The Lake Lothing (Lowestoft) Third Crossing Order 201[*]

Document SCC/LLTC/EX/100: Applicant's Responses to Interested Parties' Representations Submitted at Deadline 7

Planning Act 2008

Infrastructure Planning

The Infrastructure Planning (Examination Procedure) Rules 2010

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Foreword

This report is the Applicant's Responses to Interested Parties' Representations Submitted at Deadline 7 (Document Reference SCC/LLTC/EX/100). It relates to an application ("the Application") submitted by Suffolk County Council ("the Applicant") to the Secretary of State (through the Planning Inspectorate) for a development consent order ("DCO") under the Planning Act 2008.

If made by the Secretary of State, the DCO would grant development consent for the Applicant to construct, operate and maintain a new bascule bridge highway crossing, which would link the areas north and south of Lake Lothing in Lowestoft, and which is referred to in the Application as the Lake Lothing Third Crossing (or "the Scheme").

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Abbreviations

ABP	Associated British Ports
CoCP	Code of Construction Practice
DCO	Development Consent Order
dDCO	Draft Development Consent Order
DfT	Department for Transport
ES	Environmental Statement
ExA	Examining Authority
FRA	Flood Risk Assessment
LPA	Local Planning Authority
NMC	Non Material Change
NMU	Non-motorised user
NRA	Navigational Risk Assessment
NSIP	Nationally Significant Infrastructure Project
PINS	Planning Inspectorate
PNPS	Ports National Policy Statement
RR	Relevant Representation
SCC	Suffolk County Council
SoCG	Statement of Common Ground
SoS	Secretary of State
SSSI	Site of Special Scientific Interest
SRN	Strategic Road Network
SuDS	Sustainable Drainage System
TA	Transport Assessment
WDC	Waveney District Council
WFD	Water Framework Directive
WQ	Written Questions
WSI	Written Scheme of Investigation
WR	Written Representations

1 Introduction

1.1 Purpose of this report

1.1.1. This report, submitted for Deadline 8 of Examination, contains the Applicant's response to Interested Parties' representations submitted to the Examination for Deadline 7 on 15 March 2019, and an additional submission submitted by Lings subsequently.

1.1.2. Representations were submitted by the below parties:

- Associated British Ports (ABP) [REP7-006, REP7-007 and REP7-008]
- Lowestoft Cruising Club [REP7-009 and REP7-010]
- Northumbrian Water Limited [REP7-011]
- NWES [REP7-012]
- PFK Ling Limited [AS -019]

1.1.3. Responses to ABP's comments are covered in the Applicant's Summary of Oral Submissions at Issue Specific Hearing on Navigation Matters of 1 April 2019 (Document Reference SCC/LLTC/EX/98) and Response to ABP's Summary of Case at 8 March Hearing and SWQs 1.11 - 1.13 (Document Reference SCC/LLTC/EX/99) which are also submitted to Deadline 8.

1.1.4. The report therefore provides the Applicant's, response to the matters raised by Lowestoft Cruising Club, Northumbrian Water Limited, NWES and Lings, thereby providing a reference document for these interested parties and the Examining Authority.

2 Lowestoft Cruising Club [REP7-009 and REP7-010]

2.1 Summary and response to Representations

Reference	Extract / Summary	Applicant's response
REP7-0010	PART 4 OPERATIONAL PROVISIONS Operation of the new bridge. [p34, paragraph 6] (6) Any submission by the undertaker to the Secretary of State under paragraph (5) must also include a report setting out any comments of the Navigation Working Group or the harbour authority given in response to the undertaker proposing a variation or replacement of the Scheme of Operation under paragraph (2) or in response to any consultation carried out under Requirement 11(4). LCC response: LCC welcome the addition of this new paragraph. However, we would like to see the text amended to:- (6) Any submission by the undertaker to the Secretary of State under paragraph (5) must also include a report setting out any comments of the Navigation Working Group and the harbour authority given in response to the undertaker proposing a variation or replacement of the Scheme of Operation under paragraph (2) or in response to any consultation carried out under Requirement 11(4). The reason for the change to replace "or" with "and" is to ensure that comments from both the Navigation	This change will be made in the next draft of the DCO, which is due to be submitted to Deadline 9 of the Examination.

Reference	Extract / Summary	Applicant's response
	Working Group and the Harbour Authority are sought and passed to the Secretary of State.	

3 Northumbrian Water [REP7-011]

3.1 Summary and response to Representations

Reference	Extract / Summary	Applicant's response
REP7-011 Paragraphs 2.2.1 - 2.2.6	**Noise (both during construction and during operation of the DCO Scheme)** NWL provide an update on discussions with the Applicant in respect of the potential methodology for monitoring the noise impacts of the Scheme on Trinity House and noted the intention for this to be dealt with by a written agreement between the parties. This update references Appendix 1 to NWL's submission, which sets out responses from NWL's noise consultants to the information that had been shared between the Applicant and NWL up to the date of Deadline 7. In the event of agreement not being reached, NWL request a DCO requirement under which the Applicant is obliged to: (a) carry out pre-construction monitoring of noise levels in association with Trinity House in accordance with the principles set out in the ANC Guidelines – Noise Measurement in Buildings – Part 2: Noise from External Sources; (b) carry out updated monitoring of noise levels following completion of the project authorised by the DCO (using the same methods as used for the pre-construction monitoring); and	The Applicant has produced a rebuttal to Appendix 1 of NWL's which is appended to this response at Appendix A. In summary, the matters in dispute relate to the impact of operational noise on the internal noise conditions, and specifically the relevance of any change in those conditions to the operation of the building as a call centre. The Applicant: • Does not consider Trinity House is a noise-sensitive receptor • Is largely in agreement with PBA with respect to the predicted increases at the Waveney Drive façade and the rear façade of Trinity House associated with increases in traffic flows • Notes that the predicted increase in noise levels at the rear façade (which increase the most) will not result in an absolute noise level that exceeds the prevailing conditions on Waveney Drive • Does not consider external noise level changes are a good reflection of the likely impacts on Trinity House given that its use is centred on internal operations which benefit from the noise reduction associated with building façade and therefore

Reference	Extract / Summary	Applicant's response
	(c) where there is a 3dB or more increase in internal noise levels within Trinity House arising from the operation of the DCO Scheme, to offer appropriate noise mitigation measures to the owners of Trinity House and if accepted to ensure such measures are carried out at the cost of the Applicant.	considers it more appropriate to consider the resulting internal noise levels in absolute terms • Considers that internal noise measurements pre- and post- the Scheme should be used, alongside an absolute noise level to determine whether there is an impact on Trinity House • Does not consider that there is likely to be an operational noise impact on Trinity House that would affect its operation as a call centre and warrant mitigation measures Notwithstanding the above, in any event, NWL is protected by the compensation code; if NWL needs to make improvements to its building to maintain its operation as a call centre as a consequence of the Scheme, such improvements may be recoverable from the Applicant. The Applicant and NWL continue to discuss these matters between them.
REP7-011	**Traffic and Transport Outstanding Issue HT4: Waveney Drive Traffic** NWL has continued to press for an additional controlled pedestrian crossing on Waveney Drive located close to the New Access Road junction (the relocated Business Park access). This is because the Environmental Statement has demonstrated that as a result of the Scheme, there are significant adverse effects on fear and intimidation and severance for pedestrians on Waveney Drive.	The Applicant has responded to this point in previous submissions (REP4-014, p76). It considers the highway authority (under the auspices of the county planning authority) is best placed to determine the provision/location/ type of crossings, having regard to the interests of all highway users. As such the Applicant considers that this matter is dealt with by Requirement 3 in the draft DCO.

Reference	Extract / Summary	Applicant's response
	This is entirely in accordance with the National Planning Policy Framework (NPPF) in terms of giving priority first to pedestrian and cycle movements (para graph 1.10a), and is supported by the sections on safety (paras 3.9 and 3.10) and sustainable transport (paras 3.15 to 3.17) of the National Policy Statement for National Networks. The Applicant has however maintained that the present General Arrangement and indicative crossing are sufficient. They have stated that they have amended the draft DCO at Deadline 4 to provide for the detailed design of the highway constructed and improved by the Scheme to be approved by the County Planning Authority (SCC), and this approval process would include the provision/location/type of crossings. It will therefore be essential that this issue be revisited at the detailed design stage and that the DCO provides a means for effective and meaningful consultation on those details.	
REP7-011	**Traffic and Transport Outstanding Issue HT9: Canning Road Junction Visibility Splays** As noted in the PBA Second Report, the junction visibility envelope has been shown to be outside the Order Limits, on third party land (NWL understand this to be owned by SCC).	The Applicant has responded to this matter in previous submissions (REP4-014, p86 and AS-013, p121 and Appendix F)
REP 7-011 Paragraph 2.3.7	**Traffic and Transport Trip Values/Recording** The differences in trip values between the Applicant's single day summer recording, and NWL's 2-week record are clear (see NWL's Deadline 3 submission) and in NWL's view significant. Through not taking these into account, the baseline position in the transport assessments does not	The Applicant considers it is misleading to compare the WSP flow, based upon the July 2016 count, with the highest flow observed over the duration of the PBA count. The use of the average of the observed data when multiple days of observations have been collected is typically good modelling practice. A comparison of the average flows collected by PBA in December 2018 with the single day

