Fosse Green Energy

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EN010154

6.1 Environmental Statement

Chapter 13: Traffic and Transport

VOLUME

6

Planning Act 2008 (as amended)

Regulation 5(2)(a)

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

18 July 2025

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulation 2009 (as amended)

Fosse Green Energy

Development Consent Order 202[ ]

6.1 Environmental Statement

Chapter 13: Traffic and Transport

Regulation Reference	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	EN010154
Application Document Reference	EN010154/APP/6.1
Author	Fosse Green Energy Limited

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Rev 1	18 July 2025	DCO Submission

Table of Contents

Tables

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulation 2009 (as amended)

Fosse Green Energy

Development Consent Order 202[ ]

6.1 Environmental Statement

Chapter 14: Other Environmental Topics

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13. Traffic and Transport

13.1 Introduction

13.1.1 This chapter of the Environmental Statement (ES) presents the findings of an assessment of the likely significant effects from Traffic and Transport due to the Proposed Development. For more details about the Proposed Development, refer to **Chapter 3: The Proposed Development** of this ES **[EN010154/APP/6.1]**.

13.1.2 This chapter identifies and proposes measures to address the potential impacts and likely significant effects of the Proposed Development on Traffic and Transport during the construction, operation, and decommissioning phases of the Proposed Development. The chapter assesses the Proposed Development based on a worst-case scenario with regards to the information available at the time of writing.

13.1.3 This chapter is supported by the following appendices **[EN010154/APP/6.3]**:

a. **Appendix 1-B: EIA Scoping Opinion;**
b. **Appendix 13-A: Traffic and Transport Policy and Legislation**;
c. **Appendix 13-B: Transport Scoping Presentation and Meeting Minutes**;
d. **Appendix 13-C: Traffic and Transport Significance Assessment Summary**;
e. **Appendix 13-D: Receptor Traffic Flow Tables**; and,
f. **Appendix 13-E: Transport Assessment Note**.

13.1.4 This chapter is supported by the following figures **[EN010154/APP/6.2]**:

a. **Figure 3-1: Construction Compound and Access Locations**;
b. **Figure 3-2A: Indicative Fixed South Facing Site Layout Plan**;
c. **Figure 3-2B: Indicative Single Axis Tracker Site Layout Plan**;
d. **Figure 3-3: Proposed Permissive Paths**;
e. **Figure 12-1: 60-minute Drive Time from the Site Boundary**;
f. **Figure 13-1: Traffic and Transport Study Area**;
g. **Figure 13-2: Existing Walking and Cycling Network**;
h. **Figure 13-3: Traffic Survey Locations**;
i. **Figure 13-4: Heavy Goods Vehicle (HGV) Routing**;
j. **Figure 13-5: Abnormal Indivisible Load (AIL) Routing**;
k. **Figure 13-6: Traffic Construction Zones;**
l. **Figure 15-3: Short List of Cumulative Developments**; and,

m. **Figure 15-4: Solar Nationally Significant Infrastructure Projects in Relation to the Proposed Development**.

13.1.5 This chapter is supported by the following Volume 7 documents:

a. **Framework Construction Traffic Management Plan (CTMP) [EN010154/APP/7.18];**

b. **Framework Public Rights of Way Management Plan (PRoW-MP) [EN010154/APP/7.14];**

c. **Framework Construction Environmental Management Plan (CEMP) [EN010154/APP/7.7];** and

d. **Framework Decommissioning Environmental Management Plan (DEMP) [EN010154/APP/7.9].**

13.2 Legislation and Planning Policy

13.2.1 There are several policies that relate to how Traffic and Transport related impacts should be assessed, in terms of identifying both the level of impact of the Proposed Development and any necessary mitigation.

13.2.2 Planning policy and guidance which relates to transport (there is no relevant transport legislation) and is relevant to the Proposed Development is reviewed and provided within **Appendix 13-A: Traffic and Transport Legislation and Policy [EN010154/APP/6.3]**.

13.2.3 Tables setting out how and where relevant elements of the above national and local planning policies (in terms of Traffic and Transport) are addressed in this ES chapter are also set out within **Appendix 13-A [EN010154/APP/6.3]**.

13.3 Consultation

13.3.1 A scoping exercise was undertaken in June 2023 to establish the content, approach and method of the EIA. A request for an EIA Scoping Opinion was issued to the Secretary of State through the Planning Inspectorate in June 2023. Comments received in the EIA Scoping Opinion (**Appendix 1-B [EN010154/APP/6.3]**), and Applicant responses including in relation to the Traffic and Transport assessment are summarised below in **Table 13-1**.

Table 13-1: Scoping Opinion Responses (Traffic and Transport)

Consultee	Summary of comment	How matter has been addressed	Location of response
PINS	Hazardous and dangerous loads (3.7.1) – to be scoped in, the ES should provide the number and composition of any hazardous loads, review the risk of accidents and describe any safety measures	There are not expected to be any hazardous and dangerous loads associated with the Proposed Development, therefore the assessment of these has been scoped out of the ES. Nonetheless, the risk of accidents has been considered and assessed in relation to 'large' loads in **Section 13.7**.	**Section 13.7** of this ES Chapter.
PINS	Operational traffic (3.7.2) – to be scoped out, subject to the provision of information regarding maintenance visits, consideration of the IEMA thresholds and any cumulative traffic effects	Operational Traffic and Transport effects remain scoped out following the provision of relevant information regarding maintenance visits, consideration of IEMA thresholds and cumulative traffic effects outlined in **Section 13.7**. The Proposed Development is expected to attract a low level of vehicle trips during the operational phase, i.e. no more than 15 vehicle arrivals and 15 vehicle departures daily (30 two- way daily movements), therefore the operational traffic is not expected to result in a significant impact on the surrounding highway network.	**Section 13.7** of this ES Chapter.
PINS	Standalone Travel Plan (3.7.3) – to be scoped out, mitigation and management of construction staff will be detailed within the **Framework CTMP**. The ES should identify the necessary (traffic and transport) mitigation measures and how these will be secured (through the DCO or other legal mechanism).	A standalone Travel Plan has been scoped out. The **Framework CTMP** includes measures regarding the management of construction staff. Details regarding Embedded Mitigation are set out in **Section 13.6** of this document.	**Section 13.6** of this ES Chapter sets out the embedded mitigation measures that have been incorporated into the Proposed Development design. Also, see the **Framework Construction Traffic Management Plan (CTMP) [EN010154/APP/7.18]**

Consultee	Summary of comment	How matter has been addressed	Location of response
			which details the mitigation and management of construction staff
PINS	Decommissioning traffic (3.7.4) – to be scoped in, with an outline decommissioning travel plan [details relating to decommissioning] to be included within the ES	The decommissioning effects of the Proposed Development are expected to be of a similar (or lesser) magnitude to the construction phase effects. On this basis, the construction period is expected to have the greatest change on the surrounding transport network. Therefore, the likely impacts of the Proposed Development during the decommissioning phase (as well as any mitigation) have been based on the assessment of the construction phase. Any mitigation to be implemented during the construction and decommissioning phases will be secured through the DCO, including through the **Framework CTMP [EN010154/APP/7.18]**, **Framework Public Rights of Way Management Plan (PRoW-MP) [EN010154/APP/7.14], Construction Environmental Management Plan [EN010154/APP/7.7]** and **Framework Decommissioning Environmental Management Plan [EN010154/APP/7.9]**. The decommissioning period is expected to be similar in duration and nature to the construction phase, albeit with fewer vehicle trips over a slightly shorter duration. In addition, this scenario is considered to be too far into the future to be able to accurately predict traffic flows or road/ junction layouts at that time. It is therefore considered reasonable to assume that the traffic flows during the decommissioning phase will be the same as, or not greater than, the construction phase. This may overestimate the actual impacts slightly, but it is considered to be broadly accurate and robust. The impact would therefore be less than during the construction phase, but for the purposes of	**Section 13.6** of this ES Chapter sets out the embedded mitigation measures that have been incorporated into the Proposed Development design and **Section 13.7**of this ES Chapter discusses the likely impacts and effects.

Consultee	Summary of comment	How matter has been addressed	Location of response
		the assessment it has been conservatively assumed that the impacts are the same, and therefore range between negligible and minor significance, which is not significant.	
PINS	Assessment guidelines (3.7.5) – to be based on the new IEMA guidance on the Environmental Assessment of Traffic and Movement (July 2023).	This ES Traffic and Transport Chapter is based on the new IEMA guidance on the Environmental Assessment of Traffic and Movement (July 2023).	See **Section 13.**4 of this ES Chapter which discusses the IEMA guidelines and assessment criteria. Also, see the **Framework CTMP [EN010154/APP/7.18]** which details the mitigation and management of construction staff.
Coleby Parish Council	Highways and Byways: in one section of the scoping report, there is mention of the rural roads across the proposed site and the relevant cliff villages area being 'relatively quiet'. These roads are not relatively quiet, they are rural roads – a web of links between communities and farms, used by residents, farm traffic, delivery vehicles, and at times, others. When these narrow roads are closed even for short periods of time due to necessary road works, the knock-on effect is massive in the surrounding areas, loading those roads with extra	This ES Traffic and Transport Chapter sets out the proposed construction routing as well as the proposed construction traffic management during the construction phase. Appropriate routing of vehicles and HGVs will be adopted to minimise the impact on more sensitive and rural roads. This approach was discussed and agreed with the LHAs in the Transport scoping meetings in December 2023 and March 2025. It is assumed that construction traffic will adopt the most appropriate routes to and from the Principal Site via the A46 and for the Cable Corridor via the A15 from the east. Road closures will be avoided where possible, and if required, limited to short durations and distances to minimise any impacts. Further details on how roads will be managed to mitigate	See **Section 13.6** of this ES Chapter. Also, see the **Framework CTMP [EN010154/APP/7.18]** which details the potential road closures required along the Cable Corridor to undertake open cut trenching along the cable alignment.

Consultee	Summary of comment	How matter has been addressed	Location of response
	traffic. A small increase has a more profound effect on rural roads.	impacts are set out in the **Framework CTMP [EN010154/APP/7.18]**.	
North Kesteven District Council	Paragraph 14.3.6 notes that it is likely that components would be transported from one of the local (unnamed) ports and that as part of the PEIR Stage, an initial access feasibility assessment will be undertaken to determine the potential access route(s) for delivering these components to the Solar and Energy Storage Park via the Strategic Road Network (SRN) and local roads. If Felixstowe is likely to be used then the ES should include cumulative impacts of component delivery along with the Heckington, Springwell and Beacon Fen solar NSIPs which are also likely to use the A17 and A15	An Access Appraisal was undertaken at the PEI Report Stage (Appendix 13-E of the PEI Report) which then supported the development of **Figure 13-4** and **Figure 13-5 [EN010154/APP/6.2]** which set out the proposed HGV and AIL routing as well as showing the access locations. Points for consideration for the construction traffic management include: 1) Road closures will be avoided where possible, and if required, limited to short durations to minimise any impacts. 2) Traffic surveys have been carried out to determine baseline traffic levels across the local highway network, including any rural roads which will be used during the construction phase, to allow any potential impacts to be assessed. 3) The assessment includes a review of proportional increases in traffic levels on the surrounding highway network to determine potential impacts. 4) potential impacts on PRoW, such as potential crossing points or temporary diversions have been considered and assessed, with any mitigation identified within the **Framework CTMP [EN010154/APP/7.18]** and **Framework PRoW-MP[EN010154/APP/7.14]**. A cumulative assessment has been undertaken based on the expected routing of construction traffic and the agreed short-list of schemes.	**Section 13.4** and **13.7** of this ES Chapter and Figure 13-4 **[EN010154/APP/6.2].** Also, see the **Framework CTMP [EN010154/APP/7.18]** which details the potential road closures required along the Cable Corridor.
North Kesteven	Paragraphs 14.3.8 and 14.3.9 refer to the three potential corridors being explored for the grid connection, namely northern, central and southern. The	The potential access route(s) for the delivery of components has been reviewed and the central route had been taken forward, further assessed and specified as part of the **Framework CTMP [EN010154/APP/7.18]**. The Environmental Statement also	See HGV routing plan in **Figure 13-4 [EN010154/APP/6.2]**

Consultee	Summary of comment	How matter has been addressed	Location of response
District Council	Scoping Report confirms connection into a new National Grid substation in the 'Navenby area' but which is outside the scope of the proposed DCO. Cumulative transport considerations should therefore include (primarily construction) impacts of the preferred cable connection route along with the new National Grid substation and Springwell solar farm; specifically the 'Springwell West' zone.	includes a cumulative assessment of other Proposed Developments in the area, including Springwell Solar Farm and the proposed National Grid substation near Navenby where available environmental information allows.	
North Kesteven District Council	Cumulative construction effects should include any unimplemented areas of Phase 3 of the Witham St Hughs development along with the North Hykeham Relief Road. The applicant should also agree the scope with National Highways, to possibly include the A46 Newark Bypass improvement Proposed Development.	Details of the approach to a cumulative assessment are included in **Section 13.10.** The ES includes a cumulative assessment of other Proposed Developments in the study area. The list of cumulative Proposed Developments for review has been agreed with the Local Highway Authorities (LHAs) and with National Highways (NH) to discuss any proposed or ongoing Proposed Developments within the vicinity of the site.	**Section 13.10** of this ES Chapter, as well as **Figure 13-4** and **13-5 [EN010154/APP/6.2]** and **Framework CTMP [EN010154/APP/7.18]**
Lincolnshire County Council	A chapter on Transport and Traffic (Chapter 14), as well as a Transport Statement, **Framework CTMP** and Travel Plan will be produced. Standard methodology is proposed for these documents, the operation and de-commissioning phases are to be scoped out (since the impacts will be less than construction). This is an acceptable approach for operation but not for de-commissioning which is the reverse of	As assessment of Operational Traffic and Transport effects has been scoped out as agreed. As identified within the Scoping Report, the decommissioning effects of the Proposed Development are expected to be of a similar (or lesser) magnitude to the construction effects. On this basis, the construction period is expected to have the greatest impact on the surrounding transport network. Therefore, rather than scoping out an assessment of the decommissioning phase, the likely impacts of the Proposed Development during the decommissioning phase (as well as any mitigation) has been based on the assessment of the construction phase. Any mitigation to be implemented during the construction and	**Section 13.4** of this Chapter.

Consultee	Summary of comment	How matter has been addressed	Location of response
	the construction phase and so impacts could be significant.	decommissioning phases will be secured through the Development Consent Order (DCO), including through the **Framework CTMP [EN010154/APP/7.18]**, **Framework PRoW-MP [EN010154/APP/7.14, Framework CEMP [EN010154/APP/7.7]** and **Framework DEMP [EN010154/APP/7.9]**.	
West Lindsey District Council	It would be welcomed if the Environment Report provided detail on any use and impact on the highway network in West Lindsey.	The Proposed Development is not expected to have an impact on the highway network in West Lindsey, with the site being located approximately 10km south of the district boundary. The trips associated with the construction phase and the results of the assessment are set in **Section 13.7**.	**Section 13.7** of this Chapter sets out the assessment of likely impacts and effects related to the Proposed Development.

13.3.2 Further consultation in response to formal pre-application engagement was undertaken through the Preliminary Environmental Information (PEI) Report, issued in October 2024. **Table 13-2** outlines the statutory consultation responses relating to the Traffic and Transport assessment and how these have been addressed through this ES chapter as well as the corresponding documents. The **Potential Main Issues for Examination [EN010154/APP/7.11]**, **Consultation Report [EN010154/APP/5.1]** and **Consultation Report Appendices [EN010154/APP/5.2]** provide further detailed responses, as relevant, to the feedback received during statutory consultation.

Table 13-2: Statutory Consultation Responses (Traffic and Transport)

Consultee	Summary of comment	How matter has been addressed	Location of response
Lincolnshire County Council	The methodology and assessment set out within Chapter 13 is appropriate and the scale of traffic impact in terms of construction trips and distribution seems reasonable. LCC notes that the assessment is based upon embedded mitigation measures which would encourage staff to use sustainable modes of transport, restrict HGV routes and other measures (13.6.1). This would be controlled by a Construction Environmental Management Plan (CEMP) which will need to be conditioned and to be enforced, ensuring the proposal is delivered in accordance with the plan and should, for example, keep most of the construction traffic scheduled outside of peak network hours. LCC wishes to raise concern with the routing for HGVs accessing C-019 on a single lane track from the A15. The vehicle numbers for the cable corridor are not provided and will be assessed in detail in the ES (13.7.51), however given this is a single-track road, passing places may be necessary. LCC would suggest access via C-018 should be used instead.	Assessment and methodology has been confirmed and outlined in this chapter, as well as the embedded mitigation measures. The HGV routing has also been finalised, and the forecast vehicle numbers for both the Principal Site and Cable Corridor are detailed in this chapter. It should also be noted that access C-019 has been moved from the unnamed road south of Green Man Road to Green Man Road, and that this new location has been agreed with LCC highways.	See **Sections 13.6,13.7and 13.8**of this ES chapter, as well as HGV routing plan presented in **Figure 13-4 [EN010154/APP/6.2]**. See also the **Framework CEMP [EN010154/APP/7.7]** and **Framework CTMP [EN010154/APP/7.18].**
North Kesteven District Council	The Council supports the comments made by Lincolnshire County Council on traffic and transport matters. We would draw your attention to the narrow width and poor condition of the central section of Clay Lane. It is noted that two construction access points are located at either end of Clay Lane close to Bassingham and Norton Disney where the road is in better condition. We would be concerned if it was proposed that construction and decommissioning traffic were to travel between the two access points via the central section of Clay Lane which is narrow and in poor	The construction access points on Clay Lane (C-011, C-012) are located on the northern extents of the road (Bassingham) and avoid the central section of Clay Lane also. HGV usage along Clay Lane has been limited as far	See HGV routing plan in **Figure 13-4 [EN010154/APP/6.2]** Details of the swept path analysis are included in the **Framework CTMP [EN010154/APP/7.18]** as well as Annex A, B and C of the **Framework CTMP [EN010154/APP/7.18].**

Consultee	Summary of comment	How matter has been addressed	Location of response
	condition. We note from Figure 13.4 'Heavy Goods Vehicle (HGV) Routing' that this route is not proposed for use by HGV. However, the Figure suggests that Bridge Road and Butts Lane via Haddington and parts of Aubourn will be used by HGV traffic associated with construction activities in the area served by construction access C-009. These are narrow rural roads and their suitability for use must be demonstrated through swept path analysis as necessary and informed by LCC as Highway Authority.	possible and replaced by Light Goods Vehicle (LGVs). The routes along Bridge Road and Butts Lane have been reviewed and subjected to a swept path analysis (see **Annex C** of the **Framework CTMP**) and are suitable for HGVs to use with the road currently being used by HGVs.	HGV routing has also been agreed with the LCC Highways during the latest meeting, see **Appendix 13-B [EN010154/APP/6.3].**
National Highways	The growth factors proposed for the 2032 model have been extracted from the TEMPro database. Different factors have been provided for AM peak, PM peak, average weekday, average day and for each different road type. In addition, different factors have been used to factor up the DfT data from 2022 and the traffic counts from 2023. We are content with this approach and accept the factors provided.	Noted, three different survey years have been used for the assessment (2022, 2023 and 2025), which have each been factored up to the future baseline year of 2032 using growth factors extracted from TEMPro as agreed.	**Section 13.4**and **13.5**of this chapter.
National Highways	Further details about the proposed minibus service, including trip distribution figures, should be provided for review. Additionally, we request further clarification on how these measures will be implemented in practice to ensure that construction worker traffic impacts on the SRN are not underestimated. Further to this, based on our independent checks we would expect a different modal	Details regarding the proposed minibus service, trip distribution and the construction staff vehicle split have been reviewed and confirmed for the assessment	**Section 13.6and 13.7**of this ES chapter which sets out the embedded mitigation measures of the Proposed Development as well as the assessment of likely impacts and effects.

Consultee	Summary of comment	How matter has been addressed	Location of response
	split than that proposed in Table 13-15. Therefore, National Highways requests further information and evidence on the reference site used for this assumption for our review.	as part of the last meeting with NH held in March 2025.	Also, distribution and staff vehicle split was discussed during the latest meeting, see **Appendix 13-B [EN010154/APP/6.3]** and no additional comments were raised.
National Highways	The report estimates a daily peak of 25 LGVs and 50 HGVs associated with the Principal Site, with 12 LGVs and 16 HGVs related to the Cable Corridor works, all using the local highway network. For the Cable Corridor works, it is estimated that there will be two HGVs during the AM peak and three HGVs during the PM peak. However, it is unclear whether these represent one-way or two-way trips. For the Principal Site, 10 two-way trips are expected during the AM peak and nine two way trips during the PM peak. Waste removal during construction is estimated to require up to 400 HGV loads over 12 months, averaging just over one HGV load per day (two-way trips). "	Forecast two-way trips (arrivals and departures) have been clearly detailed within the ES chapter.	**Section 13.7**of this ES chapter.
National Highways	To assess potential impacts on SRN junctions, HGV trip generation should be broken down into hourly two-way trips, with an assessment of how these trips will affect SRN junctions. Additionally, to understand which route(s) to the site will be most utilised, we need to see evidence of how HGVs and non-HGVs will be distributed across the SRN (A46). National Highways acknowledges that for trip distribution calculations, HGV movements have been spread across a 12-hour window (7am–7pm). We also note the commitment in Section 13.7.2 that HGV movements will be managed to avoid peak network hours (8am–9am and 5pm–6pm). We support this approach and	Forecast HGV trips have been broken down into hourly two-way trips, and the distribution of HGV and non-HGV trips along the SRN (A46) split across different routes dependent on where the works across the Principal Site are taking places, different zones utilise different vehicle routing. The HGV trip window has been adjusted to eight hours	**Section 13.7**of this chapter.

Consultee	Summary of comment	How matter has been addressed	Location of response
	welcome a commitment to ensure deliveries to the site are managed outside of peak network hours, thus minimising the impact on the A46.	(09:00-17:00) so that no trips occur within the SRN during the traditional AM and PM network peaks. However, during the assessed AM and PM development peaks, our assessment also indicates that there are Negligible impacts for all link and junction receptors in the SRN.	
National Highways	Both construction and operational access are proposed from the local road network, which provides access to the primary and secondary construction compounds (12 in total). These proposed access points are a sufficient distant from the Strategic Road Network (SRN), so no direct impacts on the SRN are anticipated.	Noted, construction accesses have been confirmed and are outlined in this ES chapter.	See the **Framework CTMP [EN010154/APP/7.18]** for further details.
National Highways	During the initial meeting on 15 November 2024, a direct access from the A46 trunk road via an existing access was highlighted. This access would replace construction site access C-004. No further details of the access have been provided, but from our preliminary review, the proposed access layout does not comply with the Design Manual for Roads and Bridges (DMRB) requirements. Specifically, the current design does not prevent vehicles from turning right out of the site onto the A46 carriageway, which poses a safety risk to motorists on the SRN.	The Proposed Development no longer includes any direct access points from the A46.	**Section 13.4**of this chapter.
National Highways	In addition, National Highways' policy and operational preference is for development traffic to use the local road network access points, as proposed in the PEIR. These	As above, the Proposed Development no longer includes any direct access	**Section 13.4**of this ES chapter.

Consultee	Summary of comment	How matter has been addressed	Location of response
	access points provide access to the A46 Fosse Lane/Haddington Lane grade-separated junction, which is of a higher design standard and provides safer access to both A46 carriageways.	points from the A46. Access points will utilise the local road network, where vehicles will use the A46 and the A46 Fosse Lane/ Haddington Lane grade-separated junction.	
National Highways	We understand that a Framework Construction Traffic Management Plan (CTMP) and a Framework Construction Environmental Management Plan (CEMP) will be provided with further details on activities related to the management of traffic, noise, and use of land, as part of the DCO application. National Highways welcomes this approach and looks forward to receiving further information. The CTMP should include the following details at a minimum: Hours of working; date works will commence & anticipated completion date/ duration. Anticipated average two-way daily traffic numbers associated with the construction phase of the project. Confirmation of the intended construction access arrangements to and from the site from the A46 trunk road. The arrangements for routing of construction vehicles to and from the site. Details of any special or abnormal deliveries or vehicular movements utilising the SRN. Site Contact Details responsible for ensuring Health & Safety and handling of complaints.	A **Framework CTMP [EN010154/APP/7.18]** has been produced which includes all the information requested.	See the **Framework CTMP [EN010154/APP/7.18].**
National Highways	As part of Fosse Green proposals, it is estimated that there will be a requirement for Abnormal Indivisible Loads (AILs), categorised in the PEIR report as Large Loads. The routing of any AILs needs to be considered, both at the A46 Fosse Lane/Haddington Lane compact grade-separated junction and along the SRN network. We look	AIL routing has been confirmed and is detailed within this chapter as well as the **Framework CTMP [EN010154/APP/7.18].**	**Section 13.7**of this ES chapter and **Figure 13-5 [EN010154/APP/6.2**] which sets out the AIL routing as well as the **Framework CTMP [EN010154/APP/7.18].**

Consultee	Summary of comment	How matter has been addressed	Location of response
	forward to receiving the routing of the abnormal loads within the transport assessment. Arrangements for transporting abnormal loads via National Highways network can be made by contacting abnormal.loads@nationalhighways.co.uk		
National Highways	It is advised that further evidence be presented to demonstrate how construction trip generation has been estimated and distributed on the SRN. We have noted that based on the trip distribution provided, there are currently expected to be more than 30 extra trips at A46 East and West of the Halfway House roundabout; A46 East of Fosse Lane and at the A46 slip roads with Fosse Lane. However, the report concludes that no significant effects are expected at these sites. We disagree with this statement and welcome further information to ensure the impacts on the SRN are considered. To further understand the impacts on the A46 junctions, namely the Halfway House roundabout and Fosse Lane / Old Haddington Lane Junction we would welcome further information regarding trip distribution, modal splits, and assessment of potential impacts on the proposed accesses in close proximity to these junctions. National Highways would expect to be consulted on a Traffic Flow Diagram, this will inform if a junction capacity assessment is required to determine whether mitigation is needed. Additionally, we would welcome further engagement to agree on the methodology to assess cumulative impacts during the peak construction period	Further commentary and analysis on trip generation and distribution and the modal split (in particular the A46) is presented within the ES chapter and supporting appendices which includes traffic flow diagrams for the whole study area. Details related to the cumulative assessment have been agreed with LCC.	See **Section 13.4**and **13.7**of this ES chapter, as well **as Appendix 13-C: Traffic and Transport Significance Assessment Summary [EN010154/APP/6.2]** and **Appendix 13-D: Receptor Traffic Flow Tables [EN010154/APP/6.2].** Also, **Section 13.10**of this ES chapter sets out the cumulative assessment.

