detect change (assess effectiveness of mitigation). 4. The guidelines also require the total number of bats crossing to be counted (see Appendix G of WC1060), but unless thermal imaging is utilized on all surveys this will not be achievable when it is too dark to see bats with the naked eye (also see point 7 below). 5. While Berthinussen and Altringham indicate surveys should be undertaken over at least two seasons (see point 5), Christensen, et al, 2016 recommends that due to the 'variability and plasticity in landscape use by bats' it is important that thorough studies in very early in the road planning phase (2-3 years) are undertaken. 6. Thus, where previous survey results (from 2016, 2017 and 2018) are referenced and used to justify decisions (see 3.2.2 REP4-015), they should be submitted in support of the application and available for examination, to enable the survey methodology/data to be reviewed and assessed against best practice guidelines. Consideration should also be given to the validity of the data (see CIEEM guidelines5) in that supporting evidence should be valid, and ideally no more than three years old. 7. The limitations of survey methodology (Section 8.5 of Chapter 8 APP-045) should also be considered. Barbastelles are one of the least detectable bats and are difficult to detect using bat detectors compared to other species (a barbastelle bat pass can be detected up to 15 meters away (Barataud 2015)). Also, as	A Pulsar Helion XP28 thermal imaging scope was used during the second dusk surveys at each crossing point on 4 August 2020 at crossing point one and 6 August 2020 at crossing point two in order to have a visual observation of the bats in darker conditions and confirm whether or not the bats recorded on the detector were crossing the A47/A11 carriageways. Thermal imaging equipment were not used for the remaining surveys, however this does not invalidate the survey results as visibility was good. Crossing point surveys were undertaken under best practice guidance (WC1060 Development of a Cost Effective Method for Monitoring the Effectiveness of Mitigation for Bats Crossing Linear Transport Infrastructure) (Berthinussen and Altringham, 2015). This guidance recommend surveying at temperatures of 7°C and above at the start of the survey in dry conditions with wind speeds lower than 20km/h. All surveys were undertaken within the recommended weather conditions. Bats crossing the road were recorded by sight and by survey equipment. The number of bats observed during transect, static and emergence re-entry surveys compares favourably to the data set of biological records. On that basis, it can be concluded that the Applicant's surveys give a fair representation of bats present and crossing the road. Notwithstanding this, the Applicant proposes to undertake further pre-construction surveys during 2022, which will be in line with guidance set out in Berthinussen and Altringham (2015). These surveys will address any gaps from the existing survey		

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			previously mentioned, greater use should be made of thermal imaging equipment (which aids observation of bats when it is too dark to see them with the naked eye) as its use was limited to two of the six surveys 7. The limitations of visual observation of bat crossings the road (or emerging from trees) and bat detectability have not been identified in the limitations section (3.6 of REP4-015, as per BS42020:2013). 8. The presence of 'low' numbers of bat calls for barbastelles, one of the UKs rarest bats should be considered within context. No context has been provided. Consideration should be given to the level of activity in the context of other sites within the UK or the region would be a more evidence-based approach to assigning relative levels for rare species (see EcoBat). Wray, Wells, Long and Mitchel Jones (2019) 8 published a framework for valuing bats in Ecological Impact Assessment which considers the rarity of the species (it has been used in support of the Sizewell C application. 9. Potential impacts on 'bats', have been assessed (table 8-12 Chapter 8) but it is considered that the ES should address impacts/mitigation/compensation on each bat species recorded onsite as 'one size' does not fit all. Further Comments on REP2-006 - 9.3 Applicant's Response to the Examining Authority's First Written Questions (ExQ1s) BIO 3.7 It is acknowledged that a letter of no impediment has been issued by Natural England with respect to water voles (see REP5-024), although this is subject additional information/mitigation measures. BIO 3.8 Noted. Please see comments relating to the Norfolk Mink Control Project and BIO 3.7 above.	data and will also utilize thermal imaging equipment. The historic bat survey report from 2017 has now been provided as part of the Examination Deadline 7 submission. Please refer to the A47 Thickthorn Junction Improvements Bat Survey Report (AECOM, 2017). During the latest round of surveys, one single pass of the rarer barbastelle was recorded on the northern side of crossing point one during the dusk survey on 22 July 2020, however as the bat was not seen and it was not detected on the southern side of the underpass it cannot be determined whether this species crossed the A11 or not. Consultation with Natural England occurred during June to August 2020 on barbastelle bat mitigation and in essence their response was for us to use our professional judgement and "be most appropriate based on the available evidence". The mitigation proposed has been designed to account for all bat species recorded in the site surveys, and in line with relevant best practice guidance as far as possible. Regarding water vole mitigation, this is being developed during the detailed stage in consultation with NE. Biodiversity Net Gain The Applicant has addressed this in response 4.3 Post Hearing Submission including written summaries of Oral Case at Issue Specific Hearing 1 (REP3-019)		