Reference	Extract / Summary	Applicant's response
	accurately reflect the actual position, and again calls into question the robustness of the Applicant's Transport Assessment and sensitivity tests. It should also be noted that the sensitivity tests identified traffic levels significantly higher than those identified in the original Transport Assessment (which had not properly allowed for future development) but the Applicant does not appear to have revisited the conclusions of its Environmental Statement (ES) (in particular on noise and air quality) in light of that change. This calls into question the adequacy of the ES. NWL reiterates its request that the Applicant acknowledge and adopt the December trip figures for its assessments or provide meaningful reasons for not doing so.	MCC collected by WSP in July 2016 presented in the Applicants response to the oral submission on 7th and 8th March (REP7- 004, p3-5) showed that the average December 2018 flows were 7% and 14% higher in the AM and PM respectively. The absolute differences in flow totals were 21 and 28 for the AM and PM peak hour. While the Applicant considers that the revised future year forecasts prepared for the development sites represent a sufficiently robust estimate of future traffic, the Applicant has nevertheless included the additional base traffic in the capacity assessments of the other junctions. These are presented in Appendix B. Appendix B was shared with NWL on 8 April 2019. The Applicant has responded to the relevance of the sensitivity tests to the Environmental Statement in its previous submissions on this matter (REP7-004, p10)
REP7-011 Paragraph 2.3.8 – 2.3.11	**Traffic and Transport: Starting point for Considering New Access Road / Waveney Drive Priority Ghost Island Junction** At the Hearing, the Applicant asserted that the existing signalised junction leading into Riverside Business Park provides ample spare capacity (being much more than is technically necessary), and that such excess capacity should not form the "benchmark" for the design of the replacement junction. It was indicated that in situations of existing over-capacity any new design should ensure no detriment, but this did not apply.	Please refer to the Applicant's previous submissions (REP7-004, p1-2) on this point.

Reference	Extract / Summary	Applicant's response
	Instead, the Applicant noted that accordance with policy only required them to provide "sufficient capacity to accommodate the existing and future growth". Accordingly, the Applicant claimed that it was acceptable to provide what is a materially worse junction to that currently in place while at the same time significantly increasing the traffic using that junction provided that it would still operate within capacity by 2037. NWL go on to set out quotes from the Case from the Scheme and NNNPS to indicate that the new access to the Riverside Business Park should be considered a retrograde step, moving from a signalised junction to a ghost island junction. This would reduce operational conditions (including possible safety concerns), would not provide for future capacity beyond those developments which are, in 2019, likely to come forward and so would not allow for the regenerative effects that the Scheme is intended to bring.	
REP7-011	**Traffic and Transport Outstanding Issue HT6: New Access Road / Waveney Drive Priority Ghost Island Junction** Appendix 2 constituted the 'PBA Second Report' setting out NWL's concerns as to the above junction and its effect on the wider network. **It states there** are three outstanding issues that remain unresolved from the sensitivity tests undertaken by WSP to date:	Points (i) to (iv) are dealt with in Appendix B to this document, which was shared with NWL on 8 April 2019. **In respect of the other points:**

Reference	Extract / Summary	Applicant's response
	i) the second sensitivity test does not appear to refer to the observed traffic flows on Riverside Road in December 2018, which recorded higher observed flows than the Applicant's base survey data. In both the AM and PM peak hours, the recorded traffic flows at the Business Park were higher than the July traffic flows supporting the Scheme. The highest recorded one-day had 16% more traffic in the AM peak hour, and 41% more traffic in the PM peak hour – which is significantly higher than the counts relied upon in the application documents, and is contrary to the oral submissions by the Applicant at the Hearing stating this was not significant. ii) the second sensitivity test does not appear to take account of PBA's queries on the generous junction visibility splays applied in the PICADY modelling. iii) the Applicant has not commented upon the chosen junction form in with reference to DMRB's TD 42/95 Figure 2/2 guidance. Furthermore: iv) it adds that both the first and second sensitivity tests have resulted in increased levels of traffic flow on the New Access Road and Waveney Drive and could have potential knock-on effects on roundabouts, potentially leaving them operating above capacity. • The new roundabout capacity assessment also excluded HGV percentages which PBA believe should be included.	• HGV's have been included in the revised capacity assessments provided in Appendix B. • The forecasts include U turning traffic arising from the proposed left in/left out access for Lings in Waveney Drive. However, it is noted that there are

Reference	Extract / Summary	Applicant's response
	• PBA states this has implications due to potential alterations to the proposed Lings and Nexen access points, via a left in / left out access arrangement to Waveney Drive resulting in u-turning traffic at both roundabouts. • PBA are still of the opinion that a priority ghost island junction form may not be the most appropriate and safest form of access to the Business Park. • PBA believe the chosen junction form presents the greatest risk to the Business Park. Stating that should the Applicant design the ghost island priority junction with no allowance for signal control (reserving the required surrounding land), fixing the New Access Road alignment, fixing the highway boundary, and land lock the junction, this could restrict a developer the ability to enhance the junction to signals in the future.	currently no proposals to facilitate the use of this access for vehicles to/from Nexen, as the Applicant has made clear in previous representations. • The latest capacity assessment for the priority ghost island junction presented in Appendix B demonstrate that in 2037, the junction would operate well within capacity. It should be noted that this assessment is based upon the latest sensitivity test which are considered to represent a 'worse case' scenario in terms of forecast traffic volumes. Furthermore, the assessment assumes a single access to the Business Park. With the provision of an additional priority access junction on Waveney Drive by 2037 related to the Jeld Wen development, traffic flows at the ghost island junction would be reduced.

4 NWES [REP7-012]

4.1 Summary and response to Representations

Reference	Extract	Applicant's response
REP7-012	NWES raised concerns about the impact of the Scheme on their business. NWES state it still has not received any written responses to the queries raised on the 29 June 2018 It states no progress has been made on any of those areas of detail in relation to NWES' concerns since they were initially raised them in June 2018, other than links to some correct plans and an image from SCC. NWES have been told that SCC will issue a new set of Heads of Terms for the Land & Works Agreement, but we haven't received anything to date, and no doubt considerable negotiations will be required before agreement is reached by both parties.	The Applicant has responded to these points in previous submissions (REP7- 004, p16). As noted in response the Examining Authority's Second Written Questions (Document Reference SCC/LLTC/EX/97), Question 2.2, the Applicant has shared a noise methodology with NWES, and is currently awaiting feedback on this. The CA tracker (SCC/LLTC/EX/101) has also been updated to this deadline, confirming the lengthy engagement that has been undertaken with NWES.

5 Lings PFK Ling Limited [AS -019]

5.1 Summary and response to Representations

Reference	Extract	Applicant's response
AS -019	**Plots 3-52, 5-10** We note that in its description the Applicant sets out that a PMA is required to link PMA 14 to PMA 11. We note that plot 5-31 does not include the PMA desired to create this link calling into question the requirement for the PMA.	As is explained in the Applicant's Responses to the Examining Authority's Second Written Questions [Document Reference SCC/LLTC/EX/97] in the response to Question 1.5, the intended function of the new Private Means of Access (PMA) References 10 and 11, shown on Sheet 2 of the Rights of Way and Access Plans [APP-027] is to provide connectivity between land which is held in different ownerships (i.e. Nexen and Lings) for the purposes of facilitating the future exercise of the new rights which are proposed to be created and acquired pursuant to the DCO for the benefit of the Applicant (to maintain the southern approach to the new bridge) and for relevant statutory undertakers (to access, install and maintain apparatus) along the length of the 'strip' of land comprised in the blue plots numbered 3-29, 3-32, 3-50, 5-10 and 5-31 on sheets 3 and 5 of the Land Plans [APP-021]. As such, plot 5-31 supports and complements the suite of PMA References 10, 11 and 14, where access would initially be gained via PMA Reference 14 at the southern-most end of plot 5-31, permitting the Applicant (in connection with the new bridge) and statutory undertakers (with apparatus in the land) to move along the blue strip of land comprised in the above-mentioned plots, as facilitated by PMA References 10 and 11.

