Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

Preliminary Environmental Information Report

Chapter 12 – Transport and Access

March 2025

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12. Transport and Access

12.1. Introduction

12.1.1. This chapter of the PEIR assesses the likely significant effects of the Scheme in terms of traffic and transport.

12.1.2. This assessment reports on the baseline and Scheme design information available at the time of writing this PEIR. As set out in Chapter 2, with regards to the export cable to the National Grid substation, the layout plan provides an illustrative corridor for the underground export cable route, and this is based upon the Applicant's current assumptions as to the possible location for the National Grid substation within the National Grid Substation and RWE Underground Export Cable Route Assessment Area. As an indicator of the likely significant effects, the assessment within this chapter focuses on the illustrative export cable corridor and provides an assessment, in transport and access terms, of a cable run within any part of the overall export cable route assessment area.

12.1.3. Environmental impact will occur as a result of vehicular traffic associated with the development proposals on the proposed routes. The implications are increases in vehicular traffic, including HGVs. Increases in traffic generally result in a temporary **Negligible** level of impact significance and therefore **Not Significant** in EIA terms.

12.1.4. This iteration of the PEIR includes updates to the working draft PEIR consulted on in October 2023. As further assessments become available, any updates to the baseline will be reported in the Environmental Statement that will accompany the DCO application ("the Application"). Consultation responses (see summary of consultation at 12.1) and the Scoping Opinion issued by the Planning Inspectorate on 13 March 2023 have been taken into account during the preparation of this Chapter and this is discussed in detail below.

12.1.5. This Chapter has been prepared by Pegasus Group. The lead author, Katie Stock, is a Chartered Transport Planning Professional (CTPP) and Member of the Chartered Institution of Highways and Transportation (MCIHT).

12.1.6. This chapter is supported by the following figures: -

- Figure 12.1 – Site Location Plan

12.1.7. This chapter is supported by the following appendices: -

- Appendix 12.1 - Transport Statement
- Appendix 12.2 - Draft Outline Construction Traffic Management Plan
- Appendix 12.3 - Summary of Sensitive Receptors
- Appendix 12.4 – Baseline Traffic Survey Report

12.1.8. Baseline and assessment work is ongoing. It is anticipated that the following information will be made available at a later stage: -

- A detailed breakdown of Personal Injury Collision data.
- Consideration of Cumulative Impacts.
- Assessment of detailed design parameters of the Scheme, including size and locations of the temporary construction / decommissioning compounds.
- Detailed assessment of trips associated with staff during the construction and operational phases, including assignment on the road network.

12.2. Consultation

12.2.1. A summary of consultation responses received to date is provided in **Table 12.1.**

Table 12.1: Summary of Consultation

CONSULTEE	SUMMARY OF CONSULTEE RESPONSE	HOW RESPONSE HAS BEEN ADDRESSED BY APPLICANT
City of Doncaster Council	Noted the scoping email regarding proposed traffic assessment locations.	Conducted Automatic Traffic Count surveys in line with proposed scope.
North Lincolnshire Council ("NLC")	Confirmed that proposed locations for traffic surveys are acceptable.	Conducted Automatic Traffic Count surveys in line with proposed scope.
North Lincolnshire Council ("NLC")	Advised that NLC are likely to have concerns about the site being accessed from the A161/Cross Street junction in Crowle. There are concerns regarding the turning manoeuvre for large vehicles at the A161/Cross Street junction within Crowle. This is due to the radius of the bellmouth and the propensity for on-street parking within the vicinity of the junction. Therefore, alternative construction routes are to be considered. These include: a) The A161 > Godnow Road > Windsor Road > Marsh Road; and b) The A161 > Hazel Avenue > Brewery Road > Northmoor Road > Rainsbutt Road (for	Access and routing for construction traffic, including those routes via Crowle, is considered in detail in this ES chapter and the Outline CTMP. Consultation with NLC is ongoing.

CONSULTEE	SUMMARY OF CONSULTEE RESPONSE	HOW RESPONSE HAS BEEN ADDRESSED BY APPLICANT
	which you have kindly provided a PDF detailing this route). Although this route would fall short of the red line boundary, we will consider the viability of using this route before accessing Moor Road/Newbigg > Commonside > Marsh Road. A request for a more precise number of HGV movements into land parcel B is made, and a swept path assessment is to be provided for vehicles using the unnamed road which is proposed to serve access to land parcel P. This is the road that routes between the A161 south of the Crowle roundabout in the east and High Levels Bank in the east. Consideration should also be given to temporary mitigation on this road on the basis that it is a singletrack carriageway, to assist with conflicting vehicles. It is considered that access to the land parcels served from the A18 should be acceptable, providing the arrival and departures of construction vehicles are managed properly.	
North Lincolnshire Council ("NLC")	Request to agree the scope for Non-Motorised User surveys in February 2024.	Non-Motorised User surveys agreed to be carried out in Spring/Summer seasons. Surveys carried out in May 2024.