13.3.1 Additional engagement has been undertaken with key stakeholders including LCC, NH and NKDC during the transport update meeting on 7 March 2025. This meeting reviewed the statutory consultation comments and how these would be addressed as part of the ES assessment. In addition, an updated approach for the trip distribution for the Principal Site, which has been based on a zonal approach to provide a robust overview of the build-out stage of the Proposed Development was also agreed.

13.3.2 A summary of this additional engagement is presented in **Table 13-3**.

Table 13-3: Additional Engagement (Traffic and Transport)

Consultee	Date / Method	Summary of Consultation
LCC Highways and PRoW Officers, NH and NKDC	07/03/2025 (MS Teams)	Addressing Statutory Consultation feedback and agreeing certain assumptions on the methodology for the Traffic and Transport assessment.
LCC Highways	28/02/2025 (MS Teams)	Meeting to discuss access design and agree on the visibility splays and vegetation removal for all the proposed access points within the Proposed Development.

13.4 Assessment Methodology

13.4.1 This section sets out the ES scope and methodology for the Traffic and Transport assessment of the Proposed Development.

Study Area

13.4.2 The Study Area has been defined to include areas of the highways and Public Rights of Way (PRoW) networks which, based on professional judgement and experience of other similar solar Nationally Significant Infrastructure Projects (NSIPs), are considered to be Traffic and Transport features which could potentially be impacted by the Proposed Development.

13.4.3 The Study Area is shown on **Figure 13-1 [EN010154/APP/6.2]** and has been discussed and agreed with the local authorities. The Study Area includes an area beyond the Principal Site and beyond the northern and southern extents of the Cable Corridor, as well as a section of the A15 to the east of the Proposed Development.

13.4.4 The Study Area was discussed with Lincolnshire County Council (LCC), National Highways (NH) and North Kesteven District Council (NKDC) during the transport scoping meeting on 13 December 2023 and was subsequently extended both north along the A46 (to include the North Hykeham

Roundabout) and south along the A15 towards the proposed Springwell DCO Solar Farm.

13.4.5 Consideration has been given to a number of links and junctions within the surrounding highway network which could potentially be impacted by trips associated with the Proposed Development and have therefore been chosen as receptors. Analysis of two-way traffic flows at these receptors has formed the basis of this assessment.

13.4.6 Traffic flow data for each receptor has been taken from one of the following sources:

a. Automatic Traffic Count (ATC) surveys conducted in November 2023;
b. Manual Classified Count (MCC) surveys conducted in November 2023;
c. Automatic Traffic Count (ATC) surveys conducted in February 2025;
d. Manual Classified Count (MCC) surveys conducted in February 2025;
e. DfT Manual Traffic Counts conducted in 2022 and 2023 (latest data available).

13.4.7 It should be noted that the surveys undertaken in November 2023 were commissioned for the PEI Report, whilst the February 2025 surveys were commissioned for the ES stage. All baseline traffic flows have been scaled to the same future baseline year using the TEMPro factors shown in **Table 13-19**.

13.4.8 **Table 13-4** and **Table 13-5** show the link and junction receptors which have been considered as part of this assessment. The locations of the respective traffic surveys which provide the traffic flow data for these receptors are shown in **Figure 13-3 [EN010154/APP/6.2]**.

Table 13-4: Local Link Receptors

ID	Link Name/Description	Survey Source	Survey Source Date	Part of Network
L1	A46 west of Halfway House Roundabout	DfT	2023	Principal Site
L2	Halfway House Lane	MCC1	Nov 2023	Principal Site
L3	The Avenue	ATC12	Nov 2023	Principal Site
L4	A46 east of Halfway House Roundabout	MCC1	Nov 2023	Principal Site
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	MCC2	Nov 2023	Principal Site
L6	Fosse Lane (north of Haddington Lane)	ATC1	Nov 2023	Principal Site
L7	Old Haddington Lane (between Haddington Lane and A46)	MCC3	Nov 2023	Principal Site
L8	A46 east of Fosse Lane	DfT	2023	Principal Site
L9	Haddington Lane (south of Old Haddington Lane)	ATC2	Nov 2023	Principal Site

ID	Link Name/Description	Survey Source	Survey Source Date	Part of Network
L10	Stone Lane	MCC4	Nov 2023	Principal Site
L11	South Hykeham Road	DfT	2023	Principal Site
L12	Church Road (east of Bassingham Road)	MCC5	Nov 2023	Principal Site
L13	Bassingham Road (southwest of Bridge Road)	MCC5	Nov 2023	Principal Site
L14	Haddington Lane (south of Dovecote Lane)	ATC3	Nov 2023	Principal Site
L15	Norton Lane	MCC7	Nov 2023	Principal Site
L16	Moor Lane	ATC5	Nov 2023	Principal Site
L17	Bassingham Road (between Moor Lane and Clay Lane)	MCC6	Nov 2023	Principal Site
L18	Clay Lane	ATC6	Nov 2023	Principal Site
L19	Unnamed Road (south of Halfway House Roundabout)	MCC1	Nov 2023	Principal Site
L20	Fosse Lane (between A46 and Haddington Lane)	MCC2	Nov 2023	Principal Site
L21	Broughton Lane (south of Hill Rise)	ATC7	Nov 2023	Cable Corridor
L22	Hill Rise	ATC14	Nov 2023	Cable Corridor
L23	Broughton Lane (north of Hill Rise)	ATC101	Feb 2025	Cable Corridor
L24	Blackmoor Road	ATC102	Feb 2025	Cable Corridor
L25	B1178 Tower Lane	ATC103	Feb 2025	Cable Corridor
L26	A15 Sleaford Road (between Tower Lane and Heath Lane)	ATC104	Feb 2025	Cable Corridor
L27	A15 Sleaford Road (between Heath Lane and Green Man Road)	DfT	2022	Cable Corridor
L28	A15 Sleaford Road (between Green Man Road and Unnamed Road)	ATC11	Nov 2023	Cable Corridor
L29	Green Man Road	ATC10	Nov 2023	Cable Corridor
L30	Unnamed Road between A15 Sleaford Road and High Dike	ATC106	Feb 2025	Cable Corridor
L31	Heath Lane	ATC9	Nov 2023	Cable Corridor
L32	A607 Grantham Road (south of Coleby)	ATC8	Nov 2023	Cable Corridor
L33	A607 Grantham Road (north of Coleby)	MCC101	Feb 2025	Cable Corridor
L34	Fen Lane	ATC112	Feb 2025	Cable Corridor

ID	Link Name/Description	Survey Source	Survey Source Date	Part of Network
L35	Clay Lane (north of Main Street)	ATC110	Feb 2025	Principal Site
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	ATC108	Feb 2025	Principal Site

Table 13-5: Local Junction Receptors

ID	Junction Name/Description	Survey Source	Survey Source Date	Part of Network
J1	Halfway House Roundabout – A46 (N)/ Unnamed Road/ A46 (S)/ Halfway House Lane	MCC1	Nov 2023	Principal Site
J2	Haddington Lane/ Fosse Lane (north of the A46)	MCC2	Nov 2023	Principal Site
J3	North Hykeham Roundabout – A46 (N)/ Newark Road/ A46 (S)/ Middle Lane;	MCC3	Nov 2023	Principal Site
J4	Haddington Lane (N)/ Butts Lane/ Haddington Lane (S)/ Stone Lane;	MCC4	Nov 2023	Principal Site
J5	Bridge Road/ Church Road/ Bassingham Road	MCC5	Nov 2023	Principal Site
J6	Haddington Lane/ Bassingham Road/ Moor Lane	MCC6	Nov 2023	Principal Site
J7	Unnamed Road towards Witham St Hughs/ Moor Lane/ Norton Lane	MCC7	Nov 2023	Principal Site
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	DfT	2023	-
J9	A607 / White Lane / Church Lane	MCC101	Feb 2025	Cable Corridor
J10	B1178 Tower Lane / A15 Sleaford Road	MCC102	Feb 2025	Cable Corridor
J11	A15 Sleaford Road / Metheringham Heath Lane / Heath Lane	MCC103	Feb 2025	Cable Corridor
J12	A15 Sleaford Road / Green Man Road	MCC104	Feb 2025	Cable Corridor

Proposed Access Arrangements

13.4.9 There are expected to be 13 proposed access points for the Principal Site and seven access points for the Cable Corridor during the construction phase, as well as seven operational and three emergency access points,

which have been listed in **Table 13-6** below. and set out in **Figure 3-1 [EN010154/APP/6.2]**.

Table 13-6: Site Accesses

Access Ref.	Access Name	Site Location	Further information
C-001	Fosse Lane (East)	Principal Site	Access to the ecological offsetting area, no construction trips proposed.
C-002	Fosse Lane (West)	Principal Site	-
C-003	Haddington Lane (North)	Principal Site	-
C-004	The Avenue	Principal Site	-
C-005	Stone Lane	Principal Site	Crossover access only (not utilising Stone Lane as an access road)
C-006	Haddington Lane (East)	Principal Site	-
C-007	Haddington Lane (West)	Principal Site	-
C-008	Moor Lane	Principal Site	-
C-009	Bassingham Road	Principal Site	Centralised BESS access as well as to access C-013
C-010	Lincoln Road	Principal Site	-
C-011	Clay Lane (North West)	Principal Site	Limited HGV usage
C-012	Clay Lane (North East)	Principal Site	No HGV trips proposed
C-013	Fen Lane	Cable Corridor	Access proposed to be only utilised in a situation where the haul road running from the centralised BESS access (C-009) is compromised and therefore not providing any other alternative access to C-013 Cable Corridor compound
C-014	Broughton Lane	Cable Corridor	-
C-015	Hill Rise	Cable Corridor	-
C-016	Rose Cottage Lane (West)	Cable Corridor	-
C-017	Rose Cottage Lane (East)	Cable Corridor	-
C-018	Green Man Road (North)	Cable Corridor	-

Access Ref.	Access Name	Site Location	Further information
C-019	Green Man Road (South)	Cable Corridor	-
C-020	Haddington Lane (North)	Principal Site	Interconnecting Cable Access
E-001	Morton Lane	Principal Site	Emergency access only
E-002	Bassingham Road (West)	Principal Site	Emergency access only
E-003	Aubourn Moor	Principal Site	Emergency access only
O-001	Clay Lane	Principal Site	Operational access only
O-002	Fosse Lane	Principal Site	Operational access only
O-003	Haddington Lane	Principal Site	Operational access only
O-004	Moor Lane	Principal Site	Operational access only
O-005	Fen Lane (East)	Principal Site	Operational access only
O-006	Fen Lane (West)	Principal Site	Operational access only
O-007	Clay Lane (Norton Disney)	Principal Site	Operational access only

13.4.10 It should be noted that other than for indivisible loads, HGVs will not use accesses C-011 or C-012 owing to the unsuitability of the local roads in the vicinity of these accesses to accommodate HGVs. Therefore, HGVs associated with these two access points will travel to access C-008, where their loads will be transferred onto LGVs for onward delivery to accesses C-011 and C-012. However, it is noted that 28 singular HGV deliveries will need to be made to C-011 to accommodate the delivery of transformers to this parcel throughout construction, as it will not be possible to transport these indivisible loads on smaller LGV loads. These HGV deliveries will be managed accordingly in order to limit their impact on this part of the network.

13.4.11 All Principal Site accesses used during the construction phase will remain open for operational access. During the operational phase, activity on-site will be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing (including battery maintenance), replacement of any components that fail, and monitoring to ensure the continued effective operation of the Proposed Development. The majority of routine visits during the operational phase will be via vans and four-wheel drive vehicles.

13.4.12 The Cable Corridor access points will be reinstated to original land use upon completion of the construction works.

Sources of Baseline Information

13.4.13 The following sources of information have been used to inform the baseline and assessment presented within this chapter:

a. An initial set of traffic counts across the surrounding highway network (21 locations) was undertaken in November 2023 for the PEI Report, as well as a further set of traffic counts (17 locations) in February 2025 for this ES assessment. The Transport Scoping Presentation contained within **Appendix 13-B [EN010154/APP/6.3]** as well as **Figure 13-3 [EN010154/APP/6.2]** provides further details of the survey specification and locations;

b. Baseline traffic data obtained for the A46 and South Hykeham Road based on Department for Transport (DfT) traffic counts to supplement the above;

c. Traffic growth has been calculated using National Road Traffic Forecast (NRTF) growth factors and by applying National Transport Model (NTM) adjustments within the Trip Ends Model Program (TEMPro) (Ref 13-16) using National Trip Ends Model (NTEM) dataset v8.1 and the NRTP 2022 Core dataset;

d. Local travel and network information gathered from various sources including local rail and bus operators;

e. Personal Injury Accident (PIA) data from LCC for the highway network in the Study Area of the Proposed Development. This Study Area has been reviewed and agreed with LCC, NH, and NKDC (see above);

f. Ordnance Survey (OS) Base Mapping to ascertain an accurate geographical representation of the areas in the Study Area of the Proposed Development;

g. The construction staff distribution has been informed by:

   i. 2021 Census data (TS060 – Industry dataset) to identify the approximate origins of residents who work within the construction industry and live within a 60-minute catchment of the site. Whilst it is acknowledged that this dataset was collected during the COVID-19 pandemic, this represents the latest information currently available and has only been used to identify where construction workers could be expected to travel from rather than other aspects pertaining to their travel patterns;

h. Route planning software, such as Google Maps, to inform the review of the most direct and functional routes to the Principal Site, based on the points of origin (above) and the proposed access points for the Proposed Development.

Scope of the Assessment

Assessment Scenarios

13.4.14 The nature of the proposal is such that the greatest impact is likely to occur during the construction and decommissioning phases. The construction of the Proposed Development is anticipated to take place over a 24-month period, or 30 months if phased, between 2031 and 2033, with peak construction expected to occur in 2032.

13.4.15 The assessment scenario is based on a 24-month programme which is expected to constitute the most rapid and as a result most robust build-out, and therefore generate the highest predicted daily road trips; a slower or phased construction programme would generate the same or lower daily impacts. In order to determine the likely effects of the Proposed Development, and in view of the above, the following scenarios have been considered:

a. Baseline (2022, 2023 & 2025) – AM, PM and Daily; and

b. Peak Construction Year (2032) With and Without Development – AM, PM and Daily.

13.4.16 The baseline reporting sets out the existing conditions within the Study Area against which the construction impacts have then been assessed.

13.4.17 It is not considered that the conclusions of this ES Chapter would change in the instance that the start of construction is delayed. For example, other cumulative Proposed Developments may have been completed by the time the Proposed Development construction begins, which would elevate the trips on the local road network in the future baseline. As the assessment criteria is predominantly based on a percentage change of vehicle numbers, higher baseline flows would reduce the proportional impact that the Proposed Development has on the road network. This would therefore reduce or maintain the levels of effect presented in this chapter.

13.4.18 As above, the decommissioning assessment year is assumed to be 2093 (60 years from commissioning) which is considered to be too far into the future to accurately predict traffic flows or junction forms. Therefore, the assessment of the construction phase has been used to determine the anticipated impact of the Proposed Development during its decommissioning phase. This is likely to overestimate decommissioning impacts, which is expected to be shorter in duration and to have fewer road trips than during construction.

Impact Assessment Methodology

Key Principles

13.4.19 The assessment methodology adopted in this ES Report has been informed by the 2023 IEMA Guidelines (Ref 13-7). The guidelines outline the assessment criteria and the respective changes in volume and composition of traffic which should be considered when assessing potential traffic and transport impacts. The following criteria has been considered in this assessment:

a. Severance of communities;
b. Pedestrian Delay (incorporating delay to all non-motorised users);
c. Non-Motorised User Amenity;
d. Fear and Intimidation on and by road users;
e. Road vehicle driver and passenger delay;
f. Road user and pedestrian safety; and
g. Large loads.

13.4.20 There are not expected to be any Hazardous and Dangerous Loads associated with the Proposed Development e.g. vehicles transporting explosives, oxidising/ toxic substances, radioactive material or corrosive substances. Therefore, Hazardous and Dangerous Loads have not been considered further in this assessment.

13.4.21 Through the EIA Scoping process, the Planning Inspectorate has agreed that the potential impacts listed above do not need to be considered in detail during the operation (and maintenance) phase as part of the EIA for the Proposed Development. The potential impacts listed above for the construction and decommissioning phases are therefore not considered further for the operation (and maintenance) phase as part of the ES.

13.4.22 As agreed in the transport scoping presentation (**Appendix 13-B [EN010154/APP/6.3]**), an initial screening process of links and junctions has been conducted to identify receptors which record hourly traffic flow increases of less than 30 vehicles per hour as a result of the Proposed Development. Receptors which do not meet this 30-vehicle threshold have been screened out and have not been further included in this assessment.

13.4.23 In addition to this, to avoid potentially misleading percentage impacts being identified as a result of very low baseline flows, a movement rule has been considered against the baseline hourly flows to allow the magnitude of impact to be downgraded by one category if the following conditions are met:

a. A High or Medium magnitude has initially been attributed to the Proposed Development;

And at least one of the following:

b. fewer than 100 vehicles use the receptor per hour;
c. fewer than 600 vehicles use the receptor over 12 hours; or
d. fewer than 1200 vehicles use the receptor over 24 hours.

13.4.24 These movement limits equate to fewer than two vehicles per minute for the hourly thresholds and fewer than one vehicle per minute for the 12 and 24-hourly thresholds.

13.4.25 Magnitudes which have been manually adjusted in this way for each assessment category are detailed in **Section 13.7**.

13.4.26 In addition to the above, for the development peak hour assessments, where a 'High' or 'Medium' magnitude has initially been identified based on the assessment criteria, this has been downgraded by a single category when total traffic levels including construction traffic for the relevant receptor fall below baseline levels (without construction traffic) at other times of the day i.e. higher traffic levels are already experienced on the network without the Proposed Development (so the impact as a result of the Proposed Development is expected to be lower).

13.4.27 The type of traffic which is anticipated to be generated by the Proposed Development has been categorised as follows: primarily general traffic, LGVs, HGVs and Abnormal Indivisible Loads (AILs). The vehicle routing and movements associated with the construction of the Proposed Development have been considered and discussed through consultation with LCC and National Highways (including as part of the updated transport meeting dated 7 March 2025, where no specific concerns were raised).

13.4.28 The receptors which may be impacted upon have been identified based on the locations and volumes of the proposed construction traffic i.e. the forecast increase in vehicle movements across the network. This has been completed by identifying the percentage increases in vehicular activity along the identified construction routes when compared to recent traffic count data (factored up to the future baseline year of 2032) for road links and junctions within the traffic and transport Study Area.

13.4.29 Typically, when assessing the impacts of traffic effects, there are a range of particular groups and locations which may be sensitive to changes in traffic conditions compliant with the criteria previously outlined.

13.4.30 These are outlined in the 2023 IEMA Guidance (Ref 13-7) as 'Affected Parties', as follows:

a. People at home;
b. People at work;
c. Sensitive and/or vulnerable groups (including young age, older age, income, health status, social disadvantage and access and geographic factors);
d. Locations with concentrations of vulnerable users (e.g. hospitals, places of worship and schools);
e. Retail areas;
f. Recreational areas;
g. Tourist attractions;
h. Collisions clusters and routes with road safety concerns; and
i. Junctions and highway links at (or over) capacity.

13.4.31 As a general rule, the forecast changes to baseline (magnitude of change), the relative value/sensitivity/importance of the affected receptor and the scale, nature and significance of the effect (consequence) should be considered. In

addition, the anticipated effect should be classified as short-term, medium-term or long-term, as well as permanent or temporary.

Sensitivity

13.4.32 The general criteria for defining the importance or sensitivity of receptors are set out in **Table 13-7**, which applies to the assessment of Severance, Pedestrian Delay, Non-Motorised User Amenity, and Fear and Intimidation. Key factors influencing this include:

a. The value of the receptor or resource based upon empirical and/or intrinsic factors, for example considering any legal or policy protection afforded which is indicative of the receptor or resources' value internationally, nationally or locally; and

b. The sensitivity of the receptor or resource to change, for example is the receptor likely to acclimatise to the change. This will consider legal and policy thresholds which are indicative of the ability of the resources to absorb change.

Table 13-7: Sensitivity / Value Criteria for Severance, Pedestrian Delay, Non-Motorised User Amenity, and Fear and Intimidation

Sensitivity / Value	Sensitivity / Value Criteria
High	Road Links and Junctions: More than two sensitive users present (e.g. schools, play areas, care/retirement homes, residential streets with properties on both sides of the carriageway, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Heavily trafficked highway with on-road pedestrian/cycle route
Medium	Road Links and Junctions: Two sensitive users present (e.g. schools, play areas, care/retirement homes, residential streets with properties on both sides of the carriageway, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Lightly trafficked highway with on-road pedestrian/cycle route
Low	Road Links and Junctions (at least one of the following): • One sensitive user present (e.g. schools, play areas, care/retirement homes, residential streets with properties on both sides of the carriageway, hospitals, places of worship, historic buildings) • Many residential properties with direct frontage to highway link being used as construction route • Pedestrians using footways, PRoW and/or crossings on highway link • Cyclists using on-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Heavily trafficked highway with off-road pedestrian/cycle route
Very Low	Road Links and Junctions: No sensitive users or receptors along link, or at least one of the following: • Few residential properties with direct frontage to the highway link being used as a construction traffic route

Sensitivity / Value	Sensitivity / Value Criteria
	• Workplaces with direct frontage to highway link being used as construction route • Cyclists using off-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Pedestrian/cycle route not running alongside highway, or lightly trafficked highway with off-road pedestrian/cycle route

13.4.33 The general criteria for defining the importance or sensitivity of receptors for the assessment of Driver Delay are set out in **Table 13-8.**

Table 13-8: Sensitivity / Value Criteria for Driver Delay

Sensitivity / Value	Sensitivity / Value Criteria
High	Road Links: Not applicable Road Junctions: Roundabout or signalised junction (at least four arms) within a built-up area. Significant queuing (10+ vehicles) on 2+ arms.
Medium	Road Links: Key local route within a built-up area Road Junctions: Roundabout or signalised junction (at least four arms) outside of a built-up area. Significant queuing (10+ vehicles) on 1-2 arms and/ or moderate queuing (5-9 vehicles) on 3-4 arms.
Low	Road Links: Strategic route within a built-up area OR a local route outside of a built-up area Road Junctions: Roundabout or signalised junction (fewer than four arms) outside of a built-up area OR a priority junction within a built-up area. Moderate queuing (5-9 vehicles) on 1-2 arms and/ or low queuing (3-4 vehicles) on 3-4 arms.
Very Low	Road Links: Strategic route outside of a built-up area OR a minor/ local no-through route Road Junctions: Priority junction outside of a built-up area. Low queuing (3-4 vehicles) on 1-2 arms and/ or no queuing at the junction.

13.4.34 The preliminary criteria for defining the importance or sensitivity of road link and road junction receptors for the assessment of Road Safety and Large Loads are set out in **Table 13-9**.

Table 13-9: Sensitivity / Value Criteria for Road Safety and Large Loads

Sensitivity / Value	Road Safety	Large Loads
High	Road Links and Road Junctions: 10+ collisions in five years, or more than three serious and/ or one fatal collision in five years	Road Links and Road Junctions: 5+ serious/ fatal collisions (or more than one fatal collision) involving a goods vehicle (>3.5 tonnes) in five years
Medium	Road Links and Road Junctions: 5-9 collisions (with up to three serious	Road Links and Road Junctions: 3-4 serious/ fatal collisions (with up to

Sensitivity / Value	Road Safety	Large Loads
	collisions and/ or one fatal collision) in five years	one fatal collision) involving a goods vehicle (>3.5 tonnes) in five years
Low	Road Links and Road Junctions: 3-4 collisions in five years (with up to one serious collision and no fatal collisions) in five years	Road Links and Road Junctions: 1-2 serious collisions (with no fatal collisions) involving a goods vehicle (>3.5 tonnes) in five years
Very low	Road Links and Road Junctions: Fewer than three collisions (with no serious or fatal collisions) in five years	Road Links and Road Junctions: No serious or fatal collisions involving a goods vehicle (>3.5 tonnes) in five years

13.4.35 The collision rate for road links has also been calculated and compared with national road safety statistics provided within Road Casualties for Great Britain (Ref 13-17). Receptors which recorded collision rates much higher than the national average have been subjected to a manual review to determine whether their sensitivity value requires adjustment.

13.4.36 The levels of sensitivity which have been attributed to the receptors based on the information presented above are summarised in **Section 13.7** and within **Appendix 13-D [EN010154/APP/6.3]**.

Magnitude

13.4.37 As identified within the 2023 IEMA guidelines (Ref 13-7), the magnitude of each impact represents the level of change from the baseline conditions.

13.4.38 This assessment considers a range of potential effects that could be experienced during the construction stage of the Proposed Development and this section identifies how magnitude will be considered for each.

13.4.39 **Severance** is defined in the IEMA Guidelines (Ref 13-7) as the *"perceived division that can occur within a community when it becomes separated by major traffic infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure"*. The guidelines state that changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. However, caution should be observed when applying these thresholds to very low baseline flows which are unlikely to experience severance impacts even with high percentage changes in traffic.

13.4.40 **Pedestrian Delay** (incorporating delay to all non-motorised users) is considered to be affected by the changes in volume, composition or speed of traffic, in terms of their respective impacts on the ability of pedestrians to cross roads. The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing

roads. In general, increases in traffic levels and/or traffic speeds are likely to lead to greater increases in pedestrian delay.

13.4.41 **Non-Motorised User Amenity** is broadly defined as "*the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic"*. The guidance suggests that a tentative threshold for judging the significance of changes in non-motorised user amenity would be where the traffic flow (or HGV component) is halved or doubled.

13.4.42 **Fear and Intimidation** occurs through a combination of traffic flow, speed, proportion of HGVs and the proximity of traffic to people. These indicators are often heightened by a perceived lack of protection or buffers from the highway or through narrow or non-existent footways. The assessment considers each road on a case-by-case basis, however there are thresholds provided in the 2023 IEMA Guidelines (Ref 13-7) which are presented in **Table 13-11**.

13.4.43 **Driver Delay** is an effect cited in the 2023 IEMA Guidelines (Ref 13-7) and relates to incremental increases in traffic (as outlined in **Table 13-10**). However, traffic delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. As a further consideration, where any temporary road closures or traffic management is likely to be in place to enable the construction of the Proposed Development, any additional potential delay caused by these resultant diversion routes has been reported.