Reference	Extract	Applicant's response
		As is explained in Appendix A to the Statement of Reasons [APP-007] in respect of plot 5-31, the Applicant seeks to acquire "*new rights, including the imposition of restrictive covenants), for the purpose of constructing, protecting, accessing and maintaining the new bridge southern approach and in connection with the diversion, protection and maintenance of, and access to, statutory undertakers' apparatus*".
AS -019	**Plot 5-14** No details have been provided as to the requirement of the quay head. We are not satisfied that the 'eastern spur' is required for services as it does not appear to link into anywhere. This plot is critical to Lings and should be removed as there appears to be no requirement or justification for acquiring rights over this plot.	The quay wall is considered in relation to the non-material change, below. Utility diversions are subject to detailed design and thus diversions routes are yet to be finalised with the relevant statutory undertakers. By way of background, there is a UKPN substation immediately to the east of plot 5-15 and as was explained at the CAH1, the Lings site is affected by the rerouting of that cable, as such that could also affect plot 5-14.
AS -019	**Funding** Lings do not consider that the May 2016 resolution agreed to underwrite a local contribution of £18.34m but consider instead that the Cabinet approved expenditure of £20 million for both the Ipswich Wet Dock Crossing and the Lake Lothing Third Crossing. There is no evidence that the £8m land acquisition pressure cost has been included in the capital programme and there is no Cabinet approval of this expenditure. If the £91m in the capital programme does exclude the £8.34m local contribution and include the £8m land acquisition cost then the land acquisition	The Applicant has already set out its position on funding. Please refer to previous submissions, in particular in the Applicant's Deadline 5 submission – *Written Summaries of Oral Submissions at Compulsory Acquisition Hearing 1* [REP5-010], under ExA Agenda Item 9(a) (Any further updates to the Funding Statement), together with Appendices 1 and 2 (to those written submissions), which, respectively, provide a '*Note to clarify Scheme funding*

Reference	Extract	Applicant's response
	costs have been included without proper Cabinet approval. Consequently Cabinet approval for the £8.34m could not exist otherwise this must form part of the capital programme as all committed expenditure is included. Lings considers that the section 151 officer cannot commit expenditure of £8.34m without Cabinet approval and/or notification of a key decision. As previously advised, the S151 Officer's letter confirms at its highest that the Council is prepared to underwrite any shortfall. However, such a preparedness is below the threshold of certainty required by the Secretary of State to justify authorisation of a CPO under the Planning Act 2008. Lings do not consider that Appendix 1 provides evidence that Suffolk County Council has properly committed to fund the potential scheme deficit of £16.34 million. Furthermore, combining ABP and Nexen's issues with Lings own claim calls into question the viability of the land acquisition based upon the current, yet to be authorised, budget. The CPO should not be confirmed until agreements with these parties are reached to ensure appropriate funding will be made available.	*proposals*' (Appendix 1) and a '*Note to explain the role of the Section 151 Officer (Head of Finance)*' (Appendix 2).
AS -019	**Non-material changes** The non-material change requires the use of land to the east of Lings' showroom as the access route into the Site for all vehicles. SCC has advised Lings and the ExA (that the quay wall within the Site requires maintenance/works which it has valued at £200,000.	In valuing the Lings' site in its entirety, whilst exploring Lings' proposed Sale and Leaseback, the Applicant has appropriately considered the site's condition and any associated liabilities that a purchaser would become responsible for. Lings' ownership includes part of the Kirkley Ham and its quay walls and a visual inspection undertaken by the

Reference	Extract	Applicant's response
	Lings does not consider this work necessary as the Site currently operates and has no intention to undertake such works. Despite requests being made to the Applicant for its evidence base to support the case for the work, this has not been provided. However, the use of the eastern access, as proposed by the non-material change, creates additional traffic along the quay wall. If it is demonstrated that the new vehicular access proposed by the Scheme would require works to the quay wall, rights for the Applicant to undertake such works are absent from the DCO. No approach has been made by the Applicant to Lings to seek to secure rights to undertake these quay walls works by agreement. At present, Lings is concerned that in the absence of rights in the DCO to secure the works to the quay wall which the Applicant consider necessary and no approach having been made to secure these works by agreement, the new access proposed by the non-material change is not currently deliverable.	Applicant indicates that the quay wall is in fair - poor condition (a copy of that report has been provided to Lings and their agents). As such, any freehold valuation of the site must make an allowance for owner's future liability in respect of the quay wall (whenever that may be) and the Applicant has estimated this liability to be £200,000, on the basis of the most cost effective method of remediation possible in shoring up the quay wall, as opposed to fully repairing or replacing it; a cost that a freehold purchaser of the site would take into consideration when making an offer for it. While it is understood that Lings has no intention to undertake such works in the short term, Lings has fenced off what it believes to be an appropriate distance to mitigate any risks associated with the condition of the quay to the east of the building. The Applicant has no intention to interfere with this 'exclusion area' or increase loadings near the quay edge and there is no evidence to suggest that either Ling's current use of the road to the east of the Lings building, or any additional use of that road in future, would have an adverse effect or cause any accelerated deterioration in condition of the quay wall. As such, the Applicant does not consider the condition of the quay wall has any bearing on the feasibility of the non-material change.

Reference	Extract	Applicant's response
		Notwithstanding this, however, the applicant remains firmly of the opinion that any prospective freehold purchaser of the site would nevertheless reflect, in their offer for the site, a cost allowance in respect of the poor condition of the quay wall and its associated exclusion zone.

Appendix A Response to Northumbrian Water Limited comments on noise

MEMO

DATE	**21 March 2019**	**CONFIDENTIALITY**	**Public**
SUBJECT	**Lake Lothing Third Crossing – Comments on Deadline 7 Submission from NWL - Noise**		

INTRODUCTION

WSP has undertaken a review of the document prepared by Bryan Cave Leighton Paisner (BCLP) titled "Lake Lothing Third Crossing DCO – Submission at Deadline 7 on behalf of Northumbrian Water Limited" and dated 15 March 2019. Included as an appendix to this document is a report prepared by Peter Brett Associates (PBA) titled "Additional Acoustic Responses on behalf of Northumbrian Water Limited (Deadline 7)", dated March 2019.

The review presented in this memorandum considers only those issues relating to noise and vibration. The review is presented in two parts: (A) general comments on the main text of the document; and (B) specific comments relating to NWL's response to previous comments and responses at Deadline 4, as set out in Appendix A of the PBA report (which is itself presented as Appendix 1 to the BCLP document).

A GENERAL COMMENTS

1. Many of the points raised in the submission relate to the assumed sensitivity of Trinity House as a noise receptor. PBA, as NWL's acoustic consultants, have made reference to various documents in an attempt to demonstrate that Trinity House is sensitive to noise in the same way that, for example, a residential building were sensitive to noise. Our comments on the use, or misuse, of these documents are given in the table of specific comments presented below (especially at Item 11.)

2. Perhaps the greatest area of disagreement at present relates to the methodology to be used to determine whether there is a significant noise impact at Trinity House during the operational stage of the Scheme. The NWL submission argues that an impact will occur if the increase in road traffic noise level is greater than 3dB, which, from the modelling undertaken to support the operational assessment within the Environmental Statement, it will inevitably be. NWL conversely however, do not consider that the assessment should in any way be based on the absolute noise level. It is interesting here to draw a comparison with the Noise Insulation Regulations (NIR) 1975 (as amended 1988) as they apply to residential dwellings, which have been in existence for many years and are based on extensive considerations as to how an impact should be identified. The NIR regulations include a condition based on the absolute noise level as well as a condition based on the change in noise level, and both of these conditions have to be met in order to trigger eligibility for noise mitigation measures. In arguing that the criteria that should be applied to Trinity House should not include a condition based on the absolute noise level, NWL are effectively arguing that Trinity House should be considered a more special case than residential dwellings. This seems contrary to all of the published guidance relating to noise sensitivity.

3. The following text is repeated numerous times in the submission, and particularly in the Appendix prepared by PBA: "*NWL consider the existing internal ambient noise levels to be entirely appropriate for its use as a call centre* (and) *any change in internal ambient noise level risks adversely affecting the operation of the call centre*". Elsewhere, it states "*NWL would take a subjective view of the post construction ambient noise levels, with action only taken if the change in ambient noise levels exceeds 3dB and NWL considered the internal noise levels to be detrimental to the operation of the call centre*". It seems that they want the assessment to be based on their own subjective judgement of the noise impact, and not on an objective assessment based on recognised guidelines and standards.

4. The above comments relate to operational noise. The submission does include some minor comments relating to noise impacts during the construction phase, the most significant being that NWL wish to "*be given the opportunity to review and comment on the construction noise and vibration assessment used to support the S61 process*" (referring to Section 61 of the Control of Pollution Act 1974). This matter is being discussed with NWL pursuant to a proposed Side Agreement.

B SPECIFIC COMMENTS

The specific comments detailed in the table below are in response to the comments tabled in Appendix A of the PBA report contained at Appendix 1 of the Deadline 7 submission from NWL. In this table, the first three columns presents text taken from the table in the PBA report. WSP's response to these comments is presented in the fourth column of the table.