12.3. Assessment Approach

Methodology

12.3.1. The assessment has been carried out in accordance with the Institute of Environmental Management and Assessment (IEMA) guidance 'Environmental Assessment of Traffic and Movement' document, (referred to as the 'IEMA traffic guidance' throughout this chapter) [1].

[1] Institute of Environmental Management and Assessment (IEMA) guidelines: Environmental Assessment of Traffic and Movement (2023)

12.3.2. The pertinent issues for the PEIR in terms of transportation are the magnitude and consequences of changes at the assessment links within the study area (detailed at **paragraph 12.3.24**) as a result of the construction and operational phases of the development on:

- Vehicular traffic flows.
- Accidents and safety.
- Severance of communities.
- Road vehicle driver and passenger delay.
- Non-motorised user delay.
- Non-motorised user amenity;
- Fear and intimidation on and by road users; and
- Hazardous/loads.

Determining the Magnitude and Significance of Environmental Impacts

12.3.3. There are four levels of impact magnitude considered which are negligible, low, medium, and high.

12.3.4. The IEMA traffic guidance sets out two rules to be considered when assessing the impact of development traffic on a highway link as follows:

- Rule 1: include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas where traffic flows (or HGV component) are predicted to increase by more than 10%.

12.3.5. The 30% threshold is based upon research and experience and the IEMA guidelines suggest that less than a 30% increase results in imperceptible changes in the environmental effects of traffic, apart from in sensitive locations.

12.3.6. Definitions of magnitude have been based on these guidelines and are shown in **Table 12.2.**

Table 12.2 Criteria for Magnitude of Impact

Impact	Magnitude of Impact / Threshold			
	Negligible	Low	Medium	High
Traffic Flow	Change in peak or 24 hr traffic within study area by less than 5%	Change in peak or 24 hr traffic within study area between 5% and 15%	Change in peak or 24 hr traffic within study area between 15% and 30%	Change in peak or 24 hr traffic within study area by 30% or more
Accidents and Safety	Number of predicted personal injury collisions (PICs) does not exceed the number of observed PICs. This analysis will be interpreted with professional judgement and used to inform and determine the impact on Accidents and Safety.		The number of observed PICs will be compared against the predicted number of PICs that could be expected over the time period of the observed data (e.g., 3 years) in accordance with the COBA Manual (DMRB Volume 13, Section 1, Chapter 4). The calculations will be based on variables including: observed Annual Average Daily Traffic[2] (AADT) traffic flow, road speed, length of road section and type of road. This analysis will be interpreted with professional judgement and used to inform and determine the impact on Accidents and Safety.	
Severance	Change in peak or 24 hr traffic within study area by less than 30%	Change in peak or 24 hr traffic within study area of 30%- 60%	Change in peak or 24 hr traffic within study area of 60% - 90%	Change in peak or 24 hr traffic within study area by 90% or more
Driver and Passenger Delay	Change in peak or 24 hr traffic within study area by less than 5%	Change in peak or 24 hr traffic within study area between 5% and 15%	Change in peak or 24 hr traffic within study area between 15% and 30%	Change in peak or 24 hr traffic within study area by 30% or more
Non-motorised user Delay	The guidance recommends that professional judgement is used to determine the impact on Pedestrian Delay, considering local factors such as pedestrian activity, visibility, and the physical conditions of the site.			

[2] Annual Average Daily Traffic is the total volume of vehicle traffic on a highway or road for a year, divided by 365 days

Impact	Magnitude of Impact / Threshold			
	Negligible	Low	Medium	High
Non-motorised user Amenity	Pedestrian Amenity is impacted by traffic flow, composition and width of pavement and is related to fear and intimidation thresholds. As suggested by national guidance a threshold of where traffic or HGV flows have halved or doubled will be used to indicate whether there is a significant effect.			
Fear and Intimidation	With reference to paragraphs 3.32 to 3.40 and Tables 3.1 – 3.3 of the IEMA Guidance, the level of fear and intimidation is based on a degree of hazard score for both the with and without development scenarios. The difference between the scenarios results in the Magnitude of Impact as categorised below.			
	There is no change in steps between with and without development.	There is one step change in level with: <400 veh increase in average 18 hour two-way flow and /or <500 HV increase in total 18 hour HV flow.	There is one step change in level but with: >400 veh increase in average 18 hour two-way flow and /or >500 HV increase in total 18 hour HV flow.	Two step changes in level

12.3.7. The impact magnitudes can have either a beneficial or adverse impact.

Receptor Sensitivity

12.3.8. Sensitive receptors have been identified using the principles set out in the IEMA traffic guidance (paragraph 1.30) for the categories of effect assessed in this chapter.