13.4.44 **Road Safety** considers Personal Injury Accident (PIA) data obtained for the most recent five-year period available at identified junctions and links along the proposed construction traffic routes in the Study Area. The sensitivity of discrete areas of the highway network can then be determined following a detailed review of the baseline characteristics including the collision rate and any collision clusters. This has been used to assess whether the additional traffic during construction of the Proposed Development would be likely to have a detrimental effect on road safety.

13.4.45 With regard to **Large Loads**, the guidance states that appropriate routes for abnormal load movements should be considered, with mitigation strategies to secure safe passage. As part of the Proposed Development, there will be the requirement for abnormal loads which are categorised as Large Loads.

13.4.46 In view of the above, the impacts of Large Loads have been considered, in the form of a qualitative risk assessment to establish the likelihood and extent of such effects. The projected impacts of the Proposed Development have been measured separately, dependent upon the receptor, for the construction period. The **Framework CTMP [EN010154/APP/7.18]** includes details of measures which will be employed to ensure the safe vehicular transport of components to and from the Proposed Development.

13.4.47 **Table 13-10** and **Table 13-11** summarise the criteria that have been used to assess the magnitude of effect (based on increases i.e. 'adverse' effects), along with the thresholds that have been used to determine whether effects are considered high, medium, low or very low. Depending on the baseline

information available, the various thresholds identified for the proportional increases in traffic flow relate to peak hour flows and daily flows (whichever is highest). Within these tables, neither the sensitivity of receptors, nor the duration of effects, is taken into consideration. These tables are formed using 2023 IEMA Guidelines (Ref 13-7) and professional experience in order to build on the information presented by the guidelines to allow a more thorough assessment to be carried out.

13.4.48 In terms of magnitude of change for receptors, receptors where there are expected to be fewer than 30 additional vehicle trips in both the AM and PM development peak hours have been screened out, irrespective of the proportional increase in traffic flows. This is designed to avoid over-reporting impacts including in any areas where baseline traffic flows are very low as, in line with the IEMA Guidelines (Ref 13-7), caution should be observed when applying thresholds to very low baseline flows given that these are unlikely to experience impacts even with potentially high percentage changes in traffic.

Table 13-10: Magnitude Criteria for Transport and Access (All Assessment Criteria)

Impact	Very Low	Low	Medium	High
Severance	Increase in total traffic flows of below 30% (or increase in HGV flows of below 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of 10-39%).	Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Pedestrian Delay	The severity of the impact will be determined based on the thresholds identified above for severance.			
Non-Motorised User Amenity	Increase in total traffic flows of below 50%.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	No change in degree of hazard level for daily traffic flows, HGV flows and vehicle speeds (see **Table 13-11** below).	One step change in degree of hazard level (see **Table 13-11** below), but with <400 daily vehicle increase or <500 daily HGV increase.	One step change in degree of hazard level (see **Table 13-11** below), but with >400 daily vehicle increase or >500 daily HGV increase.	Two step changes in degree of hazard level based on the degree of hazard scores for daily traffic flows, HGV flows and vehicle speeds (see **Table 13-11** below).
Driver Delay	Increase in total traffic flows of below 30%.	Increase in total traffic flows of 30-59%.	Increase in total traffic flows of 60-89%.	Increase in total traffic flows of 90% and above.

Impact	Very Low	Low	Medium	High
Road Safety	Increase in total traffic flows of below 30% (or increase in HGV flows of below 10%).	All links estimated to experience increases in total traffic flows of at least 30% or increases in HGV flows of at least 10% are analysed further on a case-by-case basis.		
Large Loads	Based on the probability of a personal injury accident, categorised as fatal or serious, involving a large load, occurring.			

13.4.49 Further details relating to Fear and Intimidation, in terms of calculating magnitude of impact based on the 2023 IEMA Guidelines (Ref 13-7), are provided in **Table 13-11** below.

Table 13-11: Additional Magnitude Criteria for Fear and Intimidation

Criteria	Degree of Hazard (Level)			
	Small	Moderate	Great	Extreme
A) Average Hourly Traffic Flow	<600 (0)	600-1,200 (10)	1,200-1,800 (20)	>1,800 (30)
B) Daily HGV Flow	<1,000 (0)	1,000-2,000 (10)	2,000-3,000 (20)	>3,000 (30)
C) Average Speed	<20mph (0)	20-30mph (10)	30-40mph (20)	>40mph (30)
Total Score (A+B+C)	0-20	21-40	41-70	71+

13.4.50 **Table 13-10** and **Table 13-11** above set out the proposed magnitude thresholds for the respective environmental effects that are considered in this assessment. All effects have a proposed magnitude that does not, initially, consider the duration over which an effect is likely to be experienced.

13.4.51 Duration is considered when assessing the overall significance of residual effects, noting that DMRB Volume 11 Section 2 Part 5 states in Paragraph 1.47:

> *"Recognition should be made that permanent impacts will be more significant than those of a temporary nature. For example, the impact may only occur during a single phase of the project construction and may be temporary. Alternatively, the impact may be long-term or irreversible and hence permanent. It is, therefore, important that the assessment distinguishes between permanent and temporary impacts".*

13.4.52 All of the traffic and transport effects associated with the construction of the Proposed Development would be temporary effects.

Significance of Effects

13.4.53 As set out in **Chapter 5: Environmental Impact Assessment Methodology [EN010154/APP/6.1]**, the significance of effect is determined through the consideration of two elements: the magnitude of the impact and the sensitivity of the receptor as outlined above. **Table 13-12** below shows the matrix that has been used to determine the effect category. Effects which are classified as major or moderate are considered to be significant (shown in bold).

Table 13-12: Significance Criteria

Sensitivity or Value of Resource / Receptor	Magnitude of Change			
	High	Medium	Low	Very Low
High	**Major**	**Major**	**Moderate**	Minor
Medium	**Major**	**Moderate**	Minor	Negligible
Low	**Moderate**	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Trip Distribution

13.4.54 To calculate the trip distribution of workers travelling to and from the proposed construction compounds each day, a simple gravity model has been developed based on 2021 Census data (representing the latest information currently available) for construction workers living within a 60-minute catchment area of the site.

13.4.55 Construction traffic associated with the Proposed Development has been distributed onto the local highway network to calculate the resultant percentage increases on each link.

13.4.56 Baseline traffic flows have been factored up to the identified peak year of construction (2032) by adopting growth factors derived from TEMPro v8.1 (Ref 13-16) for the relevant areas impacted by the Proposed Development.

13.4.57 The assessment undertaken at the PEI Report stage assumed an average build out of the Proposed Development across the whole study area over 24 months. In light of new information about the construction programme becoming available since then, and as set out in our meeting with the Local Highways Authority (LHA), dated 7th March 2025, this methodology has been updated to consider a phased construction approach in which the Principal Site will be split into four separate geographical ‘zones’, each containing approximately 20-30% of the Solar PV array area which will be built out in consecutive six-to-eight-month blocks. This presents a more robust scenario of the Proposed Development build out during the peak of the construction phase as construction vehicle trips associated with the peak construction phase have been allocated to each of the four zones to consider and assess variations in vehicle routing throughout the construction period.

13.4.58 The four separate zones are defined as follows, and are shown in **Figure 13-6 [EN010154/APP/6.2]**:

a. Blue Zone;

b. Yellow Zone;

c. Green Zone; and

d. Purple Zone.

13.4.59 The current assumptions related to the construction vehicle movements are as follows:

a. During each six-to-eight-month period of the construction programme, the majority (80%) of construction vehicle trips associated with the Principal Site (including construction staff movements, LGVs and HGVs) would travel to one specific zone of the Principal Site and would be distributed across the various accesses serving the compounds contained within that specific zone.

b. After each six-to-eight-month period, these trips would then be redistribution to another of the four zones, until construction associated with the fourth and final zone has been completed.

c. The remaining minority (20%) of trips associated with the Principal Site construction movements would travel directly to compound C-009 to supply the centralised BESS and trips associated with the build out of the Cable Corridor. These movements will remain constant throughout the entire 24-month construction programme and would therefore coincide with construction vehicles travelling to each of the four zones as set out above.

d. Within the Yellow Zone, HGVs (except for the indivisible loads associated with on-site transformer for C-011, which are considered separately) would not travel to accesses C-011 and C-012 due to the narrow width of Clay Lane which restricts HGV movement. Instead, these HGV trips would travel to access C-008, at which point each individual HGV load would be transferred onto four LGVs for onward transit to accesses C-011 and C-012 (from access C-008). In order to limit the potential impact associated with these additional LGV trips, they have been staggered across the working day (between 09:00 and 17:00) to avoid the development and network peak hours.

13.4.60 At the peak of the construction phase, which will occur for duration of approximately three months of the six-to-eight-month programme for each zone, the Principal Site will accommodate a daily peak of 600 construction staff associated with the Proposed Development, including 575 construction staff for the Principal Site and 25 construction staff for the Cable Corridor. All staff, including the staff associated with the works along the Cable Corridor would make their way to the Principal Site at the start and end of the working day. One shuttle service will be utilised to transport construction workers from the Principal Site access C-009 to the relevant Cable Corridor access (and vice-versa) to reduce vehicular trips on the surrounding highway network.

Assessment Assumptions and Limitations

13.4.61 This assessment is based on baseline data and Proposed Development design information (see **Chapter 3: The Proposed Development [EN010154/APP/6.1]**) available at the time of writing this ES. The assessment of the Proposed Development is based on a daily peak of 600 construction workers which is a maximum daily figure and includes total workers associated with both the Principal Site and the Cable Corridor (which will connect the Principal Site to the proposed National Grid substation near Navenby).

13.4.62 A Transport Assessment (TA) Note (**Appendix 13-E [EN010154/APP/6.3])** and **Framework CTMP [EN010154/APP/7.18]** have also been prepared as part of the DCO submission. This chapter has been informed by the consultation responses to the EIA Scoping Opinion and the PEI Report during statutory consultation, as well as the two Transport Meetings which have been held with the local authorities (see **Appendix 13-B [EN010154/APP/6.3])**.

13.4.63 The main construction phase for the Proposed Development is currently predicted to be a minimum (and target) length of 24 months or will otherwise be phased over 30 months (if built out simultaneously) between 2031 and 2033, with the construction peak in terms of activity and vehicle movements expected to take place in 2032. The approach taken in this chapter is based on a construction programme of 24 months which offers a reasonable worst-case assessment, as this is based on a rapid and so shorter construction period that would generate the highest number of peak hour and daily road trips on the local network.

13.4.64 There is expected to be a daily peak of 600 construction workers associated with the Proposed Development. All 600 construction workers would travel to/ from the Principal Site at the start and end of the working day. A shuttle bus service will be utilised to transport construction workers from the Principal Site to the Cable Corridor (and vice-versa) to reduce vehicular trips on the surrounding highway network.

13.4.65 In addition, there will be a daily peak of 25 LGVs and 50 HGVs associated with the Principal Site as well as 12 LGVs and 16 HGVs associated with the Cable Corridor works. The associated vehicle trips will mainly use various routes set out within **Figure 13-4 [EN010154/APP/6.2]**. The forecast trip distribution of construction staff vehicles has been derived using 2021 Census journey to work data which is an industry approved technique. This ES includes an assessment of the Principal Site and the Cable Corridor within **Section 13.7**.

13.4.66 In view of the minimal levels of vehicle trips to be generated and given that different access points would typically be utilised than those used to access the Principal Site (i.e. except for access C-009), the Cable Corridor is not expected to have a material impact on the surrounding highway network. Nonetheless, these trips have been included as part of the assessment of the Proposed Development to provide a worst-case assessment.

13.4.67 Although the Proposed Development is located close to several villages/ settlements including Thorpe on the Hill, Haddington and Bassingham, only a small proportion of trips are expected to either originate from or pass through these villages during the construction, operation, or the decommissioning phases. Any such trips are expected to be local construction worker trips and not HGV trips or trips directly associated with the construction buildout of the Proposed Development).

13.4.68 Where practicable, the **Framework CTMP [EN010154/APP/7.18]** will restrict HGVs to routes which avoid these villages when travelling to/ from the construction compounds as illustrated by HGV routing plan shown in **Figure 13-4 [EN010154/APP/6.2]**, HGV routing is expected to follow the most direct routing to/ from the construction access points from the A46 for the Principal Site and to/ from the A15 for the Cable Corridor, therefore avoiding movements through the following villages: Thorpe on the Hill, Swinderby, Morton, Bassingham and Norton Disney.

13.4.69 Whilst some staff may originate from larger settlements nearby (e.g. Lincoln) and may travel by public transport or bicycle (the distance is considered too far to walk) these modes are not expected to constitute a significant proportion of trips to the Proposed Development and have been therefore excluded to ensure robustness in the assessment of the highway network impacts. Further details associated with the construction staff trips and their distribution is set out within section 5.4.7 and 7.4.14 of the **Framework CTMP [EN010154/APP/7.18].**

13.4.70 Further details relating to the assumptions that have been adopted in support of the assessment work (e.g. relating to access points, working hours and trip generation) are set out within **Section 13.7**.

13.5 Baseline Conditions

Existing Baseline

13.5.1 This section describes the baseline environmental characteristics for the Proposed Development and surrounding areas with specific reference to Traffic and Transport.

Existing Local Highway Network

Principal Site

13.5.2 The Principal Site encompasses a large area of predominantly agricultural land located to the north and south of the strategic A46 trunk road; the A46 runs in a northeast-southwest alignment between the Site. To the north-east, the A46 provides access to Lincoln as well as further connections with the A57, A15 and A158. To the south-west the A46 provides links to Newark-on-Trent as well as further connections with the A1, A17 and A617.

13.5.3 The roads surrounding the Principal Site are mostly local and rural in nature, namely:

a. Fosse Lane (north-east extent of the Principal Site) – local route between Thorpe on the Hill in the north and the A46 in the south (as well as joining with Haddington Lane in the south);

b. Haddington Lane (eastern extent of the Principal Site) – local road between Haddington and Thurlby, connecting with Fosse Lane in the north and running along the A46 overbridge;

c. Moor Lane (running through the centre of the Principal Site) – local highway to the west of Thurlby and south of Witham St Hughs. The road connects with an unnamed road in the west which connects with the A46 at the Halfway House Roundabout (in the north); and

d. Bassingham Road (running through the eastern edge of the Principal Site) – local road split into two sections; the first of these is to the south of Thurlby, routing towards Bassingham in the south (west of the River Witham). The second section runs to the south of Aubourn, running towards Bassingham in the south (east of the River Witham). The two sections are connected by an approximately 1.2km section of Lincoln Road, which is a two-way single carriageway highway within the DCO Site boundary.

13.5.4 All of the above-mentioned routes are single carriageway roads with a single lane in each direction. Speed limits on the routes vary from between derestricted/ 60 miles per hour (mph) in rural areas to 30mph when they pass through settlements, often featuring footway provision and street lighting within the settlements.

13.5.5 Within the Study Area there are a number of other minor roads which run through or alongside the Principal Site. These include:

a. The Avenue/ Morton Lane (western extent of the Principal Site), a no-through single track road to the east of Morton, accessed from Halfway House Lane to the north of the Halfway House Roundabout;

b. Stone Lane (central extent of the Principal Site), a no-through road (except for cycle movements at its northern extent) single lane track (with passing places) to the southeast of A46, accessed via Haddington Lane;

c. Clay Lane (south-west extent of the Principal Site), a narrow single lane highway with passing places to the west of Bassingham, connecting with Bassingham Road to the south of Thurlby and running towards Norton Disney in the west; and,

d. Fen Lane (south-east extent of the Principal Site), a no-through single lane track to the northwest of Bassingham, west of the River Brant, accessed via Lincoln Road.

13.5.6 Details related to the sourcing and origin of the relevant materials for the Principal Site (such as solar PV panels) have not yet been confirmed. However, it is likely that these would be transported from one of the nearer

ports (such as the port of Immingham, located to the north of the Proposed Development with easy access to/ from the A46). The potential access routes for delivering these components to the Principal Site via the Strategic Road Network (SRN) and local roads is detailed in **Section 13.7**.

13.5.7 It is acknowledged that due to the rural nature of the surrounding area, a number of the local roads are subject to restrictions (such as weight restrictions of below 7.5 tonnes). These factors have been considered when reviewing potential routes to minimise the impact of the Proposed Development on local roads.

Cable Corridor

13.5.8 The Cable Corridor will run in a southeast direction from the Principal Site, crossing the River Brant, Broughton Lane and the A607, proceeding across agricultural land to the national transmission network at the proposed National Grid substation near Navenby.The Cable Corridor will also cross Hill Rise, High Dyke, B1202 Heath Lane and Green Man Road. It should be noted that the proposed National Grid substation near Navenby is subject to a separate application and does not form part of this DCO application.

13.5.9 Several of the roads identified above are narrow, single-track, lightly trafficked roads with no pedestrian facilities or street lighting.

13.5.10 The eastern extent of the Cable Corridor is located a short distance to the west of the A15 which is expected to provide a key route for construction vehicles travelling to/ from the Cable Corridor access points as set out within **Figure 13-4 [EN010154/APP/6.2]**.

Baseline Traffic Flows

13.5.11 The following time periods have been reviewed in order to provide a robust assessment given that while the development peak hours will occur outside the peak hours, they will be in the ‘shoulders’ of the traditional network peak hours:

a. 07:00 to 08:00 – construction staff AM Development peak hour;
b. 08:00 to 09:00 – typical AM network peak hour;
c. 17:00 to 18:00 – typical PM network peak hour;
d. 18:00 to 19:00 – construction staff PM Development peak hour;
e. Weekday (07:00 to 19:00, 12 hours); and
f. Daily (24 hours).

13.5.12 For the purposes of the Assessment of Effects outlined in **Section 13.7**, magnitudes have been assessed using forecast trips during the AM and PM Development Peaks, weekday (12-hour) and daily (24-hour) time periods, since the Proposed Development is not expected to generate any traffic (and therefore result in changes to traffic flows) in the network peak hours.

13.5.13 A summary of the baseline traffic data at each receptor within the Study Area is set out in **Table 13-13** below, based on the traffic surveys carried out in

November 2023 and February 2025, as well as the DfT data from 2022 and 2023. The results have been presented for the AM and PM Development Peak hours, as well as the average daily (24 hours) flows. It should be noted that flows sourced from ATC surveys are based on five-day averages and therefore may contain rounded values.

Table 13-13: Existing Baseline Traffic Flows

Ref	Link	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L1	A46 west of Halfway House Roundabout	3,096	321	10.4%	1,562	161	10.3%	33,451	3,092	9.2%
L2	Halfway House Lane	245	8	3.3%	139	2	1.4%	2,909	101	3.5%
L3	The Avenue	7	0	0.0%	4	0	11.1%	119	8	6.9%
L4	A46 east of Halfway House Roundabout	3,426	308	9.0%	1,557	133	8.5%	37,483	3,017	8.0%
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	433	13	3.0%	141	0	0.0%	3,747	158	4.2%
L6	Fosse Lane (north of Haddington Lane)	249	7	2.8%	112	4	3.3%	2,879	97	3.4%
L7	Old Haddington Lane (between Haddington Lane and A46)	303	18	5.9%	149	4	2.7%	3,033	158	5.2%
L8	A46 east of Fosse Lane	2,340	232	9.9%	2,182	68	3.1%	32,677	2,386	7.3%
L9	Haddington Lane (south of Old Haddington Lane)	539	29	5.3%	290	8	2.8%	5,944	460	7.7%
L10	Stone Lane	5	0	0.0%	8	0	0.0%	68	2	2.5%
L11	South Hykeham Road	543	16	2.9%	331	3	0.9%	5,001	197	3.9%

Ref	Link	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L12	Church Road (east of Bassingham Road)	648	35	5.4%	285	4	1.4%	5,650	221	3.9%
L13	Bassingham Road (southwest of Bridge Road)	88	4	4.5%	154	1	0.6%	1,196	19	1.5%
L14	Haddington Lane (south of Stone Lane)	202	9	4.3%	231	17	7.3%	2,046	89	4.3%
L15	Norton Lane	33	1	3.0%	100	0	0.0%	386	8	2.1%
L16	Moor Lane	224	15	6.7%	270	20	7.3%	2,372	169	7.1%
L17	Bassingham Road (between Moor Lane and Clay Lane)	188	7	3.7%	152	3	2.0%	1,735	48	2.7%
L18	Clay Lane	12	1	6.7%	7	0	0.0%	117	7	5.8%
L19	Unnamed Road (south of Halfway House Roundabout)	977	65	6.7%	532	38	7.1%	10,558	569	5.4%
L20	Fosse Lane (between A46 and Haddington Lane)	285	12	4.2%	94	1	1.1%	2,301	146	6.3%
L21	Broughton Lane (south of Hill Rise)	226	10	4.4%	115	1	1.2%	2,251	109	4.8%
L22	Hill Rise	20	0	1.0%	8	0	0.0%	178	7	3.9%
L23	Broughton Lane (north of Hill Rise)	233	41	17.5%	91	10	10.6%	2,158	396	18.3%
L24	Blackmoor Road	707	170	24.0%	372	72	19.4%	7,110	1,772	24.9%

Ref	Link	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L25	B1178 Tower Lane	539	109	20.3%	298	43	14.4%	6,160	1,307	21.2%
L26	A15 Sleaford Road (between Tower Lane and Heath Lane)	1,647	274	16.6%	861	91	10.6%	17,417	3,228	18.5%
L27	A15 Sleaford Road (between Heath Lane and Green Man Road)	1,476	78	5.3%	834	25	3.0%	13,940	924	6.6%
L28	A15 Sleaford Road (between Green Man Road and Unnamed Road)	1,507	273	18.1%	740	87	11.7%	15,170	3,045	20.1%
L29	Green Man Road	235	11	4.5%	108	1	0.9%	2,058	116	5.7%
L30	Unnamed Road between A15 Sleaford Road and High Dike	53	10	19.3%	24	2	7.5%	511	95	18.5%
L31	Heath Lane	239	14	5.8%	117	3	2.9%	2,433	187	7.7%
L32	A607 Grantham Road (south of Coleby)	638	27	4.3%	339	9	2.7%	6,551	329	5.0%
L33	A607 Grantham Road (north of Coleby)	731	31	4.2%	363	5	1.4%	6,222	238	3.8%
L34	Fen Lane	0	0	0.0%	0	0	0.0%	4	1	15.8%
L35	Clay Lane (north of Main Street)	13	2	18.8%	11	1	12.3%	194	40	20.7%

Ref	Link	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	150	20	13.1%	57	4	7.0%	1,293	178	13.8%
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	3,872	351	9.1%	1,895	167	8.8%	42,201	3,389	8.0%
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	486	15	3.1%	158	1	0.6%	4,284	174	4.1%
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	674	28	4.2%	265	4	1.5%	5,994	288	4.8%
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	676	29	4.3%	954	69	7.2%	7,183	414	5.8%
J5	Bridge Road/Church Road/Bassingham Road	684	36	5.3%	388	5	1.3%	6,307	232	3.7%
J6	Haddington Lane/Bassingham Road/Moor Lane	304	11	3.6%	902	67	7.4%	3,515	145	4.1%
J7	Unnamed Road/Moor Lane/Norton Lane	252	8	3.2%	913	65	7.1%	3,069	124	4.1%

Ref	Link	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	2,340	232	9.9%	2,182	68	3.1%	32,677	2,386	7.3%
J9	A607 / White Lane / Church Lane	1,360	50	3.7%	778	9	1.2%	11,658	425	3.6%
J10	B1178 Tower Lane / A15 Sleaford Road	1,864	97	5.2%	991	38	3.8%	16,465	999	6.1%
J11	A15 Sleaford Road / Metheringham Heath Lane / Heath Lane	1,921	107	5.6%	960	34	3.5%	20,380	1,480	7.3%
J12	A15 Sleaford Road / Green Man Road	1,721	96	5.6%	800	34	4.3%	18,139	1,366	7.5%

Collision Data Review

13.5.14 This section provides a summary of Personal Injury Accident (PIA) data obtained from LCC for the highway network within the extent of the Study Area of the Proposed Development as shown within **Figure 13-1 [EN010154/APP/6.2]**. The PIA data covers the most recent five-year period available between 1 June 2019 and 31 May 2024.

13.5.15 A total of 126 collisions have occurred within the Study Area for the most recent five-year period. A summary of these collisions by location (for those locations where collisions were recorded) and severity is set out in **Table 13-14** below.

13.5.16 Out of the 36 links and junctions assessed, seven recorded more than five PIAs within the analysed five-year period, which may suggest that these locations may be more sensitive to an increase in traffic from a highway perspective. Further details on these locations are provided in **Appendix 13-E [EN010154/APP/6.3].** There are also several locations which appear to have a good safety record with two or fewer PIAs within the five-year period, which suggest that these locations may be less sensitive to an increase in traffic from a highway safety perspective.

13.5.17 Following on from the above, collision rates have been calculated in billion vehicle miles for road links to provide a comparison with national road safety statistics provided within Road Casualties Great Britain (Ref 13-17). The following formula has been used to calculate the collision rate, where 1,826 reflects the number of days over which the collision data has been sourced (between 1 June 2019 to 31 May 2024) and AADT refers to Annual Average Daily Traffic.

$$\text{Collision Rate} = \frac{\text{Number of recorded PIAs (per road link) x 1 billion}}{\text{1826 x AADT x length of road (miles)}}$$

13.5.18 The national average collision rate has been calculated between 2018 and 2023 using dataset RAS0302: Urban and rural roads, for the appropriate road type. A summary of the comparison is presented in **Table 13-14**further below. It should be noted that link receptors which have recorded fewer than three collisions have been excluded from this table to exclude unnaturally high collision rates caused by short link lengths or low baseline traffic flows. All receptors which recorded fewer than three collisions have been automatically assigned a ‘Very Low’ sensitivity.