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
1	Section 2.3 of the PBA report seeks to identify appropriate internal noise criteria applicable to the call centre with reference to British Standard (BS) 8233:2014 'Guidance on sound insulation and noise reduction for buildings' and the British Council for Offices Guide to Specifications, Chapter 8: Acoustics. PBA conclude that the appropriate criterion is 35 40dB LAeq,T. However, the approach adopted by PBA is at fault because this criterion, as defined in BS 8233: 2014, is in relation to an executive office rather than an open plan office within a call centre.	We disagree that the appropriate criterion for the call centre is an 'open plan office' as defined within BS8233. Notwithstanding this point, NWL consider the existing internal ambient noise levels to be entirely appropriate for its use as a call centre. Any change in internal ambient noise level risks adversely affecting the operation of the call centre.	We remain in disagreement.
2	It is also subsequently identified in the PBA report that the current noise levels as measured within the facility when operational, and which are then sought to be protected (suggesting their acceptability for purpose) are significantly higher than this criterion, which confirms the unreasonableness of the assessment criterion proposed by PBA.	This is incorrect. Comparing operational, occupied noise levels with a criterion which applies to unoccupied spaces is not appropriate. Unoccupied internal ambient noise levels are in the region of 35dB LAeq,T during a typical working day.	The comment is noted, but it remains the case that the current total noise levels within the call centre when operational are substantially greater than noise levels from road traffic alone, demonstrating that traffic noise makes only a minimal contribution to the overall internal noise climate.
3	Notwithstanding consideration to the current operational noise levels within the facility, the correct approach to the selection of a target criterion is to adopt the guidance from Table 2 of BS 8233 for an open plan office, given that the call centre is predominantly an open plan space (see Figure 1, below). Therefore, the correct criterion to adopt in this case is 45–50dB LAeq,T, not 35 40dB LAeq,T as suggested within the PBA report.	See response 1.	As point 1 above.

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
4	The PBA report correctly identifies (at Section 2.3.1) that 'Workers within a call centre generally require an environment which has a sufficiently high background sound level to mask intruding speech', but the correct reference for this within BS 8233: 2014 is in relation to open plan offices, for which the applicable criterion is 45- 50 dB LAeq,T. Quoting BS 8233: 2014 "in some cases, such as open-plan offices..., a moderate noise level might provide making for acoustic privacy in shared spaces without causing disturbance, so upper and lower noise levels should be considered (see Table 2)."	See response 1. In addition, we would note that BS8233 includes an open plan office as an example only and does not refer to call centres. Notwithstanding this point, NWL consider the existing internal ambient noise levels to be entirely appropriate for its use as a call centre. Any change in internal ambient noise level risks adversely affecting the operation of the call centre.	See general comments above. There needs to be a criterion based on absolute noise levels and not just the change in noise level. The appropriate criterion is that set out in BS 8233 and the BCO guidelines for open plan offices.
5	Section 3.3.11 of the PBA sound survey report states that "The measurements were paused to exclude extraneous noise events occurring within the call centre (e.g. door closings, elevated speech)." It is unclear whether this relates to the measurements taken during the evening (when no staff were present) or a typical working day. It is unlikely that this exclusion of events relates to the evening given that elevated speech would occur when staff are present. Therefore, assuming that these exclusions relate to measurements taken during the working day it is unclear why the decision was made to remove these events given that they form part of the typical noise climate within the call centre. It is therefore assumed that the actual noise levels are higher than reported and subsequently that the reported noise levels cannot be relied upon as being representative of the conditions at the time.	This is an incorrect assumption. Measurements were paused during the evening measurements to exclude unrepresentative events (such as cleaner's vacuuming the space) as is standard practice for measurements of this type.	Noted.
6	The reported internal noise level of 33 dB LAeq,T when no staff were present is well below the design	As stated by WSP the use of headphones means that privacy is less important. Notwithstanding this	See general comments above. There needs to be a criterion based on absolute

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	range for an unoccupied open plan office (45 – 50dB LAeq,T). It is not clear from the PBA report whether this measured level includes operational air conditioning. As noted above, BS 8233: 2014 recognises that open plan offices require a moderate level of noise for acoustic privacy in shared spaces without causing disturbance, so upper and lower noise levels should be considered. Given that the measured noise level is some 12 to 17dB below the design range required to preserve acoustic privacy, one has to question whether the existing internal noise climate is appropriate for the maintenance of acoustic privacy (although it is noted that, given the operators within the call centre use headsets to make and receive calls (see Figure 1), the low ambient noise levels for privacy may be less relevant).	point, NWL consider the existing internal ambient noise levels to be entirely appropriate for its use as a call centre. Any change in internal ambient noise level risks adversely affecting the operation of the call centre.	noise levels and not just the change in noise level. The appropriate criterion is that set out in BS 8233 and the BCO guidelines for open plan offices.
7	The PBA reported noise level of 51dB LAeq,T within the occupied office at Trinity House is slightly lower than those found in previous studies of comparable office spaces. However, it is expected that the measured noise level would be higher had 'extraneous noise events' (as identified in the PBA report) been correctly included.	See response 5	Noted.
8	It is unclear why external noise level measurements have been undertaken by PBA given that employees at the call centre are only subject to internal occupation. This facility is a modern office with air conditioning and ventilation provision, and staff work in a regulated environment, with sealed windows, and therefore benefit from the noise attenuation afforded by the fabric of the building façade. The acoustic weak point in the external façade will be the	External noise level measurements were undertaken to: - Verify levels predicted in ES chapter; - Provide an indication as to the likely sound insulation performance of the building façade. It is reiterated that NWL consider the existing internal ambient noise levels to be entirely appropriate for its use as a call centre. Any change	See general comments above. There needs to be a criterion based on absolute noise levels and not just the change in noise level. The appropriate criterion is that set out in BS 8233 and the BCO guidelines for open plan offices.

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	windows and this will determine the overall sound insulation performance of the façade. For double glazed windows, the sound insulation performance is assumed to be at least 30 to 35dB insulation as a minimum (30dB would be a very worst case). Given that the internal noise criterion (based on our analysis) is 45 to 50dB, it would take an external noise level of 75 to 80dB to exceed this criterion. Predicted noise levels from the Scheme are well below these levels.	in internal ambient noise level risks adversely affecting the operation of the call centre.	
9	At Measurement Locations P1 and P2 identified in the PBA report, unattended continuous measurements were undertaken above the roof of the facility. These locations are not representative of the potential impact at the facility (i.e. at the façades of Trinity House behind which are internal working areas). As noted above, the value of using the existing external noise level to consider noise impact within a modern office/call centre is questionable and the results of these surveys add nothing to the assessment of impacts at Trinity House.	These measurements were undertaken to verify the results of the ES as detailed in paragraph 5.2.3 of our Acoustic Report.	Noted.
10	In summary, it is clear that the arguments submitted by PBA for treating Trinity House as a receptor that is especially sensitive to noise do not hold water. The arguments are based on an incorrect interpretation of the internal noise criteria set out in BS 8233: 2014 and the measured internal and external noise levels at Trinity House do not provide any support to an argument for treating Trinity House as a sensitive receptor.	See responses above.	We remain in disagreement.
11	In accordance with DMRB, the Scoping Report identifies potentially sensitive receptors on the basis	With reference to paragraph 4.3.4 of the Acoustic Report, DMRB does not present an exhaustive list of	DMRB does not use the word “etc.” in its definition of sensitive receptors, but does

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	of whether they are classed as 'Dwellings' or 'Other Receptors'. Other receptors are defined in DMRB as those that are particularly sensitive to noise and include hospitals, schools, community facilities (such as places of worship, educational buildings and hospitals) etc.) Offices do not fall under any of the categories of sensitive receptors defined in DMRB and on that basis Trinity House has not been included as a sensitive receptor within the operational noise assessment detailed in the ES.	potential receptors as evidenced by the use of 'etc.' DMRB states in Volume 11 Section 3 Part 7 HD213/11, paragraph A1.13 [emphasis added]: "…Examples of sensitive receptors *include* dwellings, hospitals, schools, community facilities, designated areas (…), and public rights of way". It is therefore incorrect to exclude Trinity House (or indeed any other noise sensitive receptor not listed in DMRB) on the basis that it is not included as an example in DMRB. We would highlight that Suffolk County Council's guidance on Local Planning Application Validation Requirements identifies "workplaces" as noise sensitive and requires that a noise impact assessment is undertaken where proposals may have an impact on the receptor. Section 4.5 of IEMA's Guidelines for Environmental Impact Assessment identifies 'Commercial Premises' as being noise sensitive. Table 2 of the IEMA EIA Quality Mark Article – Guidelines for Environmental Noise Assessment – October 2014 identifies offices as being of medium sensitivity to noise (in the same category as residential receptors). Table 2.1 of the Scottish guidance on noise sensitive receptors includes office environments (ref. Assessment of Noise: Technical Advice Note – March 2011 - https://www.gov.scot/publications/technical-	use the words "Examples of sensitive receptors include …". However, given that the list of examples given in DMRB is quite extensive, it would seem strange that DMRB would omit to include offices and workspaces if the authors thought that they really were sensitive to noise. The conclusion is that the authors of DMRB did not think that office spaces are particularly sensitive to noise. The IEMA Guidelines for Environmental Impact Assessment does include commercial premises as being potentially sensitive to noise, but notes that, in its list of potentially sensitive receptors, "*not all of the receptors would necessarily have the same degree of sensitivity*". It is clear, therefore, that the list of sensitive receptors referred to in the IEMA guidelines includes receptors of low sensitivity as well as receptors of medium and high sensitivity. The IEMA guidelines do not, therefore, demonstrate that office spaces are especially sensitive to noise. The IEMA Quality Mark article carries no weight; it is just a magazine type article amongst hundreds of such articles which represent the views of an individual author, or consultancy. The IEMA Quality Mark articles do not in any way represent the