12.3.9. The criteria for assessing the sensitivity of a receptor are set out in **Table 12.3**.

Table 12.3 – Criteria for Sensitivity of Receptor

Receptor Sensitivity	Receptor Type
High	Receptors of greatest sensitivity to traffic flows, such as schools, playgrounds, accident blackspots, retirement homes, areas with no footways with high pedestrian footfall.
Medium	Traffic flow sensitive receptors, such as congested junctions, hospitals, shopping areas with active frontages, narrow footways, parks, and recreational areas.
Low	Receptors with some sensitivity to traffic flow, such as conservation areas, listed buildings, tourist attractions, and residential areas.
Negligible	Receptors with low sensitivity to traffic flows, and those distant from affected roads.

12.3.10. The sensitivity of each of the links is set out in more detail below and at **Appendix 12.3**.

Assessment of Significance

12.3.11. The Significance of Effect is determined by combining the predicted magnitude of impact with the assigned sensitivity of the receptor. The Significance of Effect is set out in **Table 12.4**.

12.3.12. The Significance of Effect thresholds can be categorised as beneficial (positive, i.e., reduction in traffic flows), negligible (no real impact) or adverse (negative i.e., increase in traffic flows). For the purpose of this chapter, major and moderate significance of effects are considered 'significant', as indicated by the shading in **Table 12.4**.

Table 12.4 – Significance Matrix

Magnitude of Change	Sensitivity of Receptor				
		High	**Medium**	**Low**	**Negligible**
	High	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor to Moderate	Negligible
	Low	Moderate	Minor to Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

12.3.13. Significance thresholds can also be categorised as temporary or permanent and can have an effect for the short, medium, or long term. The relevant definitions in terms of the longevity of the effect are set out below:

- A short-term effect – an effect that will be experienced for 0-5 years.
- A medium-term effect – an effect that will be experienced for 5-15 years; and
- A long-term effect – an effect that will be experienced for 15 years onwards.

Policy Framework

12.3.14. The assessment of traffic and transportation impacts of the Scheme have been carried out in accordance with the IEMA traffic guidelines.

12.3.15. The proposals have also been considered in the context of the following documents:

- Overarching National Policy Statement for Energy (EN-1 Chapter 15.4 'Traffic and Transport') 2024.
- National Policy Statement for Renewable Energy Infrastructure (EN-3 Chapter 2.10 'Solar Photovoltaic Generation') 2024.
- National Planning Policy Framework (2024);
- National Planning Policy Guidance (2014);

National Policy Statements

12.3.16. National Policy Statement EN-1[3] ('Overarching National Policy Statement for Energy') sets out guidance relating to traffic and transport at Chapter 5.14. Paragraph 5.14.5 states that the Applicant's ES should include a transport appraisal, in this case a Transport Statement, using the DfT's Transport Analysis Guidance. Paragraph 5.14.6 confirms that Applicants should consult with National Highways and Highways Authorities as appropriate.

12.3.17. National Policy Statement EN-3[4] ('National Policy Statement for Renewable Energy Infrastructure') sets out guidance relating to access and the potential impacts and mitigations for construction traffic relating to new solar farms at Chapter 2.10. Chapter 2.10 suggests that applicants should suggest the applicants should assess the potential routes for deliveries and the suitability of these routes, and the mitigation measures that may be implemented by the Highway Authority or the Secretary of State.

[3] EN-1 Overarching National Policy Statement for Energy

[4] National Policy Statement for renewable energy infrastructure (EN-3)

National Planning Policy Framework (NPPF)

12.3.18. In transport terms, the thrust of the National Planning Policy Framework (NPPF) is a presumption in favour of sustainable development (paragraph 10) and to make the fullest use of public transport, walking, and cycling (paragraph 109) whilst noting that opportunities will vary between urban and rural areas (paragraph 110); to locate and design development to give priority to pedestrians and cycle movements, and have access to high quality public transport facilities (paragraph 117); ensuring safe and suitable access can be achieved for all (paragraph 114); and that development should only be refused on transport grounds where the residual cumulative impacts on the road network, following mitigation, would be severe (paragraph 116).