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			BIO 3.9 Please see previous comments. BIO 3.10. Noted. Given the small diameter of the proposed culvert at Cantley Lane South it is recommended, as per the LONI for water voles (REP5-024) from NE that a dry underpass pipe is incorporated into the design allow movement of water voles under flood conditions. BIO 3.11. Noted. Robust baseline surveys should negate the need for this. BIO 3.12 – 3.24 noted. Biodiversity Net Gain (BNG) REP2-006 Bio 3.5 (ii). It is disappointing that National Highways cannot commit to providing overall BNG or indicate the extent of BNG onsite given that the DEFRA Biodiversity Metric, is the government standard for doing so. Other NSIPS, such as the Sheringham Shoal Extension project9 and Sizewell C10, have adopted this standard.			
75	Ecology: Environmental commitments	REP6-02 EMP Appendix B.6 Landscape and Ecology Management Plan (LEMP) REP4-020	REP6-02 (BIO.2.11): THE EMP covers the environmental commitments (mitigation and management) identified within the ES and will be updated as the scheme progresses. Following approval of the DCO, the EMP will be updated to include Appendix B.6 Landscape and Ecology Management Plan (LEMP). The objective of the LEMP is provided in Table B.1 of REP4-020. The judgement of whether there is sufficient mitigation provision is one for the decision maker to consider alongside the likely effectiveness of the mitigation	The water vole mitigation is being developed during the detailed stage, in consultation with NE, and will be incorporated into the REAC. Update (March 2022): Water Voles – in June 2021 Natural England issued a Letter of No impediment (REP5-024) The Applicant can confirm the environmental barrier shown on environmental masterplan will be 3.5m in height. The environmental masterplan will be updated by Deadline 8. Update (March 2022) EMP updated see AS-032	Agreed with exception (With the exception of the criteria for success and absence of re- planting on Cantley Lane (AS-032)	

Ref No	Issues	Document References (if relevant)	Norfolk County Council Position	Highways England position	Status	Date
		(REP5-024) REAC Table 3-1 of the EMP APP085 page 34 Environmental Masterplan – APP-123 (updated AS-032) Berthinussen & Altringham (2015) HE551492-GTY-ELS-000-DR-LX-30002 Document AS-032 dDCO (APP-017) section 4.1.1. of LA 108 Biodiversity	proposed. Mitigation for bats should be species specific. NCC note that a Letter of No Impediment (REP5-024) has been issued by Natural England for water voles, subject to additional mitigation measures – which should be incorporated within the scheme and the REAC. Concerns remain around the proposed mitigation for bats to address impacts of habitat fragmentation. As previouslystated: • It is not clear it the environmental barrier identified in Table 3-1 of the REAC will be 3 m high or 3.5m high as shown on sheet 4 of 5 of the environmental masterplan (APP-123). • Trees along Cantley Lane will be lost – removing a linear landscape element along which bats commute (see APP085 page 34) and sheet 4 of 5 of the Environmental Masterplan (APP-123) (see below overleaf.) There do not appear to be any plans to replant these. With regards to defining the effectiveness of bat mitigation measures it is suggested that they should only be characterised as effective if at least 90% of bats are using the structure to cross the road safely see Berthinussen & Altringham (2015) 11. Monitoring should be designed to adequately address whether the mitigation measures are successful (eg. use thermal imaging). In addition: • The REAC Table 3-1 indicates that skylark nesting plots are an optional enhancement however these nest plots are required in part to mitigate loss of	As part of the Scheme design, an extensive Landscaping planting plan is proposed as shown on the Environmental Masterplan (APP-123). The amount or extent of new tree planting shown by the Environmental Masterplan (APP-123) is considered to represent the optimum quantum of new tree planting within the DCO boundary taking account of a full range of considerations including the landscape character context; gradients associated with the earthworks; health and safety in regard to future management; and other ecological objectives (for example the value in some locations of retaining some areas of habitat mosaic and open grassland). The EMP states ecological species that are to be licensed, will be monitored as part of the respective licence for the requisite length of time after construction completion. The report does not specify the methodology that will be used, but the Applicant can confirm this will be consistent with best practice methodology and utilise infra-red and thermal imaging technology where appropriate. The criteria for success would be recording the continued use of the crossing points identified by bats. The Applicant, during the process of developing the second iteration of the Environmental Management Plan pre-construction, under Requirement 4 of the dDCO (APP-017), will ensure that the monitoring commitments are developed to reflect the final detailed design and construction strategy taking into account		

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			existing skylark territories (see APP-092) and should be a requirement. • Please note that woodland planting (LE2.1 EFB on drawing no. HE551492-GTY-ELS-000-DR-LX-30002 Document AS-032) will potentially be illuminated by the adjacent Thickthorn Park and Ride Extension reducing its value for wildlife.	the points detailed in section 4.1.1. of LA 108 Biodiversity. Mitigation associated with bats species will be developed as part of the Landscape and Ecology Management Plan (LEMP) at Stage 5. Delivery of these commitments, including consulting the relevant planning authority on the final landscaping design and second iteration of the Environmental Management Plan, will be secured through dDCO Requirements 4 'Environmental Management Plan' and 5 'Landscaping' (APP-017). The Applicant acknowledges the comments on Skylark nesting plots and will consider an update to the REAC ahead of Deadline 8. Any lighting designed as part of the adjacent Thickthorn Park and Ride Extension should be designed to appropriate standards, including directional lighting to minimise light spill on surrounding ecological receptors, including the mitigation proposed as part of this A47/A11 Thickthorn Junction Scheme.		