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
		advicenote- assessment-noise/pages/2/) identifies offices as noise sensitive receptors and being of medium sensitivity.	views of the IEMA and they do not in any way form any kind of official guidance. The SCC guidance does indeed include "workplaces" in a list of possible sensitive receptors. However, like the IEMA guidance, this does not mean that all of the examples in the list are of equal sensitivity and it does not, therefore, demonstrate that offices spaces are especially sensitive to noise. We consider that the Scottish guidance is not applicable and therefore not relevant.
12	With regard to construction noise impacts, BS 5228-1: 2009+A1: 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites. Part 1: Noise provides a methodology for the estimation of likely construction noise levels. Within BS 5228-1 separate threshold criteria are provided for residential dwellings compared to offices and the limits for offices are higher to account for their reduced sensitivity to noise. To ensure that previous comments during statutory consultation raised by NWL (which were concerned solely with construction phase impacts) were fully accounted for, the construction noise assessment was revised to include Trinity House.	It is not clear why the applicant accepts the potential construction impact on NWL (a temporary, short-term effect) worthy of consideration but not the potential operational impacts (a permanent, long term effect).	Construction noise impacts were considered in the ES because: (a) The noise impact of construction works, although temporary, is often greater than the noise impact of road traffic; and (b) The primary guidance relating to construction noise (BS5228 Part 1) includes criteria for offices as well as residential buildings, whereas the guidance on traffic noise (DMRB) does not.
13	It is stated by PBA that construction traffic data is not provided within the ES. However, this is provided in Table 13-21 of the ES. A substantial amount of operational traffic data is presented in Chapter 19 of	Acoustic assessments undertaken in accordance with CRTN and DMRB are usually based on the AAWT 18-hour traffic data. It is not clear from the information provided by the applicant and the	

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	the ES: Traffic and Transport. In particular, operational AADT traffic flows are presented in Figure 19.4 of the ES	subsequent response whether the assessment has been based on the AAWT data (and this data not presented), or on another method. We would highlight that the Glossary of Terms in the ES does not define AAWT.	
14	DMRB states that for new roads and for existing roads maintained in good condition ground-borne vibration is very unlikely to be an issue. Groundborne vibration is generated by a sudden impart of energy into the ground, e.g. as associated with a wheel or axle dropping into a road defect such as a pothole or similar. By contrast, the Scheme would be new with smooth road surfaces, eliminating the potential for the generation of significant groundborne vibration, even in close proximity. The DMRB recognises that low frequency noise can cause light-weight elements of a structure to vibrate (known as 'airborne vibration'), and this has been fully assessed within the ES (sections 13.3.17, 13.5.72, and Appendix 13D), based on the predicted operational noise levels. The potential for airborne vibration impacts is limited to relatively close proximity to the scheme and if it does occur it tends only to be superficial and whilst it may be noticeable by occupiers, it is very unlikely to cause any structural or even cosmetic damage. The DMRB provides an assessment method (which has been followed) limited to consideration of receptors within 40 metres from the source.	The applicant does not address the potential effects associated with impact noise generated by the interface between the tyre and the gap/interface between the fixed road and the moveable bridge something which is not specifically considered within DMRB. A generic assessment with respect to this issue has been undertaken however the potential impact associated with this interface has not specifically considered within the ES. It is possible that this issue could be addressed at a later stage in the design of the scheme but it is concerning that this has not been highlighted as a potential issue.	Our professional judgement is that given the distances involved between the bridge deck joints and Trinity House, this will simply not be an issue.
15	With the appropriate mitigation in place, including compliance with a full Code of Construction Practice (CoCP), a noise reduction of as much as 10dB can	Noted	No further comment required.

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	be achieved and a level below the Lowest Observed Adverse Effect Level (LOAEL) is anticipated externally to Trinity House. For all other activities predicted construction noise levels with mitigation are anticipated to be below the No Observed Adverse Effect Level (NOEL). Greater information is provided in Table 13-18 of the ES where these conclusions are presented.		
17	WSP is largely in agreement with the predicted noise level changes detailed in Table 4.1 of the PBA report, as associated with the introduction of the scheme. The actual predicted increases are 3.4dB in the long-term on the Waveney Road façade and 9.0dB in the long-term on the rear façade. However, in the case of an office facility, especially a modern facility with a sealed façade etc. (as in this case – see Figure 2 below), external noise level changes are not considered a good reflection of the likely impacts on the facility given that its use is centred on internal operations which benefit from the noise reduction associated with building façade. It is considered more appropriate to consider the resulting internal noise levels in absolute terms. This is confirmed through the approach of the PBA report to seek to determine appropriate internal target criteria and the undertaking of internal noise monitoring at the existing facility.	See response 1 and 4	See general comments above. There needs to be a criterion based on absolute noise levels and not just the change in noise level. The appropriate criterion is that set out in BS 8233 and the BCO guidelines for open plan offices.
16	It is however of note that, after accounting for the predicted noise level changes (which are greatest at the rear façade), the resulting noise levels (in absolute terms) remain considerably lower at the rear façade than those which currently prevail on the front	Given the nature of the office an increase in external noise levels would result in an increase in internal noise levels, regardless of whether the noise is greater at the front or rear facades. NWL remain concerned that changes in internal ambient noise	See general comments above. There needs to be a criterion based on absolute noise levels and not just the change in noise level. The appropriate criterion is that set out in BS 8233 and the BCO

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	façade. It can therefore be concluded that during the operational phase of the Scheme, the internal noise levels on the rear façade will be lower than those which currently prevail on the front façade. It is therefore difficult to argue that Trinity House will be adversely affected	level as a result of increases in external noise levels risk adversely affecting the operation of the call centre.	guidelines for open plan offices.
17	As discussed previously, PBA paused internal noise measurements "to exclude extraneous noise events occurring within the call centre (e.g. door closings, elevated speech)." It is unclear why the decision was made to remove these events given that they form part of the typical noise climate within the call centre. It is assumed therefore that the actual noise levels with call centre activity are significantly higher than reported	See response 5	Noted.
18	Based on the full details of the attended survey within the call centre with general activity, the logarithmic average is 1dB higher than quoted in Table 4.4 of the PBA report, i.e. 52dB LAeq,T.	Noted	No further comment required.
19	These were carried out at various points around the building. At each location a 5-minute measurement period was used and this is not considered of sufficient length to provide a representative figure.	The measurement was deemed representative by the site engineer and is considered appropriate for the purposes detailed.	We disagree.
20	Internal noise levels within the open plan area are broadly similar, (at PBA reference locations A, B,C, G, H), with a range of 35-37dB. Whilst in the stairwell and meeting room the internal noise levels are much lower at 30-31dB. Given the modern design it is unlikely that the sound insulation of the building envelope differs to such a degree and therefore noise levels within the open plan area are likely to be influenced by other internal sources such as air	The meeting room in which the measurements were undertaken had no windows hence the lower measured noise level. In addition, you would expect internal noise levels to be greater in a larger space hence the difference in measured sound levels.	No further comment.

PBA Ref No	WSP Response at Deadline 4	PBA Response	WSP Comment
	conditioning extraction noise.		
21	Measurements E and F were undertaken inside/outside a stairwell (non-sensitive areas) of Trinity House. It is unclear why such internal measurements were undertaken, and these are of little to no value in quantifying the noise environment within areas of the building that are subject to work related activities	These do not form part of the assessment and were included for completeness	Noted.
No number	The noise levels reported or the CRTN measurements within Appendix D of the report appear inaccurate and inconsistent. The quoted LA90 levels are higher than the LA10 levels, and the LAFmax levels are lower than the LAeq levels. This is mathematically impossible and brings into question the accuracy of the reported data.	Typographical error in table headings	Noted.

Appendix B Junction Capacity Assessment based upon Sensitivity Tests

B.1 INTRODUCTION

B.1.1 At the Issue Specific Hearing on 7 March 2019 and in their subsequent submission at Deadline 7, (PINS Ref REP7 – 011) NWL highlighted three unresolved issues following the first and second sensitivity tests which have been undertaken by the Applicant. These are as follows

- Sensitivity tests undertaken so far do not refer to the observed traffic flows on Riverside Road undertaken in December 2018 which recorded higher flows compared to the Applicant's survey data
- The second sensitivity test does not take account of PBA's queries on the visibility splays applied in the PICADY modelling
- The Applicant has not commented upon the chosen junction from with reference to DMRB's TD 42/95 Figure 2/2 guidance

B.1.2 As well as these three issues, it was requested that the Applicant considers the possible effects on the increased levels of traffic flow in the sensitivity tests at the following junctions:

- Junction 6: A12 Tom Crisp Way / A12 Horn Hill / B1531 Waveney Drive / Maconochie Roundabout
- Junction 18: New Roundabout south of the Lake (Riverside Road / Waveney Drive)

B.1.3 NWL advised that the impact of these two sensitivity tests on these roundabouts should be assessed since they were shown to operate at capacity before these sensitivity tests were undertaken.