Table 13-14: Collision Data Summary

Ref	Receptor Type	Receptor	Total Collisions				Collisions involving a goods vehicle (>3.5 tonnes)			
			Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
L1	Road Link	A46 west of Halfway House Roundabout	1	0	0	1	0	0	0	0
L2	Road Link	Halfway House Lane	1	0	0	1	0	0	0	0
L3	Road Link	The Avenue	0	0	0	0	0	0	0	0
L4	Road Link	A46 east of Halfway House Roundabout	7	0	0	7	0	0	0	0
L5	Road Link	Haddington Lane (North of Old Haddington Lane)	0	1	0	1	0	0	0	0
L6	Road Link	Fosse Lane (north of Haddington Lane)	1	0	0	1	0	0	0	0
L7	Road Link	Old Haddington Lane (between Haddington Lane and A46)	0	0	0	0	0	0	0	0
L8	Road Link	A46 west of Hykeham Roundabout	13	4	0	17	4	3	0	7
L9	Road Link	Haddington Lane (South of Old Haddington Lane)	0	0	0	0	0	0	0	0
L10	Road Link	Stone Lane	0	0	0	0	0	0	0	0
L11	Road Link	Butts Lane	0	1	0	1	0	0	0	0
L12	Road Link	Church Road (between Bridge Road and Royal Oak Lane)	0	0	0	0	0	0	0	0
L13	Road Link	Bassingham Road (northeast)	1	1	0	1	0	0	0	0
L14	Road Link	Haddington Lane (south of Stone Lane)	4	1	0	5	0	0	0	0
L15	Road Link	Norton Lane	1	0	0	1	0	0	0	0
L16	Road Link	Moor Lane	0	0	0	0	0	0	0	0

Ref	Receptor Type	Receptor	Total Collisions				Collisions involving a goods vehicle (>3.5 tonnes)			
			Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
L17	Road Link	Bassingham Road (southwest)	2	1	0	3	0	0	0	0
L18	Road Link	Clay Lane	0	0	0	0	0	0	0	0
L19	Road Link	Unnamed Road (south of Halfway House roundabout)	0	0	0	0	0	0	0	0
L20	Road Link	Fosse Lane (between A46 and Haddington Lane)	0	0	0	0	0	0	0	0
L21	Road Link	Broughton Lane (south of Hill Rise)	0	0	0	0	0	0	0	0
L22	Road Link	Hill Rise	0	0	0	0	0	0	0	0
L23	Road Link	Broughton Lane (North of Hill Rise)	1	0	0	1	0	0	0	0
L24	Road Link	Blackmoor Road	4	2	0	6	0	0	0	0
L25	Road Link	B1178 Tower Lane	0	0	0	0	0	0	0	0
L26	Road Link	A15, between Tower Lane and Heath Lane	2	0	0	2	0	0	0	0
L27	Road Link	A15, between Green Man Road and Heath Lane	0	0	0	0	0	0	0	0
L28	Road Link	A15, between Green Man Road and Unnamed Road	4	1	0	5	0	0	0	0
L29	Road Link	Green Man Road	0	0	0	0	0	0	0	0
L30	Road Link	Unnamed road between A15 and High Dike	0	0	0	0	0	0	0	0
L31	Road Link	B1202 Heath Lane	0	0	0	0	0	0	0	0
L32	Road Link	A607 Grantham Road (south of Coleby)	0	2	1	3	0	0	0	0
L33	Road Link	A607 Grantham Road (north of Coleby)	0	1	0	1	0	0	0	0
L34	Road Link	Fen Lane	0	0	0	0	0	0	0	0

Ref	Receptor Type	Receptor	Total Collisions				Collisions involving a goods vehicle (>3.5 tonnes)			
			Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
L35	Road Link	Clay Lane (north of Main Street)	0	0	0	0	0	0	0	0
L36	Road Link	Haddington Lane (Between Butts Lane and Dovecote Lane)	0	0	0	0	0	0	0	0
J1	Road Junction	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	8	3	0	11	0	0	0	0
J2	Road Junction	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	1	1	0	2	0	0	0	0
J3	Road Junction	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	1	0	0	1	0	0	0	0
J4	Road Junction	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	2	2	0	4	0	0	0	0
J5	Road Junction	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	0	0	0	0	0	0	0	0
J6	Road Junction	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	0	0	0	0	0	0	0	0
J7	Road Junction	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	2	0	0	2	1	0	0	1
J8	Road Junction	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	8	2	0	10	1	0	0	1
J9	Road Junction	A607/ White Lane/ Church Lane	3	0	0	3	0	0	0	0

Ref	Receptor Type	Receptor	Total Collisions				Collisions involving a goods vehicle (>3.5 tonnes)			
			Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
J10	Road Junction	A15 Sleaford Road/ B1178 Tower Lane junction	3	0	0	3	0	0	0	0
J11	Road Junction	A15 Sleaford Road/ B1202 Heath Lane/ Metheringham Heath Lane junction	15	1	1	17	1	0	0	1
J12	Road Junction	A15 Sleaford Road/ Green Man Road junction	8	0	0	8	1	0	0	1
		Total	**100**	**24**	**2**	**126**	**10**	**3**	**0**	**13**

Table 13-15: Collision Rate Analysis

Receptor Ref.	Location	PIAs	AADT	Link Length (miles)	Collision rate	National average	Road Type
L4	A46 east of Halfway House Roundabout	7	41,071	1.54	60	181	Rural A road
L8	A46 west of Hykeham Roundabout	17	35,804	0.87	304	181	Rural A road
L14	Haddington Lane (south of Stone Lane)	5	2,167	1.32	1155	313	Rural other road
L17	Bassingham Road (southwest)	3	1,837	0.60	1524	313	Rural other road
L24	Blackmoor Road	6	7,502	1.6	289	313	Rural other road
L28	A15, between Green Man Road and Unnamed Road	5	16,046	0.81	223	181	Rural A road
L32	A607 Grantham Road (south of Coleby)	3	6,955	1.09	230	181	Rural A road

13.5.19 The collision rate formula indicates that the following receptors have collision rates which are over twice as high as the national average and are therefore considered abnormal:

a. L14 Haddington Lane (south of Stone Lane); and

b. L17 Bassingham Road (southwest).

13.5.20 These abnormally high rates are mainly due to the very low baseline daily traffic flows. Further analysis of L14 has shown that 4 out of 5 recorded incidents were caused by a common factor (excess speed around a bend), and therefore despite the relatively low flows on this link, the sensitivity of this receptor has not been reduced as a result.

13.5.21 Whilst there were no common factors identified for the PIAs which occurred at L17, its sensitivity has been upgraded from low to medium due to the number of collisions.

Existing Walking Facilities

Principal Site

13.5.22 Due to the location of the Principal Site in rural Lincolnshire, there is limited footway provision in the surrounding area. Footways are limited to the settlements that surround the Principal Site, which include the following:

a. Fosse Lane – footway provision alongside the northbound lane;

b. Bassingham Road – footway provision alongside the southbound lane to the south of Thurlby; and

c. Footway provision around Bassingham to the southeast of the Principal Site including on Thurlby Road, Lincoln Road, Croft Lane, Linga Lane. This provision is largely within the extent of residential areas on these roads.

13.5.23 As shown in **Figure 13-2 [EN010154/APP/6.2],** there are several PRoW within, or in close proximity to, the Principal Site. These are summarised in **Table 13-16**:

Table 13-16: PRoW Within or in Close Proximity to the Principal Site

PRoW ID	PRoW Type	Location Relative To Principal Site
LL|TOTH|5/1	Public Footpath	Within Principal Site
LL|TOTH|6/1	Public Footpath	Within Principal Site
LL|TOTH|6A/1	Public Footpath	Within Principal Site
LL|TOTH|6/2	Public Footpath	Within Principal Site
LL|TOTH|6/3	Public Footpath	Within Principal Site

PRoW ID	PRoW Type	Location Relative To Principal Site
LL|TOTH|7/1	Public Footpath	Within Principal Site
LL|TOTH|7/2	Public Footpath	Within Principal Site
LL|TOTH|7/3	Public Footpath	Within Principal Site
LL|TOTH|11/1	Public Footpath	Within Principal Site
LL|TOTH|11/2	Public Footpath	Within Principal Site
LL|TOTH|12/1	Public Bridleway	Within Principal Site
LL|TOTH|12/2	Public Bridleway	Within Principal Site
LL|TOTH|12/3	Public Bridleway	Within Principal Site
LL|TOTH|13/1	Public Footpath	Within Principal Site
LL|TOTH|13/2	Public Footpath	Within Principal Site
LL|TOTH|15/1	Public Footpath	Within Principal Site
LL|TOTH|21/1	Public Footpath	Within Principal Site
LL|Aubo|8/1	Restricted Byway	Within Principal Site
LL|Aubo|9/1	Public Footpath	Within Principal Site
LL|Aubo|10/1	Public Footpath	Within Principal Site
LL|Aubo|12/1	Public Footpath	Within Principal Site
LL|Aubo|11/1	Public Footpath	Within Principal Site
LL|Aubo|11/2	Public Footpath	Within Principal Site
LL|Aubo|12/2	Public Footpath	Within Principal Site
LL|Aubo|13/1	Restricted Byway	Within Principal Site
LL|Aubo|13/2	Restricted Byway	Within Principal Site
LL|Bass|21/2	Restricted Byway	Within Principal Site
LL|Bass|21/3	Restricted Byway	Within Principal Site
LL|ThuN|1/1	Public Footpath	Within Principal Site
LL|ThuN|2/1	Public Footpath	Within Principal Site
LL|ThuN|5/1	Public Footpath	Within Principal Site
LL|NoDi|1/1	Public Footpath	Within Principal Site

PRoW ID	PRoW Type	Location Relative To Principal Site
LL|NoDi|1/2	Public Footpath	Within Principal Site
LL|NoDi|4/1	Public Footpath	Within Principal Site
LL|Swdb|4/1	Public Footpath	Within Principal Site
LL|Swdb|5/1	Restricted Byway	Within Principal Site
LL|TOTH|4/1	Public Footpath	Close Proximity To Principal Site
LL|TOTH|16/2	Public Bridleway	Close Proximity To Principal Site
LL|TOTH|17/1	Public Footpath	Close Proximity To Principal Site
LL|TOTH|18/1	Public Footpath	Close Proximity To Principal Site
LL|TOTH|18/2	Public Footpath	Close Proximity To Principal Site
LL|TOTH|18/3	Public Footpath	Close Proximity To Principal Site
LL|TOTH|522/1	Public Footpath	Close Proximity To Principal Site
LL|Swdb|6/2	Public Footpath	Close Proximity To Principal Site
LL|Aubo|3/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|1/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|2/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|3/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|4/1	Restricted Byway	Close Proximity To Principal Site
LL|Bass|5/1	Restricted Byway	Close Proximity To Principal Site

PRoW ID	PRoW Type	Location Relative To Principal Site
LL|Bass|4/2	Public Footpath	Close Proximity To Principal Site
LL|Bass|6/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|7/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|8/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|10/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|12/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|13/1	Public Bridleway	Close Proximity To Principal Site
LL|Bass|17/4	Restricted Byway	Close Proximity To Principal Site
LL|Bass|20/1	Restricted Byway	Close Proximity To Principal Site
LL|Bass|21/1	Restricted Byway	Close Proximity To Principal Site
LL|Bass|22/1	Public Footpath	Close Proximity To Principal Site
LL|Bass|766/1	Byway Open to All Traffic	Close Proximity To Principal Site
LL|ThuN|3/1	Public Footpath	Close Proximity To Principal Site

13.5.24 There are also seven existing permissive paths within the Principal Site boundary, namely: 15BCDE, 15BCD1, 17E42A, 15BCD0, 15BCCF, 15BC81 and 15BCC0.

Cable Corridor

13.5.25 The western extent of the Cable Corridor lies north of Bassingham, whilst the eastern extent lies east of Navenby.

13.5.26 Sections of footway exist in the vicinity of Harmston, Coleby, Navenby and Boothby Graffoe. Navenby and Boothby Graffoe are the two nearest local settlements situated circa 1km to the west of the proposed National Grid

substation near Navenby location, however there is no other formal footway provision in this part of the Study Area.

13.5.27 There are several PRoW which could be impacted by construction of the Cable Corridor, five of which are located within the Cable Corridor, as shown on **Figure 13-2 [EN010154/APP/6.2].** These are also detailed in **Table 13-17**.

Table 13-17: PRoW Within or in Close Proximity to the Cable Corridor

PRoW ID	PRoW Type	Location relative to Cable Corridor
LL|Cole|3/1	Public Footpath	Within Cable Corridor
LL|Cole|4/1	Public Footpath	Within Cable Corridor
LL|Bass|23/1	Public Footpath	Within Cable Corridor
LL|BooG|2/2	Public Footpath	Within Cable Corridor
LL|BooG|5/1	Public Footpath	Within Cable Corridor
LL|Aubo|3/1	Public Footpath	In Close Proximity to Cable Corridor
LL|Cole|1/1	Public Footpath	In Close Proximity to Cable Corridor
LL|Cole|1/2	Public Footpath	In Close Proximity to Cable Corridor
LL|BooG|2/1	Public Footpath	In Close Proximity to Cable Corridor
LL|BooG|4/1	Public Footpath	In Close Proximity to Cable Corridor
LL|BooG|6/1	Public Footpath	In Close Proximity to Cable Corridor
LL|BooG|7/1	Public Footpath	In Close Proximity to Cable Corridor

13.5.28 All of the PRoW potentially impacted by the Cable Corridor have been reviewed to identify whether they will need to be diverted (either temporarily or permanently) to ensure safe access for members of the public during all phases of the development (especially construction and decommissioning). These have also been discussed as part of the **Framework ProW-MP[EN010154/APP/7.14]** which is submitted with the DCO application.

Existing Cycling Facilities

Principal Site

13.5.29 There are no on- or off-road dedicated / marked cycling facilities on the roads immediately surrounding the Principal Site, with the exception of a cycle track on Stone Lane which begins just east of High Walks Farm and joins a cycle facility that runs parallel to the A46 to the north. However, the surrounding rural local roads may be attractive to some cyclists as they are relatively lightly trafficked. The Principal Site could potentially be accessed by cyclists from local settlements within a 2.5km cycle distance (equivalent to a 10-minute cycle ride at an average speed of 15 km per hour), including Thorpe on the Hill, Haddington, Aubourn, Witham St Hughs, Norton Disney and Bassingham.

13.5.30 The nearest National Cycle Network (NCN) route to the Site is NCN Route 64 (between Harby and Lincoln) which is located approximately 3km to the north of the Principal Site boundary. An existing NCN link route also runs in the vicinity of the southern extents of the Site boundary, which runs between Bassingham and Carlton-le-Moorland. These are shown on **Figure 13-2 [EN010154/APP/6.2].**

Cable Corridor

13.5.31 There are no on- or off-road dedicated/ marked cycling facilities within the immediate vicinity of the Cable Corridor. However, several of the minor roads in this area are relatively lightly trafficked and may therefore be attractive to some cyclists. These areas could be potentially accessed by cyclists from Harmston, Coleby, Boothby Graffoe, Navenby and Wellingore as they are all within a 2.5km cycle distance.

Existing Equestrian Facilities

Principal Site

13.5.32 There are some formal equestrian facilities (i.e. Bridleways) within the Principal Site, including The Avenue which will be used as an access route in the construction phase of the Proposed Development. There are a few Bridleways in the vicinity of Morton, within the northern extent of the Principal Site Boundary and a few Restricted Byways within the eastern extents of the Site Boundary. In addition, some of the surrounding roads are generally lightly trafficked which may encourage equestrian usage.

These are further discussed as part of the **Framework PRoW-MP [EN010154/APP/7.14].**

Cable Corridor

13.5.33 There are no formal equestrian facilities (i.e. Bridleways) within the vicinity of the Cable Corridor. However, the narrow single-track roads in the vicinity of the Cable Corridor may be appealing to equestrians given that these are relatively lightly trafficked.

13.5.34 These are further discussed as part of the **Framework PRoW-MP [EN010154/APP/7.14]**.

Existing Public Transport Facilities

Principal Site

Bus

13.5.35 Within the Study Area of the proposed Principal Site boundary there are several bus routes which pass through surrounding local settlements. Details of these are outlined in **Table 13-18**.

Table 13-18: Existing Bus Services

Bus Service	Settlements Served	Frequency of Service in per day including first and last service
1	Bassingham, Haddington, Aubourn, Thorpe on the Hill and Witham St Hughs	School bus service
47	Bassingham, Haddington and Aubourn	One service between 08:00-09:00; One service between 17:00-18:00
48	Thorpe on the Hill and Witham St Hughs	No services between 08:00-09:00; One service between 17:00-18:00
49	Bassingham, Thorpe on the Hill and Witham St Hughs	No services between 08:00-09:00; One service between 17:00-18:00
B3	Witham St Hughs	No services between 08:00-09:00; One service between 17:00-18:00
SLE5	Bassingham	No services between 08:00-09:00; No services between 17:00-18:00
SLE9	Haddington, Aubourn, Witham St Hughs and Thurlby	No services between 08:00-09:00 No services between 17:00-18:00

13.5.36 The above shows that none of the bus routes which operate near the Study Area offer frequent services.

Rail

13.5.37 Swinderby railway station is located approximately 2km to the west of the northern extent of the Principal Site and is managed by East Midlands Railway. This is the nearest station to the Principal Site and provides access to services between Nottingham and Lincoln, as well as Leicester and Grimsby, with one service per hour.

13.5.38 Collingham railway station is situated approximately 6km to the west of the Principal Site and Hykeham railway station is located approximately 6km to the east. Both stations are managed by East Midlands Railway and are served by the same lines and services as Swinderby railway station.

Cable Corridor

Bus

13.5.39 A number of bus routes pass through surrounding local settlements in the vicinity of the Cable Corridor. These are:

a. Bus Route 1 (Black Cat Travel) – running through the local settlements of Navenby, Coleby and Harmston.

b. Bus Route 1 (Interconnect) (Stagecoach East Midlands) – running between Grantham and Lincoln, and through the local settlements of Navenby, Wellingore, Coleby and Harmston.

c. Bus Route 644 (Stagecoach East Midlands) – running through the local settlements of Navenby, Wellingore and Harmston, with only one service each weekday commencing at 15:20.

d. Bus Route 6531 (PC Coaches) – running between Wellingore and North Hykeham, and through the local settlements of Navenby, Coleby and Harmston. This is a school bus service.

e. Bus Route SLE9 (Sleafordian Coaches) – running between Witham St Hughs and Sleaford, including through the local settlements of Navenby, Wellingore, Coleby and Harmston.

Rail

13.5.40 The nearest railway stations to the Cable Corridor are the same stations as those previously mentioned for the Principal Site, albeit these are all situated further away from the Cable Corridor than the Principal Site.

Future Baseline

13.5.41 The future baseline scenario is set out in **Chapter 5: EIA Methodology [EN010154/APP/6.1]**.

13.5.42 In the absence of the Proposed Development, traffic flows on the surrounding highway network would be expected to increase as a result of housing and employment growth. Therefore, projected background traffic growth has been applied to the traffic flows derived from the traffic surveys (November 2023 & February 2025) and DfT data (2022 and 2023) to represent conditions during the future baseline (and construction peak assessment year) of 2032. As previously mentioned, the decommissioning assessment year is assumed to be 2093 which is considered to be too far into the future to be able to accurately predict traffic flows.

13.5.43 Traffic growth has been calculated using National Road Traffic Forecast (NRTF) growth factors, reflecting projected increases in annual vehicle mileage on roads within England and Wales. National Transport Model (NTM) adjustments have then been applied within the Trip Ends Model Programme (TEMPro) (Ref 13-16) using National Trip Ends Model (NTEM) dataset v8.1 and the NRTP 2022 Core dataset. These reflect local factors (i.e. North Kesteven) for the appropriate road types, to determine the forecast increases in baseline car driver/ passenger trips during each period.

13.5.44 TEMPro v8.1 has been used as it is the latest version of the software available at the time of writing.

13.5.45 A summary of the growth factors is set out in **Table 13-19** below.

Table 13-19: Traffic Growth Factors (Future Baseline)

Growth Period	Road Type	Traffic Growth Factor (North Kesteven)			
		AM Peak	PM Peak	Average Weekday	Average Day
2022 to 2032 (DfT Data)	Trunk	1.0946	1.0955	1.1017	1.1017
	A Road	1.0568	1.0577	1.0638	1.0637
	Minor	1.0540	1.0549	1.0609	1.0608
	All	1.0724	1.0733	1.0794	1.0794
2023 to 2032 (DfT data and Traffic Counts)	Trunk	1.0891	1.0902	1.0957	1.0957
	A Road	1.0553	1.0564	1.0617	1.0617
	Minor	1.0525	1.0536	1.0589	1.0589
	All	1.0695	1.0706	1.0760	1.0760
2025 to 2032 (Traffic Counts)	Trunk	1.0784	1.0798	1.0839	1.0840
	A Road	1.0522	1.0536	1.0576	1.0577
	Minor	1.0496	1.0510	1.0550	1.0551
	All	1.0637	1.0651	1.0692	1.0693

13.5.46 The highest growth factors (trunk roads) have been applied to the DfT traffic flows for the A46 given its trunk road status. The growth factors for A roads and minor roads have been applied to the traffic flows for the remainder of the network, depending on road type.

13.5.47 The anticipated future baseline flows on the surrounding highway network are set out in **Table 13-20**. Again, the results have been presented for the development peak hours and an average weekday (12 hours) for road links and include rounded values.

Table 13-20: Future Baseline Traffic Flows (2032)

Ref	Link	AM Dev Peak (07:00-08:00)			PM Dev Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L1	A46 west of Halfway House Roundabout	3,372	350	10.4%	1,703	176	10.3%	36,653	3,388	9.2%
L2	Halfway House Lane	258	8	3.3%	146	2	1.4%	3,080	107	3.5%
L3	The Avenue	8	0	0.0%	4	0	11.1%	126	9	6.9%
L4	A46 east of Halfway House Roundabout	3,731	335	9.0%	1,697	145	8.5%	41,071	3,305	8.0%
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	456	14	3.0%	149	0	0.0%	3,968	167	4.2%
L6	Fosse Lane (north of Haddington Lane)	262	7	2.8%	118	4	3.3%	3,049	103	3.4%
L7	Old Haddington Lane (between Haddington Lane and A46)	319	19	5.9%	157	4	2.7%	3,212	167	5.2%
L8	A46 east of Fosse Lane	2,548	253	9.9%	2,379	74	3.1%	35,804	2,614	7.3%
L9	Haddington Lane (south of Old Haddington Lane)	568	30	5.3%	305	9	2.8%	6,294	487	7.7%
L10	Stone Lane	5	0	0.0%	8	0	0.0%	72	2	2.5%
L11	South Hykeham Road	572	17	2.9%	349	3	0.9%	5,296	209	3.9%
L12	Church Road (east of Bassingham Road)	682	37	5.4%	300	4	1.4%	5,982	234	3.9%
L13	Bassingham Road (southwest of Bridge Road)	93	4	4.5%	162	1	0.6%	1,266	20	1.5%
L14	Haddington Lane (south of Dovecote Lane)	213	9	4.3%	243	18	7.3%	2,167	94	4.3%

Ref	Link	AM Dev Peak (07:00-08:00)			PM Dev Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L15	Norton Lane	35	1	3.0%	105	0	0.0%	409	9	2.1%
L16	Moor Lane	236	16	6.7%	284	21	7.3%	2,511	179	7.1%
L17	Bassingham Road (between Moor Lane and Clay Lane)	198	7	3.7%	160	3	2.0%	1,837	50	2.7%
L18	Clay Lane	13	1	6.7%	8	0	0.0%	124	7	5.8%
L19	Unnamed Road (south of Halfway House Roundabout)	1,028	68	6.7%	561	40	7.1%	11,180	603	5.4%
L20	Fosse Lane (between A46 and Haddington Lane)	300	13	4.2%	99	1	1.1%	2,437	154	6.3%
L21	Broughton Lane (south of Hill Rise)	238	11	4.4%	121	1	1.2%	2,384	115	4.8%
L22	Hill Rise	21	0	1.0%	8	0	0.0%	188	7	3.9%
L23	Broughton Lane (north of Hill Rise)	245	43	17.5%	95	10	10.6%	2,276	417	18.3%
L24	Blackmoor Road	742	178	24.0%	391	76	19.4%	7,502	1,869	24.9%
L25	B1178 Tower Lane	566	115	20.3%	314	45	14.4%	6,499	1,379	21.2%
L26	A15 Sleaford Road (between Tower Lane and Heath Lane)	1,733	288	16.6%	907	96	10.6%	18,422	3,414	18.5%
L27	A15 Sleaford Road (between Heath Lane and Green Man Road)	1,560	82	5.3%	882	26	3.0%	14,828	983	6.6%
L28	A15 Sleaford Road (between Green Man Road and Unnamed Road)	1,586	287	18.1%	780	91	11.7%	16,046	3,221	20.1%

Ref	Link	AM Dev Peak (07:00-08:00)			PM Dev Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
L29	Green Man Road	247	11	4.5%	114	1	0.9%	2,179	123	5.7%
L30	Unnamed Road between A15 Sleaford Road and High Dike	55	11	19.3%	25	2	7.5%	540	100	18.5%
L31	Heath Lane	252	15	5.8%	123	4	2.9%	2,576	198	7.7%
L32	A607 Grantham Road (south of Coleby)	673	29	4.3%	359	10	2.7%	6,955	349	5.0%
L33	A607 Grantham Road (north of Coleby)	769	33	4.2%	382	5	1.4%	6,581	251	3.8%
L34	Fen Lane	0	0	0.0%	0	0	0.0%	4	1	15.8%
L35	Clay Lane (north of Main Street)	13	3	18.8%	12	1	12.3%	204	42	20.7%
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	157	21	13.1%	60	4	7.0%	1,364	188	13.8%
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	4,217	382	9.1%	2,066	182	8.8%	46,239	3,714	8.0%
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	529	16	3.1%	172	1	0.6%	4,693	191	4.1%
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	734	30	4.2%	289	4	1.5%	6,568	315	4.8%
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	711	31	4.3%	1,005	73	7.2%	7,606	439	5.8%

Ref	Link	AM Dev Peak (07:00-08:00)			PM Dev Peak (18:00-19:00)			24hr Daily		
		Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)	Total	HGVs (#)	HGVs (%)
J5	Bridge Road/Church Road/Bassingham Road	720	38	5.3%	409	5	1.3%	6,678	245	3.7%
J6	Haddington Lane/Bassingham Road/Moor Lane	320	12	3.6%	950	71	7.4%	3,722	154	4.1%
J7	Unnamed Road/Moor Lane/Norton Lane	265	8	3.2%	962	68	7.1%	3,250	132	4.1%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	2,548	253	9.9%	2,379	74	3.1%	35,804	2,614	7.3%
J9	A607 / White Lane / Church Lane	1,431	53	3.7%	820	9	1.2%	12,330	450	3.6%
J10	B1178 Tower Lane / A15 Sleaford Road	1,961	102	5.2%	1,044	40	3.8%	17,415	1,056	6.1%
J11	A15 Sleaford Road / Metheringham Heath Lane / Heath Lane	2,021	113	5.6%	1,011	36	3.5%	21,556	1,565	7.3%
J12	A15 Sleaford Road / Green Man Road	1,811	101	5.6%	843	36	4.3%	19,186	1,444	7.5%