Appendix 1 - Summary of the Proposed Scheme drainage flow rates

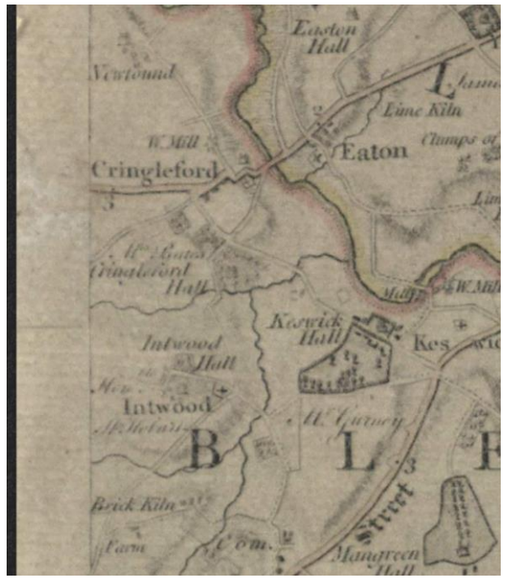
The proposed outfall rates for the scheme are provided within the following table. Whilst the resultant greenfield flows are less than what was used during the preliminary design using the IH124 method, the designer is able to increase the size of the attenuation features as required to accommodate this within the constraints of the scheme.

Catchment Reference	Existing Catchment Area (m2)	Proposed Area (m2)	Catchment difference (m2)	% + increase % - reduction	Result	Greenfield Runoff (l/s)	Existing catchment flows (l/s)				Comment
							5yr	50yr	100yr	200yr	
A existing	29,230	15,476	-13,754	-47.1	Reduction no attenuation	n/a	n/a	n/a	n/a	n/a	Existing drainage catchment to outfall reduced with provision of new network A.
A new	9,822	15,304	5,482	55.8	Increase attenuation required	n/a	268.1	384.7	401.3	409.5	Proposed drainage flows attenuated to match existing drainage catchment flows for critical rainfall events modelled using FEH rainfall data. 9822m2 of the existing surface run-off from network A (existing) is being redirected to new outfall with an additional 5482m2 of surface run-off. Attenuation is provided for the 5482m2 of surface run-off in order to maintain status quo.
B	0	157,930	157,930	n/a	Increase attenuation required	19.1	n/a	n/a	n/a	n/a	Catchment B also includes Catchment H and Catchment I. Attenuated to REFH2 Greenfield Run-off rate.
E	0	4,479	4,479	n/a	Increase attenuation required	See Comments	n/a	n/a	n/a	n/a	Using FEH statistical method for calculating greenfield run-off rates, this results in an outfall rate of 1.8l/s. Any rate of discharge less than 5l/s is considered to be a significant maintenance liability to due blockage risk, therefore the recommended default outfall rate (HR Wallingford) of 5l/s is proposed for this network.
E2	2,247	2,980	733	32.6	Increase attenuation required	n/a	38.8	55.4	58.6	60.6	Proposed drainage flows attenuated to match existing drainage catchment flows for critical rainfall events based on FEH rainfall.
F	0	63,456	63,456	n/a	Increase attenuation required	8.4	n/a	n/a	n/a	n/a	Attenuated to REFH2 Greenfield Run-off rate.
F2	68,288	17,402	-50,886	-74.5	Reduction no attenuation	n/a	n/a	n/a	n/a	n/a	Existing drainage catchment reduced due to the inclusion of Network F. Existing outfall position maintained.
J	120,140	16,156	-103,984	-86.6	Reduction no attenuation	n/a	n/a	n/a	n/a	n/a	Existing drainage catchment reduced due to the inclusion of Network B. Existing outfall position maintained.
K	0	4,956	4,956	n/a	Increase attenuation required	n/a	n/a	n/a	n/a	n/a	K proposed area is added to the new Network A catchment.

Appendix 2 – Additional information provided regarding Ancient woodland.

Blaeu 1646 Essex, East-Anglia. Woodland shown north-east of Cringleford but no other nearby locations.

Fayden 1797, Norfolk. No woodland shown between Cringleford and Heathersett or in this general area.



Bryant 1826 shows a patch of woodland in this general area

OS 1836 (old series sheet 66 surveyed 1815-16, revised 1836-37) partly present. Cantley Wood first shown off Intwood Hall