B.1.4 This note addresses the issues raised by NWL in their submission at Deadline 7. It describes the sensitivity testing carried out to support the latest junction capacity assessments and presents the results of these assessments.

B.2 OBSERVED TRAFFIC FLOW DIFFERENCES

B.2.1 The differences in observed flows on Riverside Road from a comparison of the count carried out in July 2016 and survey carried out in December 2018 were addressed by the Applicant in their response to the oral submission on 7 and 8 March (PINS Ref REP7 – 004).

B.2.2 In REP7 - 004 the Applicant noted that it was misleading for NWL/PBA to compare the flow from the single day count undertaken in July 2016 (commissioned by WSP) with the highest flow observed over the duration of the ATC survey (undertaken on behalf of NWL) in December 2018. A comparison with the average of the observed data (when multiple days of observations have been collected) would be consistent with good modelling practice.

B.2.3 A comparison of the average flows collected by PBA in December 2018 with the single day MCC collected by WSP in July 2016 presented in REP7- 004 showed that the average December 2018 flows were 7% and 14% higher in the AM and PM respectively. The absolute differences in flow totals were 21 and 28 for the AM and PM peak hour. These differences are not considered significant and show the two count data sources are largely consistent.

B.2.4 The Applicant considers that the revised future year forecasts within the sensitivity tests represent a robust estimate of future traffic. However, in order to seek to resolve this issue and assist the Examining Authority come to its own view, the Applicant has included the difference in base traffic counts (i.e. comparing the single July 2016 count and average flow derived from the December 2018 ATC survey) in the capacity assessments that are presented in this Appendix. This uplift in traffic by direction utilised the ATC data commissioned on behalf of NWL that was provided by PBA on 8 March 2019.

B.2.5 Taking account of the differences in the observed base data sources, increases the robustness of the assessment which has been undertaken to assess potential future traffic to/from Riverside Business Park.

B.3 VISIBILITY SPLAYS

B.3.1 These issues were addressed by the Applicant in their response to the oral submission on 7 and 8 March (PINS Ref REP7 – 004).

B.3.2 The Applicant has coded the visibility splays in accordance with PICADY User Guidance. This advises that visibility distances for the minor road are measured from points 10m back from the give-way line on lines bisecting each lane. Visibility to the left is measured from the offside lane to a line bisecting the far major road carriageway. Visibility to the right is an average of the measurements made from each lane to the line bisecting the near major road carriageway. It also noted that for a new junction which is to be constructed to the UK Department's standard, the user may choose to take as input to PICADY, the visibility requirement specified in the standard. In such cases the value input will be the minimum visibility at the junction (as specified by the standard), the actual value (of the built junction) possibly being greater. Hence the resulting capacity will possibly be a slight under-estimate.

B.3.3 The Applicant notes that the junction is being designed in accordance with DMRB guidance (TD 42/95) which requires visibility splays of 90m, which can be accommodated within the land subject to permanent acquisition. The detailed design of the junction is subject to the approval of the County Planning Authority.

B.3.4 The Applicant therefore does not consider than the nominal mismatch in visibility splays between the PICADY input and the proposed design alters the assessment of functionality of the junction.

B.4 JUNCTION FORM AND DMRB

B.4.1 These issues were addressed by the Applicant in their response to the oral submission on 7 and 8 March (PINS Ref REP7 – 004). DMRB guidance (TD42/95) is 20 years old and therefore not current. The capacity assessment using Junctions8 software and based upon peak hour flows provides a much more reliable assessment of the junction capacity and performance.

B.5 REVISED CAPACITY ASSESSMENTS

B.5.1 In the Applicant's response to the oral submission on 7 and 8 March, (PINS Ref REP7 – 004), the application undertook to re-assess the capacity of the following junctions using the flows from the latest strategic model sensitivity test;

- J6 Waveney Drive/A12 Tom Crisp Way
- J7 Waveney Drive/Kirkley Run/Victoria Drive
- J8a, 8b and 8c – A12 Tom Crisp Way / Blackheath Road signalised junction; Kirkley Run / Blackheath Road / Long Road priority junction; and Blackheath Road / Carlton Road priority junction
- J18 Southern Scheme Junction

B.5.2 The Applicant noted in REP7 – 004 that following a review of the junction capacity model for the Southern roundabout for the Scheme (Junction 18) in anticipation of undertaking the sensitivity test, an error was identified whereby the forecast flows from the SATURN model for two arms - the approach from Riverside Road and the approach from Waveney Drive East had been incorrectly input to the Junctions8 capacity model.

B.5.3 The corrected results, that were presented in REP7 – 004, showed that Junction 18 will operate within operational capacity in the 2022 and 2037 scenarios, with a maximum RFC of 0.84 on Waveney Drive WB in the PM Peak in 2037.

B.5.4 The capacity assessment for Junction 18 based upon the sensitivity test has therefore been evaluated against the corrected results for Junction 18 as described above.

B.5.5 Capacity assessments have been carried out for the four junctions identified in paragraph B.5.1 above. These tests continue to reflect the assumptions in the previous sensitivity tests (See Appendix H of REP4-014 and Appendix A of REP7-004), namely:

- The scale and phasing of development within the Kirkley Waterfront development (including Riverside Business Park) has been reviewed
- traffic has been constrained on Kirkley Run

B.5.6 Additionally, two further adjustments to the traffic demand have been made:

- Adjustment to include the 'uplift' to the base flows to/from Riverside Business Park which result from the differences between the December 2018 ATC data and July 2016 MCC data.
- Increase in flows to take account of the impact of the Variable Demand Model

B.5.7 The sensitivity tests which have been carried out to assess the capacity of the New Access Road Junction (in Appendix A of REP7–004) did not take account of the Variable Demand Model (VDM). A VDM procedure was however utilised for the traffic flows in the Transport Assessment (REP3-056). VDM is a process by which the demand for travel is responsive to changes in travel costs. The change in travel cost between the 'With Scheme' and 'Without Scheme' assignments are therefore used to estimate the change in demand. The reduction in travel costs associated with the Scheme results in 'induced' traffic i.e. additional traffic is included in the 'With Scheme' assignments which is not present in the 'Without Scheme' assignments.

B.5.8 For the purpose of the initial sensitivity tests undertaken to assess the revised assumptions at Riverside Business Park, it was deemed appropriate to use a fixed demand approach. This was considered proportionate given the focus was to assess the impact of an increase in the volume of traffic to/from the Business Park on the operation of the Waveney Drive ghost priority junction. It was not considered proportionate to have adopted the VDM process for the initial sensitivity tests given the significant amount of processing time required to undertake this and the localised nature of the assessment. However, since an assessment beyond the Access Road Junction in now presented, the impact of induced demand from the LLTC scheme which results from the VDM had been included for the capacity assessments presented in this note to add to its robustness.

B.5.9 As an alternative to running the full VDM process, a pragmatic approach to the application of VDM has been adopted. This is based upon calculating the percentage difference in overall junction flow between the 'fixed demand' and 'VDM' assignments which inform the Transport Assessment (REP3-056) and applying this change to the junction turning movements in the sensitivity test modelling.

B.6 RESULTS OF CAPACITY ASSESSMENTS

B.6.1 The results of the capacity assessments carried out for the four junctions identified in paragraph B.5.1 are presented below. The following should be noted:

- Junction 6 – this is compared against the results in the revised Transport Assessment (PINS Ref REP3 – 056).
- Junction 7 – this is compared against the revised assessment of this junction in Junctions 9 software as set out in the appendix of the Statement of Common Ground with the local authorities (REP4-011). Junctions 9 software is used for this junction as it features a revised mini-roundabout model.
- Junction 8 - this is compared against the results in the revised Transport Assessment (PINS Ref REP3 – 056).
- Junction 18 – this is compared against the results in the revised assessment of this roundabout as set out in the Applicant's Deadline 7 submissions (PINS ref REP7-004)

B.6.2 It should be noted that the traffic flows underpinning the assessments presented below (and in the Transport Assessment) take account of the proposed left in/left out access for Lings on Waveney Drive. It therefore includes any associated U turning traffic movements at both the Southern Roundabout (Junction 18) and A12 Tom Crisp Way/Waveney Drive (Junction 6) using the Lings access. It is noted that there are no proposals to facilitate the use of this access for vehicles from Nexen.

B.6.3 While revised capacity assessments have been prepared for the 2016 Base Year, Do Minimum and Do Something scenarios, the results and analysis presented below are for the 'With Scheme' (Do Something) scenario assessments.

Junction 6 – A12 Tom Crisp Way / A12 Horn Hill / B1531 Waveney Drive / Maconochie Way roundabout

B.6.4 Table 1 contains the TA results for Junction 6 with the sensitivity test results shown in Table 2.