13.6 Embedded Mitigation Measures

Construction and Decommissioning

13.6.1 The Proposed Development will minimise construction impacts by:

a. Implementation of a **Framework CTMP [EN010154/APP/7.18]** and **Framework CEMP [EN010154/APP/7.7]** which will detail and formalise the measures that will mitigate construction-related effects, as well as the Framework **DEMP [EN010154/APP/7.9]** that will detail and formalise the measures that will mitigate decommissioning-related effects;

b. Providing suitable points of access for construction vehicles with adequate visibility, with any supporting improvements (e.g. vegetation clearance) to take place within the highway boundary and the Site if required;

c. Delivering internal construction routes through the Principal Site, to allow vehicles to access all areas via the site access points;

d. Maintaining access to and along PRoW and the existing permissive paths or otherwise providing temporary or permanent PRoW and permissive path diversion routes where necessary to avoid any closures or potential conflicts with the Proposed Development where possible. The diversion routes will be agreed with the local authorities prior to construction, and a **Framework PRoW-MP [EN010154/APP/7.14]** has been prepared as part of the DCO application and contains further measures for PRoW and permissive path management;

e. Managing areas where the proposed construction route crosses any existing local access roads, including by maximising visibility between construction vehicles and other users (including pedestrians and road users), implementing traffic management, e.g. advanced signage to advise other users of the works, as well as manned controls at each crossing point (marshals/ banksmen), with a default priority that construction traffic will give-way to other users;

f. Restricting HGV movements to certain routes (see HGV routing plan in **Figure 13-4 [EN010154/APP/6.2]**);

g. Reducing HGV deliveries during certain times of the day (e.g. between 07:00 and 09:00, as well as between 17:00 and 19:00), to avoid increasing traffic levels on the surrounding highway network during the traditional weekday peak hours;

h. Implementing a Delivery Management System to control the bookings of HGV deliveries from the start of the construction period. This will be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance of HGV routing;

i. Implementing a monitoring system to record the route of all HGVs travelling to and from the Proposed Development, to record any non-compliance with the agreed routing plan/ delivery hours and to

communicate any issues to the relevant suppliers to ensure the correct routes are followed;

j. Developing a communications strategy including regular meetings with contractors to review and address any issues associated with travel to/ from the Proposed Development, as well as to relay information including any restrictions and requirements which should be followed;

k. Implementing Temporary Traffic Management (TTM) where required during the period when the Cables are installed to connect the proposed National Grid substation near Navenby with the Proposed Development.

l. Encouraging local construction staff to car share to reduce single occupancy car trips, by promoting the benefits of car sharing such as reduced fuel costs and by providing dedicated parking spaces within the compounds for those car sharing. A Car Share scheme will be implemented to match potential sharers and to help staff identify any colleagues who could potentially be collected along their route to/ from site;

m. Implementing a shuttle bus service to transfer staff to/ from nearby catchment areas to reduce vehicle trips on the surrounding highway network. At this stage it is expected that the majority of shuttle services would travel to/ from Lincoln (northeast), with the remainder travelling to/ from Newark on Trent (southwest), Grantham and Sleaford (south) and Retford and Worksop (northwest) to collect/ drop off construction staff from 'hubs' at each of these six locations. Up to eight shuttle bus services will be provided, each with a capacity of 50 staff, to transfer the expected peak demand (330 construction workers) to the Principal Site compounds. The modal split for workers travelling to and from the Principal Site is shown in **Table 13-21**;

n. Implementing shuttle bus services to transfer staff internally within the Principal Site and Cable Corridor working areas as required, e.g. between/across the different land parcels (where possible) to minimise external trips on the surrounding highway network, where utilising trips on the surround highway network, consolidating the trips to minimise the number of trips undertaken by construction workers;

o. Providing sufficient on-site car parking within the construction compounds across the Principal Site to accommodate the expected peak parking demand of construction staff within the site. Construction workers will also be able to access other areas of the Principal Site using the shuttle bus service if required;

p. Positioning of suitably qualified banksmen at the proposed accesses for the Principal Site and Cable Corridor, to allow all vehicle arrivals and departures to be safely controlled during the construction period;

q. Vegetation clearance at the proposed access points where required to achieve appropriate levels of visibility at these locations;

r. Providing sufficient cycle parking spaces within the Principal Site to encourage construction staff to travel by bicycle where viable; and

s. A specialised haulage service will be employed to allow abnormal loads to transport components with the necessary escort, permits and traffic management, with the contractor consulting with the relevant highways authorities to ensure the correct permits are obtained. The police will also be given advanced notification under The Road Vehicles (Authorisation of Special Types) (General) Order 2003.

13.6.2 A Decommissioning Traffic Management Plan (DTMP) will be developed by the Principal Contractor prior to decommissioning in consultation with the LPAs. This will include a Decommissioning Worker Travel Plan (DWTP) to utilise sustainable modes of transport for journeys to and from the site, as set out in the **Framework DEMP [EN010154/APP/7.9]**. Both the DTMP and DWTP will use, as their starting point, the measures detailed in **Framework CTMP** submitted alongside the DCO application **[EN010154/APP/7.18]** updated to reflect the circumstances prevailing during the period in which decommissioning is to be carried out.

13.6.3 During the decommissioning phase, there are not expected to be any PRoW closures although some minor diversions are likely to be required to provide safe access across the DCO Site whilst decommissioning activities are taking place. These diversions will be temporary and expected to be for a short duration. Detailed DEMP(s) will confirm PRoWs affected and management measures in consultation with the LPA.

Operation and Maintenance

13.6.4 The Proposed Development will minimise operational impacts by:

a. Providing suitable points of access for operational vehicles (**Figure 3-2A** and **Figure 3-2B [EN010154/APP/6.2]**) including on Haddington Lane, Bassingham Road, Moor Lane, Clay Lane (located near Thorpe on the Hill, not to be confused with the Clay lane near Bassingham), The Avenue, Fosse Lane, Morton Lane and Fen Lane;

b. Converting the internal construction routes to maintenance routes, to allow operational vehicles to access all areas of the Principal Site via the proposed access points during the operational phase;

c. Maintaining access to all existing PRoW within the Proposed Development, with suitable alternative routes provided for the three PRoW sections that will be permanently diverted; and

d. Controlling areas where the internal maintenance route crosses any existing PRoW or local access roads (such as providing gates), permitting only operational traffic to utilise these internal routes within the Principal Site. Operational traffic will give-way to other users (including pedestrians and road users) when utilising the crossing points. Visibility will be maximised between operational vehicles and other users, with warning signage provided if required.

13.7 Assessment of Likely Impacts and Effects

13.7.1 Taking into account the embedded mitigation measures as detailed in **Section 13.6** above, the potential impacts and effects of the Proposed Development have been assessed using the methodology as detailed in **Section 13.4** of this chapter.

Construction (assumed from 2031 to 2033) and Decommissioning (assumed from 2093)

Construction Programme, Working Hours and Assessment Parameters

13.7.2 The following assumptions have been adopted to provide a robust assessment of the Proposed Development:

a. The shortest expected construction programme will be 24 months, which provides a worst-case in terms of monthly (and therefore daily) construction vehicle trips;

b. The core construction working hours will be Monday to Friday (07:00-19:00) and Saturday (07:00-13:00) with no Sunday or Bank Holiday working;

c. Following consultation with LCC Highways, a 'worst case' scenario for staff movements has been used to provide a robust weekday assessment. Accordingly, rather than adopting 06:00-07:00 for staff arrivals and 19:00-20:00 for staff departures, construction worker travel patterns have been based on the 'shoulder' peaks to the traditional network peak hours. Therefore, staff arrivals have been assumed to take place between 07:00-08:00 and staff departures have been assumed to take place between 18:00-19:00 (Monday to Friday), which represents a worst-case assumption;

d. HGV movements have been distributed across an eight-hour window, arriving and departing between 09:00-17:00. HGV movements will, in practice, be limited as far as possible so as not to travel during the traditional peak hours of 08:00-09:00 and 17:00-18:00 through the measures set out within **Paragraph 13.6.1**;

e. LGV movements have been distributed across an eight-hour window between 09:00-17:00 based on a flat profile; and

f. A weekday assessment (Monday to Friday) has been carried out to provide a worst-case assessment of the peak construction phase based on the above.

Forecast Construction Staff Mode Share

13.7.3 The construction staff vehicle split has been based on the same assumptions used for a similar solar scheme, Gate Burton Energy Park which is of comparable size and received planning consent in July 2024. This modal split is shown in **Table 13-21**.

Table 13-21: Construction Staff Vehicle Split

Mode	Staff Mode Share Percentage
Shuttle-bus (non-local staff)	55%
Car driver (local staff)	35%
Car passenger	10%
Total	100%

13.7.4 Based on the daily peak of 575 and 25 construction workers for the Principal Site and Cable Corridor respectively, this assumed modal split has been used to estimate the staff trip generation figures as shown in **Table 13-22** below, although it should be noted that all staff will still travel to the Principal Site.

Table 13-22: Construction Staff Trip Generation

Mode	Principal Site Staff Trips	Cable Corridor Staff Trips	Total
Shuttle-Bus Passengers (55%)	316	14	330
Car Driver / Vehicles (35%)	199	9	208
Car Passenger (10%)	60	3	62
Total	575	25	600

Forecast Trip Attraction

13.7.5 For the purposes of this assessment, the peak daily number of HGVs, LGVs, shuttle buses, and construction staff required for the Principal Site are identified in **Table 13-23** below, during the peak construction phase (2032).

Table 13-23: Forecast Peak Daily and Hourly Construction Trips for Principal Site

Hour	HGVs			LGVs			Shuttle			Staff			Total		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
07:00-08:00	0	0	0	0	0	0	8	8	16	208	0	208	216	8	224
08:00-09:00	0	0	0	0	0	0	1	1	2	0	0	0	1	1	2
09:00-	7	7	14	4	4	8	0	0	0	0	0	0	11	11	22

Hour	HGVs			LGVs			Shuttle			Staff			Total		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
10:00															
10:00-11:00	6	6	12	3	3	6	0	0	0	0	0	0	9	9	18
11:00-12:00	6	6	12	3	3	6	0	0	0	0	0	0	9	9	18
12:00-13:00	6	6	12	3	3	6	0	0	0	0	0	0	9	9	18
13:00-14:00	6	6	12	3	3	6	0	0	0	0	0	0	9	9	18
14:00-15:00	6	6	12	3	3	6	0	0	0	0	0	0	9	9	18
15:00-16:00	6	6	12	3	3	6	0	0	0	0	0	0	9	9	18
16:00-17:00	7	7	14	3	3	6	0	0	0	0	0	0	10	10	20
17:00-18:00	0	0	0	0	0	0	1	1	2	0	0	0	1	1	2
18:00-19:00	0	0	0	0	0	0	8	8	16	0	208	208	8	216	224
Total	50	50	100	25	25	50	18	18	36	208	208	416	301	301	602

Arr – Arrival; Dep – Departure; Tot – Total

Forecast Trip Distribution

13.7.6 All trips associated with the Proposed Development will enter the local network either from the western arm of the Halfway House Roundabout or from the A46 Off-Slips located on Fosse Lane and Old Haddington Lane. These entry points are hereafter referred to as A46 West (or A46W) and A46 East (or A46E) respectively.

13.7.7 To present a robust assignment, it has been assumed that for the Blue and Yellow Zones, all trips will enter the site from the A46W except those associated with the centralised BESS at Construction Access C-009, which will enter the site from A46E.

13.7.8 Conversely, for the Green and Purple Zones, it has been assumed that 100% of Light vehicle trips will enter the Site from the A46E (including those for the centralised BESS), whilst 33% of HGV trips will enter from A46W and 67% will enter from A46E (including those for the centralised BESS).

13.7.9 Since it is unknown when exactly the peak trip movements within the Study Area will occur, the same 'worst-case' trip generation has been adopted for each zone to ensure a robust assessment and cover all eventualities. We have assessed 80% Light vehicle trips and 80% HGVs from the west (along the A46), as well as 100% Light vehicle trips and 67% HGVs from the east (A46), rather than just adopting a an equal 50/50 split, in order to be robust and acknowledges the fact that we do not know where vehicles will exactly originate from, but this way we have accounted for the fact that up to 67% of traffic could arrive/ depart in either direction.

13.7.10 The trip distributions for each Zone are summarised in **Table 13-24** and the zones are set out in **Figure 13-6 [EN010154/APP/6.2].**

Table 13-24: Zonal Trip Distribution Loading Points onto Network

Zone	Entry from A46 West % – Lights	Entry from A46 West % – HGV	Entry from A46 East % – Lights	Entry from A46 East % – HGV
Blue	80%	80%	20%	20%
Yellow	80%	80%	20%	20%
Green	0%	33%	100%	67%
Purple	0%	33%	100%	67%

13.7.11 Within the DCO Site, the HGV trip distribution to each access point has been informed by the accesses which have a construction compound and the expected output of the PV panels associated with that access. It has been assumed that HGVs would only utilise accesses which serve a construction compound where HGV deliveries would be expected to be directly made.

13.7.12 The distribution of Staff and LGV trips to each Site Access has been calculated with reference to the following factors:

a. Expected compound size;

b. Avoidance of route constraints; and

c. HGV profiles of the access points.

13.7.13 **Table 13-25** shows the assumed trip distribution of vehicles to each Construction Access within the Principal Site.

Table 13-25: Trip Distribution for Principal Site Construction Accesses

Access Ref.	Zone	Access Name	Staff	LGV	HGV
C-001	Purple	Fosse Lane (East)	0%	0%	0%
C-002	Purple	Fosse Lane (West)	20%	20%	20%
C-003	Green	Haddington Lane (North)	10%	10%	4%
C-004	Blue	The Avenue	15%	15%	27%
C-005	Green	Stone Lane	5%	5%	0%
C-006	Green	Haddington Lane (East)	5%	5%	0%
C-007	Green	Haddington Lane (West)	8%	8%	8%
C-008	Yellow	Moor Lane	10%	10%	22%
C-009	Green	Bassingham Road	10%	10%	13%
C-010	Green	Lincoln Road	5%	5%	4%
C-011	Yellow	Clay Lane (North West)	5%	5%	0%
C-012	Yellow	Clay Lane (North East)	5%	5%	0%
C-020	Green	Haddington Lane (North)	2%	2%	2%
Total			**100%**	**100%**	**100%**

Forecast Construction Traffic Impact

13.7.14 The forecast increases in two-way vehicle movements during the proposed development weekday peak hours and across the day (12 hours, Monday–Friday), both in terms of actual increases and percentage increases relative to the future baseline traffic flows, are presented in **Table 13-26** below. Full traffic flow tables showing the development peak flows, network peak flows, 12-hour and 24-hour flows can be found in **Appendix 13-D** of the ES **[EN010154/APP/6.3].**

Table 13-26: Construction Traffic Impact (2032) – Principal Site – Development Peak Hours

Ref	Location	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			12-Hour Weekday (07:00-19:00)		
		Base	Dev	% Increase	Base	Dev	% Increase	Base	Dev	% Increase
L1	A46 west of Halfway House Roundabout	3,372	179	5.3%	1,703	179	10.5%	33,647	478	1.4%
L2	Halfway House Lane	258	179	69.5%	146	179	122.4%	2,812	478	17.0%
L3	The Avenue	8	179	2364.7%	4	179	4724.5%	102	478	470.6%
L4	A46 east of Halfway House Roundabout	3,731	0	0.0%	1,697	0	0.0%	37,661	43	0.1%
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	456	174	38.3%	149	216	145.4%	4,185	329	7.9%
L6	Fosse Lane (north of Haddington Lane)	262	0	0.0%	118	0	0.0%	2,831	0	0.0%
L7	Old Haddington Lane (between Haddington Lane and A46)	319	216	67.7%	157	8	5.1%	3,212	329	10.2%
L8	A46 east of Fosse Lane	2,548	224	8.8%	2,379	224	9.4%	31,681	615	1.9%
L9	Haddington Lane (south of Old Haddington Lane)	568	224	39.5%	305	224	73.4%	5,545	615	11.1%
L10	Stone Lane	5	0	0.0%	8	0	0.0%	72	0	0.0%
L11	South Hykeham Road	572	78	13.7%	349	78	22.4%	5,092	288	5.7%

Ref	Location	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			12-Hour Weekday (07:00-19:00)		
		Base	Dev	% Increase	Base	Dev	% Increase	Base	Dev	% Increase
L12	Church Road (east of Bassingham Road)	682	0	0.0%	300	0	0.0%	5,676	0	0.0%
L13	Bassingham Road (southwest of Bridge Road)	93	78	84.4%	162	78	48.2%	1,195	288	24.1%
L14	Haddington Lane (south of Dovecote Lane)	213	64	30.2%	243	64	26.4%	1,908	144	7.6%
L15	Norton Lane	35	0	0.0%	105	0	0.0%	420	0	0.0%
L16	Moor Lane	236	166	70.6%	284	166	58.5%	2,221	478	21.5%
L17	Bassingham Road (between Moor Lane and Clay Lane)	198	83	42.0%	160	83	52.0%	1,886	506	26.8%
L18	Clay Lane	13	83	658.7%	8	83	1096.8%	104	506	489.0%
L19	Unnamed Road (south of Halfway House Roundabout)	1,028	173	16.8%	561	173	30.8%	10,226	478	4.7%
L20	Fosse Lane (between A46 and Haddington Lane)	300	8	2.7%	99	216	218.1%	2,576	329	12.8%
L21	Broughton Lane (south of Hill Rise)	238	0	0.0%	121	0	0.0%	1,997	60	3.0%
L22	Hill Rise	21	0	0.0%	8	0	0.0%	174	60	34.5%
L23	Broughton Lane (north of Hill Rise)	245	0	0.0%	95	0	0.0%	1,968	60	3.0%
L24	Blackmoor Road	742	0	0.0%	391	0	0.0%	6,604	60	0.9%

Ref	Location	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			12-Hour Weekday (07:00-19:00)		
		Base	Dev	% Increase	Base	Dev	% Increase	Base	Dev	% Increase
L25	B1178 Tower Lane	566	0	0.0%	314	0	0.0%	5,530	60	1.1%
L26	A15 Sleaford Road (between Tower Lane and Heath Lane)	1,733	0	0.0%	907	0	0.0%	15,192	60	0.4%
L27	A15 Sleaford Road (between Heath Lane and Green Man Road)	1,560	0	0.0%	882	0	0.0%	12,945	60	0.5%
L28	A15 Sleaford Road (between Green Man Road and Unnamed Road)	1,586	0	0.0%	780	0	0.0%	13,220	60	0.5%
L29	Green Man Road	247	0	0.0%	114	0	0.0%	1,924	60	3.1%
L30	Unnamed Road between A15 Sleaford Road and High Dike	55	0	0.0%	25	0	0.0%	473	60	12.7%
L31	Heath Lane	252	0	0.0%	123	0	0.0%	2,232	60	2.7%
L32	A607 Grantham Road (south of Coleby)	673	0	0.0%	359	0	0.0%	6,113	60	1.0%
L33	A607 Grantham Road (north of Coleby)	769	0	0.0%	382	0	0.0%	6,581	60	0.9%
L34	Fen Lane	0	0	0.0%	0	0	0.0%	4	60	1672.7%
L35	Clay Lane (north of Main Street)	13	0	0.0%	12	0	0.0%	185	0	0.0%

Ref	Location	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			12-Hour Weekday (07:00-19:00)		
		Base	Dev	% Increase	Base	Dev	% Increase	Base	Dev	% Increase
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	157	87	55.5%	60	87	145.9%	1,241	195	15.7%
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	4,217	179	4.2%	2,066	179	8.7%	42,400	478	1.1%
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	529	181	34.2%	172	222	129.1%	4,950	568	11.5%
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	734	224	30.5%	289	224	77.5%	6,568	615	9.4%
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	711	176	24.7%	1,005	176	17.5%	7,606	495	6.5%
J5	Bridge Road/Church Road/Bassingham Road	720	78	10.9%	409	78	19.1%	6,333	288	4.5%
J6	Haddington Lane/Bassingham Road/Moor Lane	320	83	26.0%	950	83	8.8%	3,827	506	13.2%
J7	Unnamed Road/Moor Lane/Norton Lane	265	166	62.7%	962	166	17.3%	3,341	478	14.3%

Ref	Location	AM Development Peak (07:00-08:00)			PM Development Peak (18:00-19:00)			12-Hour Weekday (07:00-19:00)		
		Base	Dev	% Increase	Base	Dev	% Increase	Base	Dev	% Increase
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	2,548	224	8.8%	2,379	224	9.4%	31,681	615	1.9%
J9	A607 / White Lane / Church Lane	1,431	0	0.0%	820	0	0.0%	12,329	60	0.5%
J10	B1178 Tower Lane / A15 Sleaford Road	1,961	0	0.0%	1,044	0	0.0%	17,414	60	0.3%
J11	A15 Sleaford Road / Metheringham Heath Lane / Heath Lane	2,021	0	0.0%	1,011	0	0.0%	21,554	60	0.3%
J12	A15 Sleaford Road / Green Man Road	1,811	0	0.0%	843	0	0.0%	19,184	60	0.3%

Screening

13.7.15 The results shown in **Table 13-25** and **Table 13-26** have been used to inform the screening assessment. As stated in the screening criteria outlined in **Section 13.4**, receptors which experience increases of fewer than 30 additional vehicle trips during the development peak hours have been screened out. The results of the screening assessment are shown in **Table 13-27**. It should be noted that all PRoW receptors have been screened in by default and are therefore not included in the table.

Table 13-27: List of receptors screened in for the assessment

Scheme Aspect	Ref	Receptor	Receptor screened in (yes/ no)
PS	L1	A46 west of Halfway House Roundabout	Yes
PS	L2	Halfway House Lane	Yes
PS	L3	The Avenue	Yes
PS	L4	A46 east of Halfway House Roundabout	No
PS	L5	Haddington Lane (North of Old Haddington Lane)	Yes
PS	L6	Fosse Lane (north of Haddington Lane)	No
PS	L7	Old Haddington Lane (between Haddington Lane and A46)	Yes
PS	L8	A46 west of Hykeham Roundabout	Yes
PS	L9	Haddington Lane (South of Old Haddington Lane)	Yes
PS	L10	Stone Lane	No
PS	L11	Butts Lane	Yes
PS	L12	Church Road (between Bridge Road and Royal Oak Lane)	No
PS	L13	Bassingham Road (northeast)	Yes
PS	L14	Haddington Lane (south of Dovecote Lane)	Yes
PS	L15	Norton Lane	No
PS	L16	Moor Lane	Yes
PS	L17	Bassingham Road (southwest)	Yes
PS	L18	Clay Lane	Yes
PS	L19	Camp Road (south of Halfway House roundabout)	Yes
PS	L20	Fosse Lane (between A46 and Haddington Lane)	Yes
CC	L21	Broughton Lane (south of Hill Rise)	No
CC	L22	Hill Rise	No
CC	L23	Broughton Lane (north of Hill Rise)	No

Scheme Aspect	Ref	Receptor	Receptor screened in (yes/ no)
CC	L24	Blackmoor Road	No
CC	L25	B1178 Tower Lane	No
CC	L26	A15 Sleaford Road (between Tower Lane and Heath Lane)	No
CC	L27	A15 Sleaford Road (between Heath Lane and Green Man Road)	No
CC	L28	A15 Sleaford Road (between Green Man Road and Unnamed Road)	No
CC	L29	Green Man Road	No
CC	L30	Unnamed Road between A15 Sleaford Road and High Dike	No
CC	L31	Heath Lane	No
CC	L32	A607 Grantham Road (south of Coleby)	No
CC	L33	A607 Grantham Road (north of Coleby)	No
CC	L34	Fen Lane	No
PS	L35	Clay Lane (north of Main Street)	No
PS	L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Yes
PS	J1	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	Yes
PS	J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	Yes
PS	J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	Yes
PS	J4	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	Yes
PS	J5	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	Yes
PS	J6	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	Yes
PS	J7	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	Yes
PS	J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Yes
CC	J9	A607 / White Lane / Church Lane	No
CC	J10	B1178 Tower Lane / A15 Sleaford Road	No
CC	J11	A15 Sleaford Road / Metheringham Heath Lane / Heath Lane	No
CC	J12	A15 Sleaford Road / Green Man Road	No

13.7.16 It can be observed that the screening results presented above indicate that all of the receptors located within the Cable Corridor have been screened out owing to the low number of additional vehicle trips and have therefore not been assessed further.

13.7.17 Following the above, the anticipated impacts for each of the assessment criteria at each screened-in receptor are set out below.

13.7.18 Impacts on road link and road junction receptors during the construction and decommissioning of the Proposed Development have been determined for the following categories:

a. Severance of communities;
b. Pedestrian delay (incorporating delay to all non-motorised users);
c. Non-motorised user amenity;
d. Fear and intimidation on and by road users;
e. Road vehicle driver and passenger delay;
f. Road user and pedestrian safety; and
g. Large loads.

13.7.19 Impacts on PRoW receptors during the construction and decommissioning of the Proposed Development have been determined for the following categories:

a. Severance;
b. Pedestrian delay;
c. Pedestrian and cyclist amenity; and
d. Fear and intimidation.

13.7.20 Caution has been observed when applying the thresholds to road links or road junctions with very low baseline flows, given that these are unlikely to experience impacts even with high percentage changes in traffic. In consideration of this, the level of magnitude has been downgraded by a single category (from Large to Medium, or from Medium to Small) where the baseline traffic flow falls below a certain level. Thresholds adopted are 100 movements (i.e. fewer than two vehicles per minute) in the assessed one-hour period, or below an average of 50 movements per hour (i.e. fewer than one vehicle per minute) when reviewing the 12-hour weekday and 24-hour average day periods. This has been based on total movements where the total percentage change initially results in a High or Medium magnitude, and/or HGV movements where the same applies based on the HGV percentage change.

Sensitivity

13.7.21 Different criteria for sensitivity have been used for each assessment category as follows:

a. Severance, Pedestrian Delay, Non-Motorised User Amenity, Fear and Intimidation;

b. Driver Delay;

c. Road Safety; and

d. Large Loads.

13.7.22 Details of receptor sensitivity for Severance, Pedestrian Delay, Non-Motorised User Amenity and Fear and Intimidation are set out within **Table 13-28** below.

Table 13-28: Sensitivity of receptors for Severance, Pedestrian Delay, Non-Motorised User Amenity and Fear & Intimidation

Receptor Ref	Receptor	Sensitivity	Justification
L1	A46 west of Halfway House Roundabout	Very Low	No sensitive users or receptors present
L2	Halfway House Lane	Very Low	Rural setting with no pedestrian/ cycle facilities
L3	The Avenue	Very Low	Rural setting with no pedestrian/ cycle facilities
L5	Haddington Lane (North of Old Haddington Lane)	Very Low	No sensitive users or receptors present
L7	Old Haddington Lane (between Haddington Lane and A46)	Low	Rural setting with limited pedestrian/ cycle facilities
L8	A46 west of Hykeham Roundabout	Low	Main road in a rural setting with limited pedestrian/ cycle facilities
L9	Haddington Lane (South of Old Haddington Lane)	Very low	Rural setting with no pedestrian/ cycle facilities
L11	Butts Lane	Low	Pedestrian footway on South Hykeham Road
L13	Bassingham Road (northeast)	Low	Rural setting but has a Church located on this road
L14	Haddington Lane (south of Dovecote Lane)	Very Low	No sensitive users or receptors present
L16	Moor Lane	Very Low	Rural setting with no pedestrian/ cycle facilities
L17	Bassingham Road (southwest)	Low	Rural setting with limited pedestrian/ cycle facilities
L18	Clay Lane	Very Low	Rural setting with no pedestrian/ cycle facilities

Receptor Ref	Receptor	Sensitivity	Justification
L19	Camp Road (south of Halfway House roundabout)	Low	Rural setting with limited pedestrian/ cycle facilities
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	Rural setting with no pedestrian/ cycle facilities
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	No sensitive users or receptors along the link
J1	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	Low	Footway present around roundabout
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	Very Low	No pedestrian or cycle facilities here
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	Very Low	No pedestrian or cycle facilities here
J4	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	Very Low	Four arm priority junction with no pedestrian/ cycle facilities
J5	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	Low	Three arm priority junction with pedestrian/ cycle facilities
J6	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	Low	Three arm priority junction with pedestrian/ cycle facilities
J7	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	Very Low	Three arm priority junction with no pedestrian/ cycle facilities
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Industrial/retail park not defined as sensitivity receptor, no ped or cycle facilities nearby
P1	LL|TOTH|6/1	Very Low	Footpath (non-trafficked route)
P2	LL|TOTH|7/2	Very Low	Pedestrian/cycle route not running alongside highway
P3	LL|TOTH|15/1	Very Low	Pedestrian/cycle route not running alongside highway
P4	LL|TOTH|7/3	Very Low	Footpath (non-trafficked route)

Receptor Ref	Receptor	Sensitivity	Justification
P5	LL|TOTH|21/1	Very Low	Footpath (non-trafficked route)
P6	LL|TOTH|6/2	Very Low	Pedestrian/cycle route not running alongside highway
P7	LL|TOTH|6/3	Very Low	Footpath (non-trafficked route)
P8	LL|TOTH|13/1	Very Low	Footpath (non-trafficked route)
P9	LL|TOTH|6A/1	Very Low	Footpath (non-trafficked route)
P10	LL|TOTH|11/1	Very Low	Pedestrian/cycle route not running alongside highway
P11	LL|TOTH|12/1	Medium	Public Bridleway (trafficked route)
P12	LL|TOTH|12/3	Very Low	Public Bridleway (non-trafficked route)
P13	LL|Aubo|12/2	Very Low	Pedestrian/cycle route not running alongside highway
P14	LL|Aubo|11/2	Very Low	Pedestrian/cycle route not running alongside highway
P15	LL|Aubo|13/1	Very Low	Restricted Byway (non-trafficked route)
P16	LL|Aubo|10/1	Very Low	Footpath (non-trafficked route)
P17	LL|Aubo|8/1	Very Low	Restricted Byway (non-trafficked route)
P18	LL|Bass|23/1	Very Low	Lightly trafficked highway with off-road pedestrian/cycle route
P19	LL|ThuN|1/1	Very Low	Footpath (non-trafficked route)
P20	LL|ThuN|2/1	Very Low	Pedestrian/cycle route not running alongside highway
P21	LL|ThuN|5/1	Very Low	Footpath (non-trafficked route)
P22	LL|Cole|1/2	Very Low	Footpath (non-trafficked route)
P23	LL|Cole|3/1	Very Low	Footpath (non-trafficked route)

Receptor Ref	Receptor	Sensitivity	Justification
P24	LL|Cole|4/1	Very Low	Footpath (non-trafficked route)
P25	LL|BooG|5/1	Very Low	Footpath (non-trafficked route)
P26	LL|Aubo|12/1	Very Low	Footpath (non-trafficked route)
P27	LL|Bass|20/1	Very Low	Restricted Byway (non-trafficked route)
P28	LL|Bass|21/2	Very Low	Restricted Byway (non-trafficked route)
P29	LL|Bass|22/1	Very Low	Footpath (non-trafficked route)
P30	LL|TOTH|5/1	Very Low	Footpath (non-trafficked route)
P31	LL|TOTH|11/2	Very Low	Pedestrian/cycle route not running alongside highway
P32	LL|Aubo|9/1	Very Low	Footpath (non-trafficked route)
P33	LL|Aubo|11/1	Very Low	Footpath (non-trafficked route)
P34	LL|ThuN|3/1	Very Low	Footpath (non-trafficked route)
P35	LL|Swdb|4/1	Very Low	Footpath (non-trafficked route)
P36	LL|Swdb|5/1	Very Low	Restricted Byway (non-trafficked route)
P37	LL|NoDi|1/2	Very Low	Footpath (non-trafficked route)
P38	LL|TOTH|7/1	Very Low	Pedestrian/cycle route not running alongside highway
P39	LL|TOTH|12/2	Medium	Public Bridleway (trafficked route)
P40	LL|TOTH|13/2	Very Low	Footpath (non-trafficked route)
P41	LL|NoDi|1/1	Very Low	Footpath (non-trafficked route)
P42	LL|NoDi|4/1	Very Low	Footpath (non-trafficked route)
P43	LL|BooG|2/2	Very Low	Footpath (non-trafficked route)

Receptor Ref	Receptor	Sensitivity	Justification
P44	DMMO 574	Very Low	Footpath (non-trafficked route)
P45	DMMO 453	Very Low	Restricted Byway (non-trafficked route)
P46	LL|Aubo|13/2	Very Low	Restricted Byway (non-trafficked route)
P47	LL|Bass|21/3	Very Low	Restricted Byway (non-trafficked route)

13.7.23 Details of receptor sensitivity for Driver Delay are set out within **Table 13-29** below.

Table 13-29: Receptor Sensitivity for Driver Delay

Receptor Ref	Receptor	Sensitivity	Justification
L1	A46 west of Halfway House Roundabout	Medium	West of junction J1 which has high sensitivity
L2	Halfway House Lane	Low	North of junction J1 but with medium hourly flows
L3	The Avenue	Very low	Not next to any junctions, very low hourly flows
L5	Haddington Lane (North of Old Haddington Lane)	Low	South of J2 which has low sensitivity
L7	Old Haddington Lane (between Haddington Lane and A46)	Medium	East of J3 which has medium sensitivity
L8	A46 west of Hykeham Roundabout	Medium	On A46 between J1 and J8 which both have high sensitivity
L9	Haddington Lane (South of Old Haddington Lane)	Low	South of J3 which has medium sensitivity
L11	Butts Lane	Low	East of J4 which has medium sensitivity
L13	Bassingham Road (northeast)	Low	East of J5 which has low sensitivity
L14	Haddington Lane (south of Dovecote Lane)	Low	South of J4 which has medium sensitivity
L16	Moor Lane	Very low	Between J6 and J7 which have low and

Receptor Ref	Receptor	Sensitivity	Justification
			very low sensitivity respectively
L17	Bassingham Road (southwest)	Low	Southeast of J6 which has low sensitivity
L18	Clay Lane	Very low	South of J6 which has low sensitivity
L19	Camp Road (south of Halfway House roundabout)	Low	In between J1 and J7 which have high and very low sensitivity respectively
L20	Fosse Lane (between A46 and Haddington Lane)	Low	East of J2 which has low sensitivity
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Low	Local route outside of built-up area
J1	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	High	Max queue of 15+ vehicles on 3 arms in both peak hours
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	Low	Max queue of 7 vehicles in the PM peak hour on one arm, and 3 vehicles in the AM peak hour on one arm
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	Medium	Max queue of 11+ vehicles on arm in the PM peak hour, and 5 vehicles in the AM peak hour on one arm
J4	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	Medium	Max queue of 15 vehicles in the AM peak hour one one arm and 13 in the PM peak hour on one arm
J5	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	Low	Max queue of 7 vehicles in the AM peak hour on one arm and 6 vehicles in the PM peak hour on one arm
J6	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	Low	Max queue of 5 vehicles in the PM peak hour on one arm and 4 in the AM peak hour on one arm

Receptor Ref	Receptor	Sensitivity	Justification
J7	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	Very Low	Max queue of 2 vehicles on one arm in the AM peak hour and 3 in the PM peak hour on one arm
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	High	Similar levels of traffic as J1 and busy road

13.7.24 A review of PIA data obtained from LCC for the Traffic and Transport Study Area shown in **Figure 13-1 [EN010154/APP/6.2]** for the most recently available five-year period (1 June 2019 to 31 May 2024) has been undertaken. Figures from this data have been used to assess the road safety sensitivity of the link and junction receptors within the Proposed Development area. Details of receptor sensitivity for Road Safety are set out within **Table 13-30** below.

Table 13-30: Receptor Sensitivity for Road Safety

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
PS	L1	A46 west of Halfway House Roundabout	Very Low	1 collision in the past 5 years (no serious or fatal)
PS	L2	Halfway House Lane	Very Low	1 collision in the past 5 years (no serious or fatal)
PS	L3	The Avenue	Very Low	No collisions in the past 5 years
PS	L5	Haddington Lane (North of Old Haddington Lane)	Low	1 serious collision in the past 5 years
PS	L7	Old Haddington Lane (between Haddington Lane and A46)	Very Low	No collisions in the past 5 years
PS	L8	A46 west of Hykeham Roundabout	High	17 collisions in the past 5 years, 7 of which involved a Goods Vehicle (>3.5 tonnes)
PS	L9	Haddington Lane (South of Old Haddington Lane)	Very Low	No collisions in the past 5 years
PS	L11	Butts Lane	Low	1 serious collision in the past 5 years
PS	L13	Bassingham Road (northeast)	Low	2 collisions including 1 serious

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
				collision in the past 5 years
PS	L14	Haddington Lane (south of Dovecote Lane)	Medium	5 collisions including 1 serious collision in the past 5 years
PS	L16	Moor Lane	Very Low	No collisions in the past 5 years
PS	L17	Bassingham Road (southwest)	Medium	3 collisions including 1 serious collision in the past 5 years. Upgraded to Medium based on Collision Analysis.
PS	L18	Clay Lane	Very Low	No collisions in the past 5 years
PS	L19	Camp Road (south of Halfway House roundabout)	Very Low	No collisions in the past 5 years
PS	L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	No collisions in the past 5 years
PS	L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	No collisions in the five-year period
PS	J1	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	High	11 collisions in the past 5 years
PS	J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	Low	2 collisions including 1 serious collision in the past 5 years
PS	J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	Very Low	1 collision in the past 5 years (no serious or fatal)
PS	J4	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	Medium	4 collisions including 2 serious collisions in the past 5 years
PS	J5	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	Very Low	No collisions in the past 5 years

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
PS	J6	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	Very Low	No collisions in the past 5 years
PS	J7	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	Very Low	2 collisions in the past 5 years including 1 involving a Goods Vehicle which was slight in severity
PS	J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	High	10 collisions in the past 5 years

13.7.25 It should be noted that a common causation factor of losing control and a high collision rate were identified on Receptor L14. However, the sensitivity has not been upgraded from Medium to High for the following reasons:

a. The collisions occurred at different sections of the link, with two on the right-hand bends in the centre, two on slight bends and one on the straight-ahead section;

b. Two of the collisions occurred between 22:00-00:00 which are outside of the staff working hours; and

c. The threshold for assigning a Medium sensitivity for road safety is five collisions (up to three serious), and this link has five collisions with one serious, therefore this link just falls under a Medium sensitivity.

13.7.26 Details of receptor sensitivity for Large Loads are set out within **Table 13-31** below.

Table 13-31: Receptor Sensitivity for Large Loads

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
PS	L1	A46 west of Halfway House Roundabout	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L2	Halfway House Lane	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L3	The Avenue	Very Low	No serious or fatal accidents involving goods

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
				vehicles in last five years
PS	L5	Haddington Lane (North of Old Haddington Lane)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L7	Old Haddington Lane (between Haddington Lane and A46)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L8	A46 west of Hykeham Roundabout	Medium	3 serious collisions involving a goods vehicle in last five years
PS	L9	Haddington Lane (South of Old Haddington Lane)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L11	Butts Lane	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L13	Bassingham Road (northeast)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L14	Haddington Lane (south of Dovecote Lane)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L16	Moor Lane	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L17	Bassingham Road (southwest)	Very Low	No serious or fatal accidents involving goods

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
				vehicles in last five years
PS	L18	Clay Lane	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L19	Camp Road (south of Halfway House roundabout)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J1	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J4	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J5	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	Very Low	No serious or fatal accidents involving goods

Scheme Aspect	Receptor Ref	Receptor	Sensitivity	Justification
				vehicles in last five years
PS	J6	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J7	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	Very Low	No serious or fatal accidents involving goods vehicles in last five years
PS	J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	No serious or fatal accidents involving goods vehicles in last five years

Severance

13.7.27 IEMA Guidelines (Ref 13-7) state that 30%, 60% and 90% increases in total traffic flows or 10%, 40% and 90% increases in HGV traffic flows would result in slight, moderate and substantial changes in magnitude with respect to severance, respectively. The results of the Severance assessment are shown in **Table 13-32**.

Table 13-32: Receptor assessment for Severance

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Very Low	Very Low	Negligible
L2	Halfway House Lane	Very Low	High	Medium	Negligible
L3	The Avenue	Very Low	High	Medium	Negligible
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	Very Low	High	Medium	Negligible
L7	Old Haddington Lane (between Haddington Lane and A46)	Low	High	Medium	Minor
L8	A46 east of Fosse Lane	Low	Low	Low	Negligible
L9	Haddington Lane (south of Old Haddington Lane)	Very low	High	Medium	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L11	South Hykeham Road	Low	High	Medium	Minor
L13	Bassingham Road (southwest of Bridge Road)	Low	High	Medium	Minor
L14	Haddington Lane (south of Dovecote Lane)	Very Low	Medium	Medium	Negligible
L16	Moor Lane	Very Low	Medium	Medium	Negligible
L17	Bassingham Road (between Moor Lane and Clay Lane)	Low	Low	Low	Negligible
L18	Clay Lane	Very Low	High	Medium	Negligible
L19	Unnamed Road (south of Halfway House Roundabout)	Low	Low	Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	High	Medium	Negligible
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	High	Medium	Negligible
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	Low	Very Low	Very Low	Negligible
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	Very Low	High	Medium	Negligible
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	Very Low	High	Medium	Negligible
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	Very Low	Medium	Medium	Negligible
J5	Bridge Road/Church Road/Bassingham Road	Low	High	Medium	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
J6	Haddington Lane/Bassingham Road/Moor Lane	Low	Low	Low	Negligible
J7	Unnamed Road/Moor Lane/Norton Lane	Very Low	Medium	Medium	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Low	Low	Negligible

13.7.28 Manual assessment of each of these receptors has determined that with the exception of L36, all 'High' magnitudes are a result of very low total or HGV flows in the base period. Therefore, these have been manually adjusted to 'Medium' for the purposes of this assessment. Since the PM network baseline peak flows on L36 (without development traffic) are higher than the sum of each development peak hour with the respective AM or PM development trips, the magnitude at this receptor has been reclassified as 'Medium' as this receptor currently and will continue to accommodate higher hourly traffic flows than is expected with the Proposed Development in place.

13.7.29 Consequently, the impact of Severance on all link and junction receptors has been classified as either Minor or Negligible.

13.7.30 The magnitude of change with respect to Severance across the PRoW receptors has been categorised as follows based on professional judgement and experience:

a. Very Low:
    i. No closures or diversions required, or temporary (short-term, one to five days) closures are only required to install safety measures to retain PRoW access throughout construction;
b. Low:
    i. One of:
        - Up to two temporary (short-term, one to four weeks) localised closures/ diversions and/or construction routes crossing points (inclusive) are required;
        - One temporary diversion required to accommodate haul road; or
        - One permanent diversion of less than 400m is required and will result in no change in connectivity with other local PRoW;
c. Medium:
    i. Either:

- Closures/ diversions: up to three temporary (long-term, more than four weeks in any 12-month period) or permanent closures/ diversions and/or construction route crossing points (inclusive) are required; or
- One permanent diversion of more than 400m is required and will result in no change in connectivity with other local PRoW;

d. High:

i. Either:

- Four or more temporary (long-term, more than four weeks in any 12-month period) or closures/ diversions and/or construction route crossing points (inclusive) are required; or
- At least one permanent closure without a diversion is required, or a diversion which is greater than 400m and results in reduced connectivity with other PRoW in the area is required.

13.7.31 Details on PRoW management which will be subject to temporary or permanent diversions or will have construction route crossing points are set out in the **Framework PRoW-MP[EN010154/APP/7.14]**.

13.7.32 The majority of PRoW receptors will not require any diversions or closures and have therefore been classified as having Very Low magnitude. The exceptions to these are shown in **Table 13-33**.

Table 13-33: PRoW Requiring Diversions and/or Construction Route Crossing Points

Receptor ID	Receptor Name	Sensitivity	No. Permanent Diversions	Permanent Diversion Details	Total No. Temporary Diversions/Construction Route Crossing Points	Magnitude	Significance
P1	LL|TOTH|6/1	Very Low	0	N/A	3	Medium	Negligible
P2	LL|TOTH|7/2	Very Low	0	N/A	2	Low	Negligible
P3	LL|TOTH|15/1	Very Low	0	N/A	3	Medium	Negligible
P5	LL|TOTH|21/1	Very Low	0	N/A	2	Low	Negligible
P6	LL|TOTH|6/2	Very Low	0	N/A	2	Low	Negligible
P7	LL|TOTH|6/3	Very Low	0	N/A	2	Low	Negligible
P8	LL|TOTH|13/1	Very Low	1	164m in length, no disruption to connectivity with other PRoW	0	Low	Negligible
P10	LL|TOTH|11/1	Very Low	0	N/A	3	Medium	Negligible
P11	LL|TOTH|12/1	Medium	0	N/A	2	Low	Minor
P12	LL|TOTH|12/3	Very Low	0	N/A	2	Low	Negligible
P13	LL|Aubo|12/2	Very Low	0	N/A	3	Medium	Negligible
P14	LL|Aubo|11/2	Very Low	0	N/A	3	Medium	Negligible
P15	LL|Aubo|13/1	Very Low	0	N/A	2	Low	Negligible
P16	LL|Aubo|10/1	Very Low	1	434m in length, however less than 400m in additional length compared to existing route. No disruption to connectivity with other PRoW	3	Medium	Negligible

P17	LL|Aubo|8/1	Very Low	0	N/A	3	Medium	Negligible
P18	LL|Bass|23/1	Very Low	0	N/A	4	High	Minor
P20	LL|ThuN|2/1	Very Low	2	292m in length, but diversion follows path commonly used by PRoW users so in practice is no different from existing route.	3	Medium	Negligible
P23	LL|Cole|3/1	Very Low	0	N/A	4	High	Minor
P24	LL|Cole|4/1	Very Low	0	N/A	3	Medium	Negligible
P25	LL|BooG|5/1	Very Low	0	N/A	4	High	Minor
P43	LL|BooG|2/2	Very Low	0	N/A	4	High	Minor
P46	LL|Aubo|13/2	Very Low	0	N/A	2	Low	Negligible
P47	LL|Bass|21/3	Very Low	0	N/A	2	Low	Negligible

13.7.33 All PRoW which will require temporary diversions/construction route crossing points or permanent diversions have been classed as having low or medium magnitude and low or very low sensitivity (apart from P11 which has medium sensitivity). The Severance impacts for PRoW receptors P11, P18, P23, P25 and P43 have been assessed as Minor and the Severance impact for all other PRoW receptors has been assessed as Negligible.

13.7.34 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3].**

Pedestrian Delay

13.7.35 IEMA Guidelines (Ref 13-7) indicate that Pedestrian Delay is closely related to Severance. In the absence of clear guidance on how best to assess Pedestrian Delay, the same assessment criteria used to assess Severance have therefore been applied to the Pedestrian Delay assessment. The results of this assessment are shown in **Table 13-34**.

Table 13-34: Receptor assessment for Pedestrian Delay

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Very Low	Very Low	Negligible
L2	Halfway House Lane	Very Low	High	Medium	Negligible
L3	The Avenue	Very Low	High	Medium	Negligible
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	Very Low	Very Low	Very Low	Negligible
L7	Old Haddington Lane (between Haddington Lane and A46)	Low	High	Medium	Negligible
L8	A46 east of Fosse Lane	Low	Very Low	Very Low	Negligible
L9	Haddington Lane (south of Old Haddington Lane)	Very low	High	Medium	Minor
L11	South Hykeham Road	Low	Low	Low	Negligible
L13	Bassingham Road (southwest of Bridge Road)	Low	High	Medium	Negligible
L14	Haddington Lane (south of Dovecote Lane)	Very Low	Very Low	Very Low	Negligible
L16	Moor Lane	Very Low	High	Medium	Minor

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L17	Bassingham Road (between Moor Lane and Clay Lane)	Low	Very Low	Very Low	Negligible
L18	Clay Lane	Very Low	High	Medium	Minor
L19	Unnamed Road (south of Halfway House Roundabout)	Low	Low	Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	Very Low	Very Low	Negligible
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	Medium	High	Minor
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	Low	Low	Low	Negligible
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	Very Low	High	Medium	Negligible
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	Very Low	Low	Low	Negligible
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	Very Low	High	Medium	Negligible
J5	Bridge Road/Church Road/Bassingham Road	Low	Very Low	Very Low	Negligible
J6	Haddington Lane/Bassingham Road/Moor Lane	Low	Very Low	Very Low	Negligible
J7	Unnamed Road/Moor Lane/Norton Lane	Very Low	Very Low	Very Low	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Very Low	Very Low	Negligible

13.7.36 Manual assessment of each of these receptors has determined that with the exception of L36, all 'High' magnitudes are a result of very low total or HGV flows in the base period. Therefore, these have been manually adjusted to 'Medium' for the purposes of this assessment. Since the PM network peak flows on L36 are higher than the sum of each development peak hour flows and the respective AM or PM development trips, it is considered that this receptor can accommodate additional development trip flows. The magnitude at this receptor has therefore also been reclassified as 'Medium'.

13.7.37 Consequently, all link and junction receptors have been judged to have a Pedestrian Delay impact of Minor or Negligible significance.

13.7.38 The magnitude of change with respect to Pedestrian Delay across these PRoW receptors has been categorised through the same methodology for the Severance assessment. The Pedestrian Delay impacts for PRoW receptors P11, P18, P23, P25 and P43 have therefore been judged as Minor and the Pedestrian Delay impact for all other PRoW receptors has been assessed as Negligible.

13.7.39 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3]**.

Driver Delay

13.7.40 IEMA Guidelines (Ref 13-7) suggest that 30%, 60% and 90% increases in total traffic flows would result in low, medium and high changes in magnitude with respect to driver delay, respectively. The results of the Driver Delay assessment are shown in **Table 13-35** below.

Table 13-35: Receptor assessment for Driver Delay

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Very Low	Very Low	Negligible
L2	Halfway House Lane	Very Low	High	Medium	Minor
L3	The Avenue	Very Low	High	Medium	Negligible
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	Very Low	High	Medium	Minor
L7	Old Haddington Lane (between Haddington Lane and A46)	Low	Medium	Medium	Minor
L8	A46 east of Fosse Lane	Low	Very Low	Very Low	Negligible
L9	Haddington Lane (south of Old Haddington Lane)	Very low	Medium	Medium	Minor
L11	South Hykeham Road	Low	Very Low	Very Low	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L13	Bassingham Road (southwest of Bridge Road)	Low	Medium	Medium	Minor
L14	Haddington Lane (south of Dovecote Lane)	Very Low	Low	Low	Negligible
L16	Moor Lane	Very Low	Medium	Medium	Negligible
L17	Bassingham Road (between Moor Lane and Clay Lane)	Low	Low	Low	Negligible
L18	Clay Lane	Very Low	High	Medium	Negligible
L19	Unnamed Road (south of Halfway House Roundabout)	Low	Low	Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	High	Medium	Minor
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	High	Medium	Minor
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	Low	Very Low	Very Low	Minor
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	Very Low	High	Medium	Minor
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	Very Low	Medium	Medium	Minor
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	Very Low	Very Low	Very Low	Negligible
J5	Bridge Road/Church Road/Bassingham Road	Low	Very Low	Very Low	Negligible
J6	Haddington Lane/Bassingham Road/Moor Lane	Low	Very Low	Very Low	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
J7	Unnamed Road/Moor Lane/Norton Lane	Very Low	Medium	Medium	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Very Low	Very Low	Minor

13.7.41 The assessments of 'High' magnitude for receptors L3 and L18 are caused by very low total traffic flows in the base AM and PM Development Peak periods and as such are not considered representative. Therefore, the magnitudes for these receptors have been downgraded to 'Medium' for the purposes of this assessment. The 'High' magnitudes identified at Receptors L2, L5, L20, L36 and J2 have also been revised to 'Medium' on the basis that the sum of their development peak flows and expected development trips are lower than the baseline flows during the network peaks and should therefore be able to be accommodated by their existing operational capacities.

13.7.42 All receptors have consequently been classified as having a Minor or Negligible Driver Delay impact.

13.7.43 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3]**.

Non-Motorised User Amenity

13.7.44 IEMA Guidelines (Ref 13-7) suggest that 50%, 70% and 100% increases in total traffic flows would result in slight, moderate and substantial changes in magnitude respectively. The results of this assessment are shown in **Table 13-36** below.