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
A12 Horn Hill	0.57	3.98	0.36	3.63	11.64	0.79
Maconochie Way	0.04	4.62	0.04	0.07	8.72	0.07
A12 Tom Crisp Way	2.93	7.93	0.75	1.49	5.51	0.60
B1531 Waveney Drive	2.64	7.56	0.73	1.27	4.08	0.56
	2037 DS					
A12 Horn Hill	0.73	4.54	0.42	7.10	20.64	0.89
Maconochie Way	0.05	5.18	0.05	0.10	10.95	0.09
A12 Tom Crisp Way	4.01	10.38	0.80	2.03	6.96	0.67
B1531 Waveney Drive	5.09	13.09	0.84	1.41	4.41	0.59

Table 1: Junction 6 - TA results

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
A12 Horn Hill	0.64	4.57	0.39	3.50	11.30	0.78
Maconochie Way	0.04	5.29	0.04	0.08	9.82	0.08
A12 Tom Crisp Way	4.69	12.11	0.83	1.42	5.20	0.59
B1531 Waveney Drive	3.17	9.23	0.76	1.24	3.94	0.56
	2037 DS					
A12 Horn Hill	0.95	5.83	0.49	8.74	25.63	0.91
Maconochie Way	0.06	6.53	0.06	0.14	14.08	0.12
A12 Tom Crisp Way	10.40	25.58	0.92	2.12	6.98	0.68
B1531 Waveney Drive	16.53	40.14	0.96	1.62	4.69	0.62

Table 2: Junction 6 - Sensitivity test results

B.6.5 Table 2 demonstrates that based upon the predicted flows from the sensitivity test, the junction would operate within operational capacity (RFC of <0.85) in 2022. In 2037 AM peak, using the sensitivity test flows, the junction exceeds operational capacity on B1531 Waveney Drive and A12 Tom Crisp Way. In 2037 PM Peak, the junction is predicted to be above operational capacity on the approach from A12 Horn Hill with an RFC of 0.91 which is similar to the assessment reported in the TA.

B.6.6 As noted above, it is only in 2037 where the junction exceeds operational capacity, though remains within theoretical capacity. It should also be reinforced that this scenario is the culmination of a number of onerous assumptions with respect to projections of traffic growth as set out earlier in this report. As such having regard to the likelihood of the situation arising and duration of the associated delays in the overall context of the benefits that the Scheme would still deliver, the Applicant considers that no mitigation measures need be specified at this time (having regard to the general duty of the highway authority to monitor the performance of its network).

Junction 7 – B1531 Victoria Road / B1531 Waveney Drive / Kirkley Run mini roundabout

B.6.7 Table 3 presents the results for Junction 7 using the forecasts prepared for the TA but using Junctions 9 software. The results based upon the sensitivity tests forecasts are presented in Table 4.

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
B1531 Waveney Drive	0.70	7.02	0.42	34.50	130.96	1.05
Kirkley Run	2.30	18.58	0.71	1.50	18.95	0.61
B1531 Victoria Road	1.50	10.46	0.61	0.60	5.57	0.36
	2037 DS					
B1531 Waveney Drive	1.00	8.43	0.51	151.10	620.07	1.29
Kirkley Run	4.70	34.00	0.84	2.90	31.08	0.76
B1531 Victoria Road	3.80	21.36	0.80	0.80	6.49	0.44

Table 3: Junction 7 - TA forecasts using Junctions9 software

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
B1531 Waveney Drive	0.60	6.70	0.38	13.70	61.90	0.96
Kirkley Run	0.80	10.14	0.45	1.00	17.39	0.50
B1531 Victoria Road	1.80	10.60	0.64	0.50	5.16	0.33
	2037 DS					
B1531 Waveney Drive	2.30	13.57	0.70	218.00	850.22	1.37
Kirkley Run	2.30	23.61	0.71	1.90	28.07	0.66
B1531 Victoria Road	20.40	80.04	0.99	1.10	7.49	0.52

Table 4: Junction 7 - Sensitivity test forecasts using Junctions9 software

B.6.9 Table 4 shows that in 2022, based upon the sensitivity test forecasts, the junction would operate within theoretical capacity in the PM Peak with an RFC of 0.96 on the Waveney Drive arm, which reduces from 1.05 based upon the previously TA forecast flows. All other approaches operate well within operational capacity in 2022, with a significant improvement shown on Kirkley Run in the AM Peak with the RFC reducing from 0.71 to 0.45. This is due to the constraining of traffic on Kirkley Run.

B.6.10 In the 2037 AM Peak, the operation of Victoria Road is shown to worsen with the RFC increasing from 0.80 to 0.99 with the sensitivity test forecasts. There is a corresponding improvement on Kirkley Run however, with the RFC reducing from 0.84 to 0.71. In the PM Peak Waveney Drive continues to operate above actual capacity with an RFC of 1.37.

B.6.11 It should be reinforced, again, that this scenario is the culmination of a number of onerous assumptions with respect to projections of traffic growth and in this case is particularly relevant given the immediate vicinity of the development sites to which these assumptions have been applied. Furthermore, as noted in the Statement of Common Ground with the local authorities (REP4-011), in reference to the assessment replicated in Table 3, above, the highway authority set out it did not consider that the performance of this junction resulted in a significant impact on overall journey times and hence the predicted queuing at this junction needed to be seen in that context. It was therefore agreed that this junction would be monitored by the highway authority on a regular basis after Scheme opening, with due consideration given to the necessity of mitigation measures to reduce queuing. The Applicant notes that possible mitigation measures are set out in section 9.3 of the Transport Assessment (REP3 – 056).

Junction 8a, 8b and 8c – A12 Tom Crisp Way / Blackheath Road signalised junction; Kirkley Run / Blackheath Road / Long Road priority junction; and Blackheath Road / Carlton Road priority junction

B.6.12 Table 5 and Table 6 present the AM Peak results for the TA and sensitivity test forecasts respectively. Table 7 and Table8 present respectively the TA and sensitivity test results for the PM peak.

	2022 DS		2037 DS	
	DoS	MMQ	DoS	MMQ
J1: A12 Tom Crisp Way SB Left/Ahead	60.50%	11.5	74.00%	14.7
J1: A12 Tom Crisp Way SB Ahead/Right	63.7 : 63.7%	12.1	76.2 : 76.2%	15.5
J1: Blackheath Road WB Right Left/Ahead	79.6 : 79.6%	10.4	83.8 : 83.8%	12.4
J1: A12 Tom Crisp Way NB Ahead/Left	78.20%	17.2	83.30%	18.7
J1: A12 Tom Crisp Way NB Ahead/Right	79.6 : 79.6%	17.8	84.6 : 84.6%	19.3
J1: Blackheath Road EB Left Ahead/Right	79.0 : 79.0%	6.9	85.2 : 85.2%	8.2
J2: Long Road Left Ahead	8.80%	0.0	10.60%	0.1
J2: Kirkley Run Right Left	7.80%	0.0	8.90%	0.0
J2: Blackheath Road WB Ahead/Right	8.7 : 8.7%	0.0	9.1 : 9.1%	0.1
J3: Carlton Road Left Ahead	13.10%	0.1	14.80%	0.1
J3: Blackheath Road NB Right/Left	11.1 : 11.1%	0.1	12.7 : 12.7%	0.1
J3: Blackheath Road EB Ahead/Right	14.8 : 14.8%	0.1	16.9 : 16.9%	0.1

Table 5: Junctions 8a, 8b and 8c - TA results (AM Peak)

	2022 DS		2037 DS	
	DoS	MMQ	DoS	MMQ
J1: A12 Tom Crisp Way SB Left/Ahead	65.80%	13.2	80.60%	17.1
J1: A12 Tom Crisp Way SB Ahead/Right	68.4 : 68.4%	14.2	82.2 : 82.2%	18.2
J1: Blackheath Road WB Right Left/Ahead	80.0 : 80.0%	9.8	89.7 : 89.7%	13.6
J1: A12 Tom Crisp Way NB Ahead/Left	77.80%	17.8	90.40%	22.8
J1: A12 Tom Crisp Way NB Ahead/Right	79.4 : 79.4%	18.3	91.1 : 91.1%	23.5
J1: Blackheath Road EB Left Ahead/Right	76.2 : 76.2%	6.4	90.9 : 90.9%	10.9
J2: Long Road Left Ahead	5.20%	0.0	6.40%	0.0
J2: Kirkley Run Right Left	8.10%	0.0	13.10%	0.1
J2: Blackheath Road WB Ahead/Right	7.1 : 7.1%	0.0	9.8 : 9.8%	0.1
J3: Carlton Road Left Ahead	12.00%	0.1	14.00%	0.1
J3: Blackheath Road NB Right/Left	9.4 : 9.4%	0.1	11.8 : 11.8%	0.1
J3: Blackheath Road EB Ahead/Right	17.7 : 17.7%	0.1	21.4 : 21.4%	0.1

Table 6: Junctions 8a, 8b and 8c - Sensitivity test results (AM Peak)