Table 13-36: Receptor assessment for Non-Motorised User Amenity

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Very Low	Very Low	Negligible
L2	Halfway House Lane	Very Low	High	Medium	Negligible
L3	The Avenue	Very Low	High	Medium	Negligible
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	Very Low	High	Medium	Negligible
L7	Old Haddington Lane (between Haddington Lane and A46)	Low	Low	Low	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L8	A46 east of Fosse Lane	Low	Very Low	Very Low	Negligible
L9	Haddington Lane (south of Old Haddington Lane)	Very low	Medium	Medium	Negligible
L11	South Hykeham Road	Low	Very Low	Very Low	Negligible
L13	Bassingham Road (southwest of Bridge Road)	Low	Medium	Medium	Minor
L14	Haddington Lane (south of Dovecote Lane)	Very Low	Very Low	Very Low	Negligible
L16	Moor Lane	Very Low	Medium	Medium	Negligible
L17	Bassingham Road (between Moor Lane and Clay Lane)	Low	Low	Low	Negligible
L18	Clay Lane	Very Low	High	Medium	Negligible
L19	Unnamed Road (south of Halfway House Roundabout)	Low	Very Low	Very Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	High	Medium	Negligible
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	High	Medium	Minor
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	Low	Very Low	Very Low	Negligible
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	Very Low	High	Medium	Negligible
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	Very Low	Medium	Medium	Negligible
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	Very Low	Very Low	Very Low	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
J5	Bridge Road/Church Road/Bassingham Road	Low	Very Low	Very Low	Negligible
J6	Haddington Lane/Bassingham Road/Moor Lane	Low	Very Low	Very Low	Negligible
J7	Unnamed Road/Moor Lane/Norton Lane	Very Low	Low	Low	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Very Low	Very Low	Negligible

13.7.45 The 'High' magnitudes assessed for receptors L3 and L18 are caused by very low total traffic flows in the base AM and PM Development Peak periods and as such are not considered representative. The magnitude for these receptors have therefore been downgraded to 'Medium' for the purposes of this assessment. The 'High' magnitudes identified for L5, L20, L36 and J2 have similarly been downgraded to medium on the basis that the sum of the development peak flows and development trips are less than the network peak flows, indicating that the receptors have enough operational capacity to accommodate the development trips.

13.7.46 As a result, all link and junction receptors have been classified as having either a Minor or Negligible impact for Non-Motorised User Amenity.

13.7.47 The magnitude of change with respect to Non-Motorised User Amenity across these PRoW receptors has been categorised through the same methodology for the Severance assessment. The Amenity impacts for PRoW receptors P11, P18, P23, P25 and P43 have therefore been judged as Minor and the Amenity impact for all other PRoW receptors has been assessed as Negligible.

13.7.48 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3]**.

Fear and Intimidation

13.7.49 IEMA Guidelines (Ref 13-7) recommend that three factors need to be considered when assessing the impacts of a development on fear and intimidation caused by traffic, as shown in **Table 13-11**.

13.7.50 No changes in average speed are expected as a result of the Proposed Development, so this parameter has not affected the assessment for Fear and Intimidation.

13.7.51 The results of the Fear and Intimidation assessment are shown in **Table 13-37**.

Table 13-37: Receptor assessment for Fear and Intimidation

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Very Low	Very Low	Negligible
L2	Halfway House Lane	Very Low	Very Low	Very Low	Negligible
L3	The Avenue	Very Low	Very Low	Very Low	Negligible
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	Very Low	Very Low	Very Low	Negligible
L7	Old Haddington Lane (between Haddington Lane and A46)	Low	Very Low	Very Low	Negligible
L8	A46 east of Fosse Lane	Low	Very Low	Very Low	Negligible
L9	Haddington Lane (south of Old Haddington Lane)	Very low	Very Low	Very Low	Negligible
L11	South Hykeham Road	Low	Very Low	Very Low	Negligible
L13	Bassingham Road (southwest of Bridge Road)	Low	Very Low	Very Low	Negligible
L14	Haddington Lane (south of Dovecote Lane)	Very Low	Very Low	Very Low	Negligible
L16	Moor Lane	Very Low	Very Low	Very Low	Negligible
L17	Bassingham Road (between Moor Lane and Clay Lane)	Low	Very Low	Very Low	Negligible
L18	Clay Lane	Very Low	Very Low	Very Low	Negligible
L19	Unnamed Road (south of Halfway House Roundabout)	Low	Very Low	Very Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	Very Low	Very Low	Negligible
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	Very Low	Very Low	Negligible
J1	Halfway House Roundabout (Halfway House	Low	Very Low	Very Low	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
	Lane/A46(E)/Unnamed Road/A46(W))				
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	Very Low	Very Low	Very Low	Negligible
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	Very Low	Very Low	Very Low	Negligible
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	Very Low	Very Low	Very Low	Negligible
J5	Bridge Road/Church Road/Bassingham Road	Low	Very Low	Very Low	Negligible
J6	Haddington Lane/Bassingham Road/Moor Lane	Low	Very Low	Very Low	Negligible
J7	Unnamed Road/Moor Lane/Norton Lane	Very Low	Very Low	Very Low	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Very Low	Very Low	Negligible

13.7.52 As shown in the table, all link and junction receptors were judged to have Negligible impacts for Fear and Intimidation.

13.7.53 The magnitude of change with respect to Fear and Intimidation across these PRoW receptors has been categorised through the same methodology for the Severance assessment. The Fear and Intimidation impacts for PRoW receptors P11, P18, P23, P25 and P43 have therefore been assessed as Minor and the Fear and Intimidation impact for all other PRoW receptors has been assessed as Negligible.

13.7.54 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3]**.

Road Safety

13.7.55 IEMA Guidelines (Ref 13-7) suggest that receptors which record an increase of 30% or above in total traffic flows or of 10% or above in HGV flows should

be analysed on a case-by-case basis to determine whether their magnitude should be rated low, medium or high. For the purpose of this assessment, receptors which meet either of these thresholds have been evaluated using the same criteria used to evaluate Severance and Pedestrian Delay. The results of this assessment are shown in **Table 13-38**.

Table 13-38: Receptor assessment for Road Safety

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Very Low	Very Low	Negligible
L2	Halfway House Lane	Very Low	High	Medium	Negligible
L3	The Avenue	Very Low	High	Medium	Negligible
L5	Haddington Lane (between Fosse Lane and Old Haddington Lane)	Low	High	Medium	Minor
L7	Old Haddington Lane (between Haddington Lane and A46)	Very Low	High	Medium	Negligible
L8	A46 east of Fosse Lane	High	Low	Very Low	Minor
L9	Haddington Lane (south of Old Haddington Lane)	Very Low	High	Medium	Negligible
L11	South Hykeham Road	Low	High	Low	Negligible
L13	Bassingham Road (southwest of Bridge Road)	Low	High	Medium	Minor
L14	Haddington Lane (south of Dovecote Lane)	Medium	Medium	Low	Minor
L16	Moor Lane	Very Low	Medium	Low	Negligible
L17	Bassingham Road (between Moor Lane and Clay Lane)	Low	Low	Low	Negligible
L18	Clay Lane	Very Low	High	High	Minor
L19	Unnamed Road (south of Halfway House Roundabout)	Very Low	Low	Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	High	Medium	Negligible
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	High	Medium	Negligible

Receptor ID	Receptor Name	Sensitivity	Initial Magnitude	Adjusted Magnitude	Significance
J1	Halfway House Roundabout (Halfway House Lane/A46(E)/Unnamed Road/A46(W))	High	Very Low	Very Low	Minor
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane)	Low	High	Medium	Minor
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane/Haddington Lane)	Very Low	High	Medium	Negligible
J4	Haddington Lane(N)/Butts Lane/Haddington Lane(S)/Stone Lane	Medium	Medium	Low	Minor
J5	Bridge Road/Church Road/Bassingham Road	Very Low	High	Medium	Negligible
J6	Haddington Lane/Bassingham Road/Moor Lane	Very Low	Low	Low	Negligible
J7	Unnamed Road/Moor Lane/Norton Lane	Very Low	Medium	Low	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	High	Low	Very Low	Minor

13.7.56 Manual assessment of each of these receptors has determined that with the exception of L36, all 'High' magnitudes are a result of very low HGV flows in the baseline period. Therefore, these have been manually adjusted to 'Medium' for the purposes of this assessment. Since the PM network peak flows on L36 are higher than the sum of each development peak hour flow and the respective AM or PM development trips, it is considered that this receptor is able to accommodate additional development trip flows. The magnitude at this receptor has therefore also been reclassified as 'Medium'.

13.7.57 The assessment indicates that all receptors have a Road Safety impact of Minor or Negligible.

13.7.58 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3]**.

Large Loads

13.7.59 The evaluation of Large Loads is based on the probability of a serious or fatal personal injury accident involving a large load occurring. The results of this assessment are shown in **Table 13-39**.

Table 13-39: Receptor assessment for Large Loads

Receptor ID	Receptor Name	Sensitivity	Magnitude	Significance
L1	A46 west of Halfway House Roundabout	Very Low	Low	Negligible
L2	Halfway House Lane	Very Low	Low	Negligible
L3	The Avenue	Very Low	Low	Negligible
L5	Haddington Lane (North of Old Haddington Lane)	Very Low	Low	Negligible
L7	Old Haddington Lane (between Haddington Lane and A46)	Very Low	Low	Negligible
L8	A46 west of Hykeham Roundabout	Medium	Low	Minor
L9	Haddington Lane (South of Old Haddington Lane)	Very Low	Low	Negligible
L11	Butts Lane	Very Low	Low	Negligible
L13	Bassingham Road (northeast)	Very Low	Low	Negligible
L14	Haddington Lane (south of Dovecote Lane)	Very Low	Low	Negligible
L16	Moor Lane	Very Low	Low	Negligible
L17	Bassingham Road (southwest)	Very Low	Very Low	Negligible
L18	Clay Lane	Very Low	Very Low	Negligible
L19	Camp Road (south of Halfway House roundabout)	Very Low	Low	Negligible
L20	Fosse Lane (between A46 and Haddington Lane)	Very Low	Low	Negligible
L36	Haddington Lane (Between Butts Lane and Dovecote Lane)	Very Low	Low	Negligible
J1	Halfway House Roundabout (Halfway House Lane(N)/A46(E)/Unnamed Road(S)/A46(W))	Very Low	Low	Negligible

Receptor ID	Receptor Name	Sensitivity	Magnitude	Significance
J2	A46 EB On-Slip and Off-Slip (Fosse Lane(N)/Fosse Lane(E)/Haddington Lane(S))	Very Low	Low	Negligible
J3	A46 WB On-Slip and Off-Slip (Haddington Lane(W)/Old Haddington Lane(N)/Haddington Lane (E)	Very Low	Low	Negligible
J4	Haddington Lane(N)/Butts Lane(E)/Haddington Lane(S)/Stone Lane(W)	Very Low	Low	Negligible
J5	Bridge Road(N)/Church Road(E)/Bassingham Road(W)	Very Low	Low	Negligible
J6	Haddington Lane(E)/Bassingham Road(S)/Moor Lane(W)	Very Low	Very Low	Negligible
J7	Unnamed Road(N)/Moor Lane(E)/Norton Lane(W)	Very Low	Low	Negligible
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	Low	Negligible

13.7.60 Since all receptors which were screened in were judged to have limited large load usage, all receptors were assessed as having 'Very Low' or 'Low' magnitudes.

13.7.61 All link and junction receptors were judged to have Negligible impacts for Large Loads with the exception of L8, which was judged to have a Minor impact in this category.

13.7.62 A summary of the results (non-significant effects) is set out within **Appendix 13-C [EN010154/APP/6.3]**.

Operation (and maintenance) (assumed from 2033 to 2092)

13.7.63 During general operation and maintenance, the Proposed Development is expected to generate a low level of vehicle trips. As a reasonable worst-case scenario, the Proposed Development will be serviced by a nominal number of staff (up to four permanent staff per day), predominantly undertaking day-to-day maintenance tasks. In addition, there are expected to be around two visitors per week. Staff vehicles and those used for maintenance will primarily

be four wheeled drive vehicles and vans, with HGVs rarely accessing the site during the majority of the operational phase.

13.7.64 During the proposed 60-year operational life of the Proposed Development, site-wide replacement of the solar PV panels, inverters, batteries and other equipment may be required in line with the design life of these components, as explained in **Chapter 3: The Proposed Development [EN010154/APP/6.1]**. Site-wide replacement of these components will be planned to occur in stages, which means that replacement activities will be of much lower intensity compared to the construction phase. The **Framework OEMP [EN010154/APP/7.8]** to be submitted alongside the DCO application will stipulate that every 12 months from the date of final commissioning, the Applicant will submit a planned maintenance schedule for the year ahead to the relevant planning authorities (excluding unforeseen emergencies, breakages and malfunctions that require maintenance throughout the year).

13.7.65 As above, site-wide equipment replacement will be infrequent and of shorter duration than the construction period. Site-wide equipment replacement activities are expected to generate in the order of 20 HGVs (or 40 two-way HGV movements) per day and in the order of 20 staff car trips (40 two-way movements) per day. It is not anticipated that any AILs will be required. This is much lower than the vehicle trips generated during the peak construction phase, representing approximately 40% of the HGV activity and approximately 10% of car/LGV movements generated during the peak construction of the Proposed Development.

13.7.66 Accordingly, since this will result in much fewer movements than during the construction period, the effects of these trips will have Negligible significance for all assessment categories.

13.7.67 The numbers above assume an intensive worse-case general operational programme build-out of approximately three months, realistically this is more likely to take place over a period of six months and therefore reducing the proposed number of movements by half, however by doing so, extending the replacement period. Therefore, the replacement of materials in the operational phase is not expected to generate any significant impact on the network and result in a negligible impact.

13.8 Additional Mitigation and Enhancement

Construction and Decommissioning Phase

13.8.1 No additional mitigation measures are proposed for the construction phase following the above embedded measures, given that there are not expected to be any significant Traffic and Transport effects as a result of the Proposed Development (see **Section 13.7**).

13.8.2 As previously mentioned, the decommissioning period is expected to be similar in duration and nature to the construction phase, albeit with fewer vehicle trips over a slightly shorter duration. In addition, this scenario is considered to be too far into the future to be able to accurately predict traffic

flows or road/ junction layouts at that time. It is therefore considered reasonable to assume that the traffic flows during the decommissioning phase will be the same as, or not greater than, the construction phase. This may overestimate the actual impacts slightly, but it is considered to be broadly accurate and robust. Therefore, no additional mitigation measures are proposed for the decommissioning phase following the above embedded measures (as set out for the construction phase), given that there are not expected to be any significant Traffic and Transport effects as a result of the Proposed Development in the construction phase and therefore in the decommissioning phase.

Operational Phase

13.8.3 No additional mitigation measures are currently proposed for the operational phase following the above embedded measures, given that there are not expected to be any significant Traffic and Transport effects as a result of the Proposed Development.

13.8.4 No enhancement measures (relevant to Traffic and Transport) are currently proposed for the operational phase following the above embedded measures.

13.9 Residual Effects and Conclusions

13.9.1 As highlighted in **Section 13.7** and **Appendix 13-C [EN010154/APP/6.3]**, there are no residual significant effects of the Proposed Development on any of the Traffic and Transport receptors in the construction and decommissioning phase. All effects are minor or negligible significance.

13.10 Cumulative Assessment

Introduction

13.10.1 This section presents an assessment of cumulative effects between the Proposed Development during the peak construction phase (anticipated to be 2032) and other proposed and committed plans and projects including other developments.

13.10.2 This cumulative effect assessment identifies those areas where the predicted effects of the Proposed Development could interact with effects arising from other plans or projects based on a spatial and/ or temporal basis.

13.10.3 Although construction of the Proposed Development is expected to commence in 2031, the anticipated future baseline scenario only considers the robust assessment during the peak construction year of 2032, since very little traffic is expected to be associated with the Proposed Development before the peak construction year. Therefore, the cumulative schemes whose construction periods overlap with the Proposed Development traffic prior to 2032 have been scoped out.

13.10.4 This assessment has been made with reference to the methodology and guidance set out in **Chapter 5: EIA Methodology [EN010154/APP/6.1].** The Zone of influence (ZoI) for the Cumulative schemes is presented in **Figure 15-1 [EN010154/APP/6.2].** The ZoI for Traffic and Transport is the study area which is illustrated in **Figure 13-1 [EN010154/APP/6.2].**

13.10.5 The figure showing the locations of the short list of cumulative schemes that have been further assessed is presented in **Figure 15-3 [EN010154/APP/6.2].**

Cumulative Effects During Construction

13.10.6 The developments identified below have been screened in for spatial and temporal overlaps with the Proposed Development or screened out with the reasons specified for each scheme. For Traffic and Transport, this relates to the road links and junctions in the vicinity of the Proposed Development that are expected to be used to access each of the relevant schemes during the peak construction period in 2032.

13.10.7 As set out earlier in this chapter, TEMPro growth factors have been applied to the existing baseline traffic flows to reflect local housing and employment growth and to derive future baseline traffic flows for the peak construction year of 2032. Therefore, for the cumulative schemes within the ZoI (which are allocated developments in their respective local plans), the additional trips have already been accounted for on the surrounding highway network as part of background traffic growth. In addition, several of the cumulative schemes are not expected to have the potential to result in cumulative effects during the peak construction phase (2032) in terms of traffic and transport due to them being built out and operational before the future baseline year of 2032 with minimal operational trips for example.

13.10.8 Nonetheless, for the purposes of the cumulative assessment, the trips associated with the committed schemes (screened in) have been identified so that these can be assessed alongside the forecast trips associated with the Proposed Development. Further details are set out below:

a. The Scoping Opinion for a proposed water pipeline between Lincoln to Grantham (ID 13, 18/1560/EIASCO) was accepted by the local authorities in February 2019. The decision stated that an Environmental Statement should be prepared to assess the construction impacts of the scheme, however no additional documents have been produced to date. Nonetheless, the construction of the scheme is expected to be completed by end of 2026. Therefore, the scheme (ID 13) is expected to be built out and operational by 2032 and as a result, this has been screened out of this cumulative assessment as the operational phase is expected to generate a negligible increase in traffic on the highway network.

b. Planning consent has been granted for a development of 70 residential dwellings related to plot 2B of the Witham St Hughs Phase 3 residential development (ID 34, 20/1736/RESM linked to ID05 15/1347/OUT, scoped into the cumulative assessment further below), located approximately 500m from the Proposed Development. The construction phase is

expected to commence no later than two years from the date of the scheme's consent dated May 2021. Therefore, the scheme (ID 34) is expected to be built out and operational by 2032 and as a result, this has been screened out of this cumulative assessment as the operational phase is accounted in the assessment of scheme ID05.

c. Planning consent has been granted for a solar farm at Boothby Heath Piggeries (ID 37, 21/1245/FUL), located approximately 950m from the Proposed Development. It is a 100kW scheme with the construction phase expected to commence no later than three years from the consent dated November 2021, with the construction period not expected to last longer than a couple of months. Therefore, the scheme (ID 37) is expected to be built out and operational by 2032 and as a result, this has been screened out of this cumulative assessment as the operational phase is expected to generate a negligible increase in traffic on the highway network.

d. Planning consent has been granted for a solar farm on land adjacent to the old rectory, Torgae Lane (ID 49, 22/0520/FUL), located approximately 260m from the Proposed Development. It is a 6kW scheme with the construction phase expected to commence no later than three years from the schemes date of consent, June 2022, with the construction period not expected to last longer than a couple of weeks. Therefore, the scheme (ID 49) is expected to be built out and operational by 2032 and as a result, this has been screened out of this cumulative assessment as the operational phase is expected to generate a negligible increase in traffic on the highway network.

e. Planning consent has been granted for a proposed water supply line between Elsham to Lincoln (ID 52, 22/0899/FUL). The scheme was approved in February 2023, with the construction phase expected to commence no later than three years from the date of the schemes consent date. Based on the information set out within the Environmental Statement, the main construction period is expected to extend from Spring 2023 to Summer 2025, with the scheme expected to be operational by Summer 2025. Therefore, the scheme (ID 52) is expected to be built out and operational by 2032 and as a result, this has been screened out of this cumulative assessment as the operational phase is expected to generate a negligible increase in traffic on the highway network.

f. Planning consent has been granted for a proposed residential development of up to 18 dwellings on the land south of Vasey Close, Bassingham (ID 58, 22/1785/FUL), located approximately 530m from the Proposed Development. The scheme was approved in March 2023, with the construction phase expected to commence no later than three years from the date of consent. Based on the information provided within the Transport Statement (December, 2022), it is anticipated that the scheme would be fully operational by 2032 and as a result, this has been screened out of this cumulative assessment as the operational phase is expected to be captured by the background traffic growth that has been applied to the network using TEMPro.

g. Springwell Solar Farm is a Nationally Significant Infrastructure Project (NSIP) comprising a proposed solar photovoltaic (PV) electricity generating and battery storage facility with associated infrastructure which would allow for the generation and export of electricity exceeding 50 megawatts (MW) (ID 63, EN010149). The western extent of the scheme is partially within the traffic and transport study area. The scheme has been subject to Examination and is pending decision in Summer 2025. Based on the information provided within the Environmental Statement (November 2024), it is anticipated that the scheme (ID 63) would be fully operational by 2032 (the construction phase is expected to commence in 2027 and continue for a period of 48-months with the peak construction phase occurring in 2028). Therefore, this has been screened out of this cumulative assessment due to the lack of overlap between the Proposed Development and this scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

h. Land at Wind Pump Farm is a proposed 400MW Battery Energy Storage System (BESS), located on land north of Green Man Road, Navenby (ID 86, 25/0491/FUL), approximately 100m from the Proposed Development. Planning response to the EIA Scoping Report was made in September 2023, which scoped out traffic and transport assessment further as the scheme (ID 86) is not expected to generate significant trips. The planning application has been submitted and was validated in May 2025. It is anticipated that the scheme would be fully operational by 2034. Therefore, this has been screened out of this cumulative assessment due to the lack of temporal overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

i. Great North Road Solar is a Nationally Significant Infrastructure Project (NSIP) comprising a proposed solar photovoltaic (PV) electricity generating and battery storage facility with associated infrastructure which would allow for the generation and export of electricity exceeding 50 megawatts (MW) (ID 87, EN010162). The scheme is located approximately 8.8km from the Proposed Development and outside of the Traffic and Transport study area. The scheme (ID 87) is currently in pre-application stage (the initial public consultation was held in January 2025), with the DCO submission expected to occur in summer 2025 and the anticipated construction phase commencing in 2027. Based on the information provided to date, it is anticipated that the scheme would be fully operational by 2032. Therefore, this has been screened out of this cumulative assessment due to the lack of temporal and geographical overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

j. One Earth Solar is a Nationally Significant Infrastructure Project (NSIP) comprising a proposed solar photovoltaic (PV) electricity generating and battery storage facility with associated infrastructure which would allow for the generation and export of electricity exceeding 50 MW (ID 88,

EN010159). The scheme is located approximately 8.1km from the Proposed Development and outside of the Traffic and Transport study area. The scheme has been subject to Examination which commenced in March 2025. Based on the information provided within the Transport Assessment (March 2025), the anticipated construction period is expected to commence in 2027 and continue for a period of 26-months with the peak construction phase occurring in 2027. It is therefore anticipated that the scheme (ID 88) would be fully operational by 2032. Therefore, this scheme has been screened out of this cumulative assessment due to the lack of temporal and geographical overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

k. Planning consent has been granted for a solar farm on land at Swinderby Quarry (ID 89, PL/0055/23), located approximately 500m from the Proposed Development. It is a 1.2kW scheme with the construction phase expected to commence no later than three years from the date of the schemes consent dated November 2023, with the construction period not expected to last longer than a couple of weeks. Therefore, the scheme (ID 89) is expected to be built out and operational by 2032 and as a result has been screened out of this cumulative assessment as the operational phase is expected to generate a negligible increase in traffic on the highway network.

l. Planning consent has been granted for a new relief between the A46 Hykeham roundabout and the A15 Sleaford Road roundabout (ID 95, PL/0087/23). The scheme was granted consent in May 2024 and based on the TA, produced in September 2023, the scheme is expected to be operational from 2026 and therefore form part of the future baseline highway network by 2032, therefore has been screened out of this cumulative assessment.

m. Planning consent has been granted in December 2024 for a variation of conditions 2, 28 and 29 related to planning permission 14/0385/CCC to enable a proposed revision of the approved restoration scheme and a change to the silt management arrangements approved at Whisby Quarry (ID 98, 24/1322/CCC). The variation in condition is not expected to result in an increase on traffic and transport and therefore the scheme has been screened out of this cumulative assessment as the trips associated with the scheme are accounted for in the existing baseline trips on the surrounding highway network.

n. Planning consent has been granted for the installation of floating Solar PV arrays plus terrestrial based ancillary infrastructure and equipment, cable route and access at Whisby Quarry (ID 99, EIA/03/24), located approximately 500m from the Proposed Development. It is a 17kW scheme with the construction phase expected to commence no later than three years from the date of the schemes consent dated July 2024, with the construction period not expected to last longer than a couple of weeks. Therefore, the scheme is expected to be built out and operational by 2032 and as a result has been screened out of this cumulative assessment as

the operational phase is expected to generate a negligible increase in traffic on the highway network.

o. Land at Gorse Hill Lane is a proposed 240mW Battery Storage Development (ID 101, 24/0075/EIASCR), located approximately 850m from the Proposed Development. Based on the screening opinion decision dated May 2024, the scheme has been deemed as not an EIA Development and therefore does not require an Environmental Statement to assess its impact. It is anticipated that the scheme would be fully operational by 2032. Therefore, it has been screened out of this cumulative assessment due to the lack of temporal overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

p. Land and RAF Digby is a proposed new office and training building (ID 102, 24/0959/FUL) located approximately 3.6km from the Proposed Development, outside of the study area. The application is currently awaiting decision. However, based on the information set out within the TA (August 2024), it is anticipated that the scheme would be fully operational by 2032 (construction programme is expected to be no longer than 24 months). Therefore, the scheme has been screened out of the cumulative assessment due to the lack of temporal and geographical overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

q. Leoda Solar Farm is a Nationally Significant Infrastructure Project (NSIP) comprising a proposed solar photovoltaic (PV) electricity generating and battery storage facility with associated infrastructure which would allow for the generation and export of electricity exceeding 50 MW (ID 103, EN0110016). The extents of the scheme and that of the Proposed Development are located in close proximity to each other approximately 200m away with an expected overlap at the point of connection, although the larger extent of the scheme is located outside the Traffic and Transport study area. The scheme has been in the pre-application stage since January 2025. Based on the information provided within the EIA Scoping Report (January 2025), the anticipated construction phase is expected to commence in 2028 and continue for a period of 24 to 36-months with operation expected to commence in 2030. It is therefore anticipated that the scheme would be fully operational by 2032 and so has been screened out of this cumulative assessment due to the lack of temporal overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

r. Planning consent has been granted for the extension of the existing Norton Bottoms Quarry (ID 104, PL/0097/17), located approximately 2.5km from the Proposed Development and outside of the Traffic and Transport study area. The scheme was approved in June 2019. Based on the information provided within the Planning Statement (December 2024),

it is anticipated that the scheme would be fully operational by 2032. It has therefore been screened out of this cumulative assessment due to the lack of temporal and geographical overlap between the Proposed Development and the scheme. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

s. Proposed development for a new 400kV air insulated switchgear (AIS) substation and associated development (ID 105, 24/1080/EIASCR) located within the southern extents of the Site Boundary, Land Off Heath Lane. Based on the decision dated October 2024, the scheme will require an ES and CTMP, setting out the impacts associated with the construction phase. To this date, no additional information has been provided, therefore this scheme has been screened out of this cumulative assessment due to the lack of further information to assess the impact, also assuming a lack of temporal overlap between it and the Proposed Development. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

t. Planning consent has been granted for an additional area of the existing Dunston Quarry (ID 106, PL/0002/25), located approximately 6km from the Proposed Development and outside of the Traffic and Transport study area. The scheme was approved in February 2025. Based on the information provided within the Planning Statement (December 2024), it is anticipated that the scheme would be fully operational by 2032. It has therefore been screened out of this cumulative assessment due to the lack of temporal and geographical overlap with the Proposed Development. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

u. Brant Energy Storage is a proposed 1GW Battery Energy Storage System (BESS), located on land South of Hill Rise to the west of Coleby (ID 108, 25/0533/FUL), approximately 250m from the Proposed Development. The application for the scheme was submitted and validated in May 2025, and is expected to be determined in winter 2025. The construction phase is expected to commence in summer 2028 and it is anticipated that the scheme would be operational by 2030. It is therefore anticipated that the scheme would be fully operational by 2032 and so has been screened out of this cumulative assessment due to the lack of temporal overlap with the Proposed Development. The operational phase is also expected to generate a negligible increase in traffic on the highway network.