	2022 DS		2037 DS	
	DoS	MMQ	DoS	MMQ
J1: A12 Tom Crisp Way SB Left/Ahead	92.90%	23.5	100.00%	31.8
J1: A12 Tom Crisp Way SB Ahead/Right	93.6 : 93.6%	24.8	100.1 : 100.1%	33.4
J1: Blackheath Road WB Right Left/Ahead	93.8 : 93.8%	17.3	101.8 : 101.8%	27.5
J1: A12 Tom Crisp Way NB Ahead/Left	54.00%	9.7	59.50%	10.9
J1: A12 Tom Crisp Way NB Ahead/Right	61.2 : 60.3%	10.6	66.6 : 63.9%	11.9
J1: Blackheath Road EB Left Ahead/Right	89.4 : 89.4%	9.5	98.2 : 98.2%	13.3
J2: Long Road Left Ahead	5.80%	0.0	6.30%	0.0
J2: Kirkley Run Right Left	17.00%	0.1	19.80%	0.1
J2: Blackheath Road WB Ahead/Right	18.0 : 18.0%	0.1	19.1 : 19.0%	0.1
J3: Carlton Road Left Ahead	17.80%	0.1	19.80%	0.1
J3: Blackheath Road NB Right/Left	8.9 : 8.9%	0.0	10.9 : 10.9%	0.1
J3: Blackheath Road EB Ahead/Right	23.1 : 23.1%	0.2	25.1 : 25.1%	0.2

Table 7: Junctions 8a, 8b and 8c - TA results (PM Peak)

	2022 DS		2037 DS	
	DoS	MMQ	DoS	MMQ
J1: A12 Tom Crisp Way SB Left/Ahead	85.30%	21.3	104.90%	44.8
J1: A12 Tom Crisp Way SB Ahead/Right	86.4 : 86.4%	22.1	104.9 : 104.9%	47.6
J1: Blackheath Road WB Right Left/Ahead	84.1 : 84.1%	11.0	105.7 : 105.7%	36.1
J1: A12 Tom Crisp Way NB Ahead/Left	53.90%	10.6	65.20%	12.5
J1: A12 Tom Crisp Way NB Ahead/Right	60.3 : 60.3%	11.3	70.6 : 69.4%	13.5
J1: Blackheath Road EB Left Ahead/Right	86.5 : 0.0%	7.6	97.0 : 0.0%	11.7
J2: Long Road Left Ahead	3.70%	0.0	4.60%	0.0
J2: Kirkley Run Right Left	8.90%	0.0	12.00%	0.1
J2: Blackheath Road WB Ahead/Right	13.3 : 13.3%	0.1	16.9 : 16.9%	0.1
J3: Carlton Road Left Ahead	13.40%	0.1	18.40%	0.1
J3: Blackheath Road NB Right/Left	8.9 : 8.9%	0.0	15.9 : 15.9%	0.1
J3: Blackheath Road EB Ahead/Right	20.7 : 20.7%	0.1	23.1 : 23.1%	0.2

Table 8: Junctions 8a, 8b and 8c - Sensitivity test results (PM Peak)

B.6.13 Tables 5 and 6 demonstrate that in 2022, all three junctions would operate within operational capacity within the AM peak (DoS of <90%) based upon the TA and sensitivity test forecasts. In 2037 AM peak, the approaches from A12 Tom Crisp Way NB and Blackheath Road EB are predicted to reach operational capacity based upon the sensitivity test forecasts.

B.6.14 Tables 7 and 8 demonstrates that in the PM Peak, the sensitivity test forecasts result in a slight increase in capacity on A12 Tom Crisp Way SB and Blackheath Road WB in 2022 with a reduction of the DoS from 93 to 85. However, by 2037, the sensitivity test assessment results in reduction in capacity on A12 Tom Crisp Way SB and Blackheath Road WB, where the DoS increases from 100 to 105 in 2037.

B.6.15 Requirement 12 (a) of the draft DCO requires the installation of equipment to adapt traffic signals at this junction prior to opening of the Scheme. This has been agreed with the highway authority (see REP4-011). The Highway Authority will also monitor the performance of this junction and consider the need for improvements, having regard to future junction performance. The results presented above do not reflect the benefit of the mitigation measures secured by the DCO. However as set out in the Transport Assessment (paragraph 7.5.39) when signal optimisation was applied to this junction in the VISSIM modelling, journey times improved. Paragraph 9.4.2. of the Transport Assessment explains that MOVA can typically create benefits of c.10% additional capacity from a junction.

Junction 18 – New roundabout south of the Lake

B.6.16 In the Applicant's response to the oral submission on 7th and 8th March, (PINS Ref REP7 – 004), it was noted that an error with the input flows had been identified at this junction. Revised results were presented based upon corrected flow inputs that replace those presented in the revised TA. The capacity assessments based upon the sensitivity test forecast flows have therefore been compared against this revised assessment.

B.6.17 The results for the revised assessment using the TA forecasts are presented in Table 9. The results for the assessment based upon the sensitivity test forecast flows are presented in Table 10.

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
Riverside Road	1.50	4.43	0.60	1.98	5.03	0.67
Waveney Drive WB	1.14	3.86	0.53	2.54	7.01	0.72
Waveney Drive EB	1.26	6.13	0.56	0.82	5.08	0.45
	2037 DS					
Riverside Road	2.22	5.93	0.69	2.91	6.75	0.75
Waveney Drive WB	1.42	4.46	0.59	4.89	12.67	0.84
Waveney Drive EB	2.57	10.07	0.72	1.19	6.31	0.55

Table 9: Junction 18 - Corrected flow assignment results

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
Riverside Road	1.50	4.55	0.59	1.80	4.76	0.64
Waveney Drive WB	1.35	4.25	0.56	2.49	6.69	0.71
Waveney Drive EB	1.29	6.26	0.55	0.67	4.83	0.40
	2037 DS					
Riverside Road	2.99	7.92	0.74	3.49	8.04	0.78
Waveney Drive WB	2.08	5.80	0.67	6.39	15.98	0.87
Waveney Drive EB	7.56	24.92	0.89	1.63	7.76	0.62

Table 30: Junction 18 - Sensitivity test results

B.6.18 The results demonstrate that Junction 18 would operate within operational capacity in 2022 based upon the sensitivity test forecast flows. In 2037, there is an increase in the RFC on Waveney Drive EB in the AM peak, from 0.72 to 0.89 with the sensitivity test flows. In the PM peak, the RFC increases on Waveney Drive WB from 0.84 to 0.87 using the sensitivity test forecast flows.

B.6.19 As noted above, it is only in 2037 where the junction exceeds operational capacity, though remains within theoretical capacity. It should also be reinforced that this scenario is the culmination of a number of onerous assumptions with respect to projections of traffic growth as set out earlier in this report. As such having regard to the likelihood of the situation arising and duration of the associated delays in the overall context of the benefits that the Scheme would still deliver, the Applicant considers that no changes are required to this junction design.

B.7 REVISED CAPACITY ASSESSMENT OF NEW ACCESS ROAD GHOST RIGHT TURN JUNCTION

B.7.1 As noted in paragraphs B.5.5, the sensitivity test forecasts were revised to include the 'uplift' to the base flows to/from Riverside Business Park and to take account of the impact of induced traffic from the Variable Demand procedure. A further assessment has therefore been carried out for the Access Road junction in order to take account of the revisions to the sensitivity test forecasts.

B.7.2 The results of the capacity assessment from the TA are presented in Table 41 with the results based upon the latest sensitivity test presented in Table 52.

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
New Access Road Right Turn	0.06	6.80	0.05	0.20	7.28	0.17
New Access Road Left Turn	0.04	12.24	0.04	0.29	13.86	0.22
Waveney Drive WB	0.20	7.90	0.17	0.03	5.60	0.03
	2037 DS					
New Access Road Right Turn	0.08	7.75	0.07	0.27	8.10	0.22
New Access Road Left Turn	0.06	15.97	0.06	0.39	18.19	0.28
Waveney Drive WB	0.27	9.41	0.21	0.03	5.82	0.03

Table 41: Junction 22 - TA results

Arm	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2022 DS					
New Access Road Right Turn	0.18	8.00	0.14	0.29	7.69	0.22
New Access Road Left Turn	0.11	15.16	0.10	0.37	13.99	0.27
Waveney Drive WB	0.63	10.40	0.38	0.10	5.98	0.09
	2037 DS					
New Access Road Right Turn	0.87	14.65	0.46	1.07	14.43	0.52
New Access Road Left Turn	0.23	35.19	0.19	1.01	34.83	0.51
Waveney Drive WB	3.03	29.14	0.77	0.45	8.30	0.30

Table 52: Junction 22 - Sensitivity test results

B.7.3 Tables 11 and 12 demonstrate that while the sensitivity test forecasts result in an increase in the RFC's on all approaches, the junction would nevertheless operate well within operational capacity with a maximum RFC of 0.77 on Waveney Drive WB in the 2037 AM Peak.