Screened In Schemes

13.10.9 Based on the above, it is considered that schemes ID05, ID08, ID33, ID54 and ID90 have the potential to result in cumulative effects with the Proposed Development during the peak construction phase (anticipated to be 2032).

13.10.10 The traffic flows associated with the five scoped in cumulative schemes have been identified and applied directly to the highway network (see below). Therefore, the future baseline TEMPro growth factors have been adjusted using the ‘Alternative Assumptions’ facility within TEMPro to remove

the households and jobs which would be delivered by these schemes, in order to exclude these from the background growth calculations and avoid the double counting of trips.

ID05

13.10.11 ID05 - Witham St Hughs Phase 3 (15/1347/OUT) is a large residential scheme located east of Camp Road and north of Hannah Crescent, Witham St Hughs. The consented scheme received approval in September 2019 for a development of up to 1,100 dwellings and 150 care/retirement units (C2/C3), as well as junction improvement works, with the construction phase expected to commence no later than three years from the schemes (ID05) consent date (September 2019)

13.10.12 Based on the information set out within the Transport Assessment (July 2015), it is anticipated the scheme would be fully operational by 2032 and the construction phase has therefore been scoped out. The operational phase has however been screened in as the operational trips associated with the cumulative scheme would be expected to travel through the Proposed Development study area during the peak construction phase (2032).

13.10.13 The consented scheme, once fully operational, is expected to generate 791 two-way vehicle movements in the AM network peak (08:00-09:00) and 733 two-way movements in the PM network peak (17:00-18:00). The trip generation and distribution assignment which was agreed with LCC and set out in Appendix B was unavailable to access on the NKDC planning portal (the planning portal does not hold any appendices to the TA). Therefore the TRICS database has been re-interrogated to derive a forecast daily vehicle profile of arrivals and departures, which has been used to generate factors to scale estimate vehicle trips between 08:00 – 09:00 and 17:00 – 18:00 to the Proposed Development's AM and PM peak hours of 07:00 – 08:00 and 18:00-19:00 respectively. The resulting factors were calculated as 0.754 (AM) and 0.894 (PM). The resulting number of expected trips within the Proposed Development study area is shown in **Table 13-40**below.

13.10.14 The results in **Table 13-40**show that for the shared receptors which will be used by both the Proposed Development and the cumulative scheme (ID05), the peak hour and daily cumulative traffic flows fall below the 30% impact threshold defined by Rule 1 of the IEMA Guidelines for non-sensitive receptors (Ref. 13-7). Therefore, as defined in **Table 13-10**, the significance category is Neutral and the cumulative effects are considered to be Not Significant.

Table 13-40 The Proposed Development and ID05 Cumulative Peak Traffic Flows (Two-Way)

Ref.	Receptor	Receptor Sensitivity	Future Baseline Peak Flows	ID05 Site Flows	Scheme Flows	Cumulative Total Flows	Future Baseline Peak + Cumulative Total Flows	Cumulative Increase (%)
			AM (07:00 - 08:00)					
J1	A46 Halfway House Roundabout	Low	4121	377	179	557	4678	14%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2490	264	224	488	2979	20%
L1	A46 (West)	Very Low	3295	113	179	292	3588	9%
L4	A46 (East)	Very Low	3646	264	0	264	3911	7%
			PM (18:00 - 19:00)					
J1	A46 Halfway House Roundabout	Low	2017	385	179	564	2581	28%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2323	269	224	493	2816	21%
L1	A46 (West)	Very Low	1663	115	179	295	1957	18%
L4	A46 (East)	Very Low	1657	269	0	269	1927	16%
			Daily					
J1	A46 Halfway House Roundabout	Low	41405	5314	478	5792	47197	14%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	30938	3720	615	4334	35272	14%
L1	A46 (West)	Very Low	32858	1594	478	2073	34931	6%
L4	A46 (East)	Very Low	36777	3720	43	3763	40540	10%

ID08

13.10.15 ID08 – Land to the southwest of Thorpe Lane, South Hykeham Lincoln (18/0760/OUT) is a residential development located on the south-western side of Thorpe Lane in South Hykeham, located approximately 1 km north of the Proposed Development. The consented scheme received approval in January 2021 for up to 144 dwellings and associated works. An initial TA was produced in February 2018, followed by an updated version of the TA with adjusted trip rates in December 2018.

13.10.16 The TA assumes that the scheme would be fully operational by 2023, however at the time of writing it appears that construction has not yet commenced. Nonetheless, to provide a robust assessment it has been assumed that the scheme will still be fully built out by 2032, and thus construction trips have been scoped out but operational trips associated which will travel through the Proposed Development's study area have been scoped in.

13.10.17 The TA outlines expected trips based on the construction of 150 dwellings. Once fully operational, the scheme is expected to generate 76 two-way vehicle movements in the AM network peak (08:00-09:00) and 77 two-way movements in the PM network peak (17:00-18:00).

13.10.18 To derive the trip rates for the proposed use, the applicant utilised 85th percentile trip rates extracted from the TRICS database version 7.5.2. The following sites were considered:

a. Sites located in England (excluding Greater London), Scotland, Wales and Ulster;

b. Sites with between 6 and 805 units; and

c. Sites located within neighbourhood centres, on the edge of town and suburban areas.

13.10.19 The generated TRICS outputs are set out in Appendix I of the TA and have been used to generate the cumulative scheme's vehicle trips during the Proposed Development's peak hours (07:00-08:00) and (18:00-19:00) in order to calculate the cumulative vehicle movements within the study area.

13.10.20 These vehicle movements were then factored by the trip distribution percentages associated with movements into and out of the Proposed Development study area to produce the traffic flows shown in **Table 13-41**. It should be noted that the trip distribution has been taken from Appendix F of the original TA, since the trip distribution shown in Appendix E of the updated TA was not legible in the version of the document available online. Furthermore, it has been assumed that at the Hykeham Roundabout, 50% of traffic would turn north along the A46 whilst the other 50% would head west along the A46 towards the Halfway House Roundabout.

13.10.21 The results in **Table 13-41** show that the peak hour and daily cumulative traffic flows fall below the 30% impact threshold defined by Rule

1 of the IEMA Guidelines for non-sensitive receptors (Ref. 13-7). Therefore, as defined in **Table 13-10**, the significance category is Neutral and the cumulative effects are considered to be Not Significant.

Table 13-41 The Proposed Development and ID08 Cumulative Peak Traffic Flows (Two-Way)

Ref.	Receptor	Receptor Sensitivity	Future Baseline Peak Flows	ID08 Site Flows	Scheme Flows	Cumulative Total Flows	Future Baseline Peak + Cumulative Total Flows	Cumulative Increase (%)
			AM (07:00 - 08:00)					
J1	A46 Halfway House Roundabout	Low	4121	11	179	191	4312	5%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2490	23	224	247	2737	10%
L1	A46 (West)	Very Low	3295	11	179	191	3486	6%
L4	A46 (East)	Very Low	3646	11	0	11	3658	0%
			PM (18:00 - 19:00)					
J1	A46 Halfway House Roundabout	Low	2017	20	179	199	2216	10%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2323	40	224	264	2587	11%
L1	A46 (West)	Very Low	1663	20	179	199	1862	12%
L4	A46 (East)	Very Low	1657	20	0	20	1677	1%
			Daily					
J1	A46 Halfway House Roundabout	Low	41405	189	478	667	42072	2%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	30938	378	615	992	31930	3%
L1	A46 (West)	Very Low	32858	189	478	667	33525	2%
L4	A46 (East)	Very Low	36777	189	43	232	37010	1%

ID33

13.10.22 ID33 – St. Modwen Developments Phases 4 to 7, Network 46 Witham St Hughs, Lincolnshire (20/1523/FUL) is a residential development located next to Camp Road to the west of Witham St Hughs. The consented scheme received approval in June 2021 for a mixed-use development of four units comprising uses E, B2 and B8 with associated access, car parking and landscaping.

13.10.23 Based on the information set out within the TA (October 2020), it is anticipated the scheme would be fully operational by 2032 and as a result, the construction phase has been scoped out but the operational trips have been scoped in for trips which would travel through the Proposed Development study area.

13.10.24 The TA outlines expected AM and PM network peak vehicle trips based on the combined floorspace of Phases 4 to 7, the trip distribution pattern shown in Table 13 of the TA and TRICS outputs set out in Appendix C of the Network 46 – Phases 4 To 7 Trip Generation Technical Note (which in itself forms Appendix B of the TA).

13.10.25 The TRICS outputs from the appendix has been used to generate the cumulative scheme's vehicle trips during the Proposed Development's peak hours (07:00-08:00) and (18:00-19:00) based on the total floorspace. The forecast trip distribution has then been used to calculate the cumulative traffic movements within the Proposed Development study area as shown in **Table** 13-42.

13.10.26 The results in **Table 13-42** show that all receptors except L2, the peak hour and daily cumulative traffic flows fall below the 30% impact threshold defined by Rule 1 of the IEMA Guidelines for non-sensitive receptors (Ref. 13-7). Therefore, as defined in **Table 13-10**, the significance category is Neutral and the cumulative effects are considered to be Not Significant.

13.10.27 Although Receptor L2 records 72% and 128% increases in the AM and PM peaks respectively, these increases are caused by the Proposed Development flows rather than the flows from ID33 and are thus already addressed in Section **13.7** of this chapter. Therefore, the significance category and cumulative effects at this receptor are considered to be Neutral and Not Significant.

Table 13-42 The Proposed Development and ID33 Cumulative Peak Traffic Flows (Two-Way)

Ref.	Receptor	Receptor Sensitivity	Future Baseline Peak Flows	ID33 Site Flows	Scheme Flows	Cumulative Total Flows	Future Baseline Peak + Cumulative Total Flows	Cumulative Increase (%)
			AM (07:00 - 08:00)					
J1	A46 Halfway House Roundabout	Low	4121	118	179	298	4419	7%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2490	91	224	315	2805	13%
L1	A46 (West)	Very Low	3295	24	179	203	3499	6%
L2	Halfway House Lane	Very Low	252	3	179	183	435	72%
L4	A46 (East)	Very Low	3646	91	0	91	3737	2%
			PM (18:00 - 19:00)					
J1	A46 Halfway House Roundabout	Low	2017	124	179	303	2320	15%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2323	95	224	319	2642	14%
L1	A46 (West)	Very Low	1663	25	179	205	1867	12%
L2	Halfway House Lane	Very Low	143	3	179	183	326	128%
L4	A46 (East)	Very Low	1657	95	0	95	1752	6%
			Daily					
J1	A46 Halfway House Roundabout	Low	41405	1934	478	2413	43818	6%

J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	30938	1483	615	2098	33036	7%
L1	A46 (West)	Very Low	32858	397	478	875	33733	3%
L2	Halfway House Lane	Very Low	2747	55	478	533	3279	19%
L4	A46 (East)	Very Low	36777	1483	43	1526	38304	4%

ID54

13.10.28 ID 54 – Proposed residential development, Moor Lane, Swinderby (22/1376/FUL), planning consent has been granted for a proposed residential development of up to 133 dwellings on land south of Moor Lane, Swinderby, located approximately 1.3km from the Proposed Development. The scheme was approved in February 2024, with the construction phase expected to commence no later than three years from the date of the scheme's consent date.

13.10.29 Based on the information provided within the Transport Statement (TS) (March 2023), it is anticipated that the scheme will be fully operational by 2032 and as a result, construction phase has been scoped out, however, operational trips have been screened in as the trips associated with the proposed developed would travel through the Proposed Development's study area even though the site itself is located outside of the transport study area.

13.10.30 The consented scheme, once fully operational, is expected to generate 84 two-way movements in the AM network peak (08:00-09:00) and 88 two-way movements in the PM network peak (17:00-18:00). To derive the trip rates for the proposed use, the applicant utilised 85th percentile trip rates extracted from the TRICS database version 7.9.1, selecting sites located in England (excluding Greater London), and with between 100 to 300 units considered, and only neighbourhood centre and edge of town sites were selected, the generated outputs are set out in Appendix C Trip Generation of the TS.

13.10.31 The usage of 85th percentile trip rates during the network peaks did not provide sufficient information to consider the trip generation of the cumulative scheme during the key periods associated with the Proposed Development, which are considered to be the hour before the AM network peak (07:00-08:00), the hour after the PM peak (18:00-19:00) as well as the daily movements. As a result, further research was undertaken to review the previously consented scheme at the site 17/0603/OUT.

13.10.32 The previously consented site was granted an outline planning application in December 2017, for a mixed-use development. The proposals comprised of 120 dwellings, up to 1,500sqm of B1 commercial use and up to 20 senior living retirement accommodation, as well as communal play/ recreational space, a community car park and a shop. A Transport Assessment (TA) was produced as part of the original application, which included the full TRICS assessment to derive the trip rates for the proposals, set out in Appendix E TRICS output of the TA (17/0603/OUT).

13.10.33 The TRICS outputs have been used to generate the previously consented scheme's vehicle trips during the Proposed Development peak hours (07:00-08:00) and (18:00-19:00). Then, a comparison exercise was undertaken to determine the ratio factor between the original trip rates related to the outline application (17/0603/OUT) and those associated with the cumulative scheme (22/1376/FUL) to calculate equivalent trips for the

cumulative scheme during the Proposed Development peak hours. The resulting number of expected vehicle trips within the Proposed Development study area as a result of the cumulative scheme (ID54) is shown in **Table 13.43** below.

13.10.34 The results in **Table 13-43** show that the peak hour and daily cumulative traffic flows fall below the 30% impact threshold defined by Rule 1 of the IEMA Guidelines for non-sensitive receptors (Ref. 13-7). Therefore, as defined in **Table 13-10**, the significance category is Neutral and the cumulative effects are considered to be Not Significant.

Table 13-43 The Proposed Development and ID54 Cumulative Peak Traffic Flows (Two-Way)

11	Receptor	Receptor Sensitivity	Future Baseline Peak Flows	ID54 Site Flows	Scheme Flows	Cumulative Total Flows	Future Baseline Peak + Cumulative Total Flows	Cumulative Increase (%)
			AM (07:00 - 08:00)					
J1	A46 Halfway House Roundabout	Low	4121	53	179	232	4353	6%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2490	27	224	251	2741	10%
L1	A46 (West)	Very Low	3295	27	179	206	3501	6%
L4	A46 (East)	Very Low	3646	27	0	27	3673	1%
			PM (18:00 - 19:00)					
J1	A46 Halfway House Roundabout	Low	2017	64	179	243	2260	12%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2323	32	224	256	2578	11%
L1	A46 (West)	Very Low	1663	32	179	211	1874	13%
L4	A46 (East)	Very Low	1657	32	0	32	1689	2%
			Daily					
J1	A46 Halfway House Roundabout	Low	41405	572	478	1051	42456	3%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	30938	286	615	901	31839	3%
L1	A46 (West)	Very Low	32858	286	478	764	33622	2%
L4	A46 (East)	Very Low	36777	286	43	329	37107	1%

ID90

13.10.35 ID90 – Land at Newark Road, North Hykeham (23/0628/OUT) is a proposed residential development of up to 120 dwellings located north-west of Newark Road in North Hykeham. The consented scheme is still awaiting approval at the time of writing (May 2025), but should it be approved, it is expected to be fully constructed and operational by 2032. Therefore, it has been screened in as a worst-case scenario to provide a robust assessment of the potential impact of its operational traffic as part of the cumulative assessment.

13.10.36 The transport assessment, published in April 2020, outlines vehicle trips associated with the development network peaks of 08:00–09:00 and 17:00–18:00 in Table 5.1. This table indicates that there will be 76 two-way vehicle trips in the AM peak and 73 two-way vehicle trips in the PM peak.

13.10.37 Using the TRICS data found within Appendix F of the transport assessment, the vehicle trip rates for the cumulative scheme have been used to identify the forecast movements which are expected to be generated and overlap with the Proposed Development during the development AM and PM peak hours (07:00-08:00 and 18:00–19:00). These vehicle trips have then been distributed across the highway network using the trip distribution percentages shown in Appendix H of the TA to estimate how many of the trips would be expected to overlap with the Proposed Development's study area. The resulting number of expected trips within the Proposed Development study area is shown in **Table 13-44** below.

13.10.38 The results in **Table 13-44** show that the peak hour and daily cumulative traffic flows fall below the 30% impact threshold defined by Rule 1 of the IEMA Guidelines for non-sensitive receptors (Ref. 13-7). Therefore, as defined in **Table 13-10**, the significance category is Neutral and the cumulative effects are considered to be Not Significant.

Table 13-44 The Proposed Development and ID90 Cumulative Peak Traffic Flows (Two-Way)

Ref.	Receptor	Receptor Sensitivity	Future Baseline Peak Flows	ID90 Site Flows	Scheme Flows	Cumulative Total Flows	Future Baseline Peak + Cumulative Total Flows	Cumulative Increase (%)
			AM (07:00 - 08:00)					
J1	A46 Halfway House Roundabout	Low	4121	9	179	189	4310	5%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2490	15	224	239	2729	10%
L1	A46 (West)	Very Low	3295	9	179	189	3484	6%
L4	A46 (East)	Very Low	3646	9	0	9	3656	0%
			PM (18:00 - 19:00)					
J1	A46 Halfway House Roundabout	Low	2017	10	179	189	2206	9%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2323	13	224	237	2559	10%
L1	A46 (West)	Very Low	1663	10	179	189	1852	11%
L4	A46 (East)	Very Low	1657	10	0	10	1667	1%
			Daily					
J1	A46 Halfway House Roundabout	Low	41405	105	478	584	41989	1%
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	30938	147	615	761	31699	2%
L1	A46 (West)	Very Low	32858	105	478	584	33442	2%
L4	A46 (East)	Very Low	36777	105	43	149	36926	0%

Total Cumulative Traffic Flows

13.10.39 A summary of the total worst-case cumulative traffic flows based on the schemes reviewed above has been set out in **Table** 13-45 below. These have been assessed with reference to the magnitude criteria thresholds outlined in Table 13-10.

13.10.40 The results in **Table** 13-45 show that the total worst-case cumulative traffic flows fall below the 30% impact threshold defined by Rule 1 of the IEMA Guidelines (Ref. 13-7) on the receptors J1 (during the AM peak and Daily), J8, L1, L2 (Daily only) and L4. Therefore their significance category is Neutral and the cumulative effects are considered to be Not Significant.

13.10.41 Receptor J1 records a cumulative increase of 39% in the PM peak which is mainly caused by the assessed cumulative schemes rather than the Proposed Development. Accordingly, it has been assigned as having a 'Low' magnitude. Since this receptor also has a 'Low' sensitivity, it is considered to have a Slight Adverse effect, and the cumulative effects are therefore considered Not Significant.

13.10.42 Receptor L2 records magnitudes of 72% and 128% in the AM and PM peaks respectively. However, these magnitudes are principally caused by the Proposed Development and not by any of the assessed cumulative schemes, since only a small number of trips from development ID33 are expected to use this receptor. Therefore, the cumulative effects at this receptor in these time periods are considered to be Not Significant.

Summary

13.10.43 In summary, based on the details set out in **Table 13-45**, the cumulative effects expected on Traffic and Transport receptors within the Study Area are likely to be Slight Adverse or Neutral (Not Significant), therefore not warranting any further assessment.

Table 13-45 Total Worst-case Cumulative Peak Daily Construction Flows (Two-Way)

Ref.	Receptor	Receptor Sensitivity	Future Baseline Peak Flows	Total Cumulative Scheme Flows	Total FGE Flows	Cumulative Scheme + FGE Flows	Future Baseline Peak + Total Cumulative Flows	Total Cumulative Increase (%)	Relevant Schemes
AM (07:00 - 08:00)									
J1	A46 Halfway House Roundabout	Low	4121	570	179	749	4870	18%	ID05, ID08, ID33, ID54, ID90
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2490	419	224	643	3134	26%	ID05, ID08, ID33, ID54, ID90
L1	A46 (West)	Very Low	3295	185	179	364	3659	11%	ID05, ID08, ID33, ID54, ID90
L2	Halfway House Lane	Very Low	252	3	179	183	435	72%	ID33
L4	A46 (East)	Very Low	3646	402	0	402	4049	11%	ID05, ID08, ID33, ID54, ID90
PM (18:00 - 19:00)									
J1	A46 Halfway House Roundabout	Low	2017	602	179	781	2799	39%	ID05, ID08, ID33, ID54, ID90
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	2323	449	224	673	2996	29%	ID05, ID08, ID33, ID54, ID90
L1	A46 (West)	Very Low	1663	203	179	382	2044	23%	ID05, ID08, ID33, ID54, ID90
L2	Halfway House Lane	Very Low	143	3	179	183	326	128%	ID33
L4	A46 (East)	Very Low	1657	426	0	426	2083	26%	ID05, ID08, ID33, ID54, ID90
Daily									

J1	A46 Halfway House Roundabout	Low	41405	8114	478	8593	49998	21%	ID05, ID08, ID33, ID54, ID90
J8	North Hykeham Roundabout (A46(N)/ Newark Road/ A46(S)/ Middle Lane)	Very Low	30938	6013	615	6628	37566	21%	ID05, ID08, ID33, ID54, ID90
L1	A46 (West)	Very Low	32858	2571	478	3050	35908	9%	ID05, ID08, ID33, ID54, ID90
L2	Halfway House Lane	Very Low	2747	55	478	533	3279	19%	ID33
L4	A46 (East)	Very Low	36777	5783	43	5826	42603	16%	ID05, ID08, ID33, ID54, ID90

Cumulative Effects During Operation

13.10.44 Cumulative effects during the operational phase of the Proposed Development have been scoped out of this assessment as the number of trips associated with the operational phase of the Proposed Development is expected to be minimal and therefore, not expected to result in potential for cumulative effects.

13.10.45 Although solar panels typically have a lifespan of 25-40 years and may therefore need to be replaced during the operational life of the Proposed Development, this would be programmed in stages over a much longer period than the construction phase with lower levels of daily vehicle activity. It is therefore not anticipated that there would be significant cumulative effects when considering this alongside the other schemes.

Cumulative Effects During Decommissioning

13.10.46 As the Proposed Development has an estimated operational life of 60 years, it is not possible to predict which potential developments may need to be considered (e.g. those under construction, recently completed and operational or in the process of being decommissioned) at the same time as the Proposed Development is being decommissioned. Broadly, however, the effects of decommissioning are likely to be similar to and no worse than those identified during construction. It is therefore not expected that any significant cumulative effects will occur during this phase.

13.11 References

Ref 13-1 Department for Energy Security and Net Zero (2024). Overarching National Policy Statement for Energy (EN-1).

Ref 13-2 Department for Energy Security and Net Zero (2024). National Policy Statement for renewable energy infrastructure (EN-3).

Ref 13-3 Department for Energy Security and Net Zero (2024). National Policy Statement for Electricity Networks Infrastructure (EN-5).

Ref 13-4 Ministry of Housing, Communities & Local Government (2023). National Planning Policy Framework.

Ref 13-5 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2023). National Planning Practice Guidance: Travel Plans, Transport Assessments and Statements.

Ref 13-6 Department for Transport and National Highways (2022). Strategic road network and the delivery of sustainable development.

Ref 13-7 Institute of Environmental Management and Assessment (IEMA) Guidelines (2023). Environmental Assessment of Traffic and Movement.

Ref 13-8 National Highways (2024). Design Manual for Roads and Bridges (DMRB).

Ref 13-9 Construction Logistics and Community Safety (2022). CLOCS Standard.

Ref 13-10 Central Lincolnshire Joint Strategic Planning Committee (CLJSPC) (2023). Central Lincolnshire Local Plan.

Ref 13-11 Lincolnshire County Council (2022). Lincolnshire Local Transport Plan 5 (LTP5).

Ref 13-12 Lincolnshire County Council (2022). Lincolnshire Transport Strategy.

Ref 13-13 North Kesteven District Council (2017). Bassingham Neighbourhood Plan.

Ref 13-14 Thorpe on the Hill Parish Council (2018). Thorpe on the Hill Neighbourhood Plan 2016–2036.

Ref 13-15 The Planning Inspectorate (PINS) (2023) Scoping Opinion: Proposed Fosse Green Energy.

Ref 13-16 Department for Transport (DfT) (2023). Trip End Model Presentation Program (TEMPro) Version 8.1.

Ref 13-17 Department for Transport (DfT) (2023). Road traffic statistics.