12.3.19. It is recognised that a new version of the NPPF was issued on 12 December 2024 (and updated in February 2025). At paragraph 118 it states that '*All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored.*'. The accompanying 'Consultation Outcome' document dated 12 December 2024 states that updated guidance will be provided alongside the NPPF in due course. Whilst this accompanying document is not yet available, it is not considered at this stage that the changes to NPPF will have a material effect on the assessment work undertaken in this PEIR.

National Planning Policy Guidance (NPPG)

12.3.20. The NPPG[5] provides advice on when Transport Assessment and Transport Statements are required and what they should contain. The NPPG confirms that these types of documents can positively contribute to:

- Encouraging sustainable travel.
- Lessening traffic generation and its detrimental impacts.
- Reducing carbon emissions and climate impacts.
- Creating accessible, connected, inclusive communities.
- Improving health outcomes and quality of life.
- Improving road safety; and
- Reducing the need for new development to increase existing road capacity or provide new roads.

12.3.21. It is not considered that the Scheme constitutes a departure from any of these policies.

[5] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2014) National Planning Policy Guidance Travel Plans, Transport Assessments and Statements [Online] Available at: https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

Scoping Criteria

12.3.22. This Transport and Access Chapter deals specifically with the transport and access issues pertinent to an EIA. This includes the magnitude and consequences of changes in traffic flows on the local road network, including operational and safety impacts as a result of the Scheme.

12.3.23. The following transport and access comments were provided in the Planning Inspectorate Scoping Opinion issued by the Planning Inspectorate dated 13 March 2023.

Table 12.5: Extract of aspect based scoping table from Scoping Opinion for Tween Bridge Solar Farm

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
2.1.2	Paras 2.9 and 2.23	Temporary roadways	The ES should describe the type of temporary roadways required, along with their anticipated location and duration of use. Any likely significant effects resulting from their installation, use and removal should be assessed.	Temporary access tracks will be provided internal of the land parcels shown on Figure 12.1. This is set out at paragraphs 3.16 and 3.17 of the draft Outline CTMP ('OCTMP'). The OCTMP is an evolving document and will be updated as the project progresses and in response to consultation.
2.1.3	Paras 2.10 and 2.27 to 2.28	Management and maintenance	The ES should describe the potential scope and duration of maintenance works that would be required during the operation of the Proposed Development, including predicted vehicle movements and staffing numbers. Proposals for maintaining vegetation around easements and the Public Rights of Way (PRoW) within the application site should also be described.	The potential works required during the operational phase and predicted number of vehicle movements associated with the operational phase are set out in the draft OCTMP at paragraph 5.10 to 5.12. Details of PRoW routes will be confirmed in Chapter 6 (Landscape) in due course, once the layout has been fixed.
2.1.12	Paras 2.23 to 2.25	Construction compound(s)	The ES should confirm the locations and sizes of the main construction compound and smaller compounds and where possible, show detailed layouts. Any mitigation measures proposed to avoid or minimise	The applicant notes that detailed information regarding the size of the temporary construction compounds is required, and this will be made available once the layout has been fixed, further to

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
			impacts relating to the use of compounds should be described in the ES.	confirmation of the location of the National Grid substation.
2.1.17	n/a	Vehicle movements	The ES should detail the number of anticipated vehicle movements during all phases of the Proposed Development and explain the assumptions upon which these have been established.	The draft OCTMP sets out the anticipated number of vehicle movements per day for construction vehicles delivery plant and materials to the Scheme. The Applicant notes that detailed information regarding the trips associated with operational traffic is required, and these will be confirmed and factored into the total vehicle movements at a later stage.
2.2.4	n/a	Study area(s)	The ES should, for each aspect chapter, clearly define and justify the study area(s) used for the assessment of effects from the Proposed Development alone and cumulatively with other development. The study area(s) should be represented on accompanying figures.	The study areas have been agreed through scoping discussions with the relevant authority and will be defined on accompanying figures at a later stage, once the layout is fixed (further to confirmation of the location of the National Grid substation).
3.11.1	Paras 2.29, 10.14 and 10.15	Impact on pedestrians (severance, delay, amenity and fear/ intimidation)	Paragraph 10.14 of the Scoping Report proposes that due to the limited number of pedestrians anticipated within the vicinity of the site, impacts to pedestrians in terms of severance, delay, amenity and fear/ intimidation will not be assessed. The Inspectorate is content that this matter can be scoped out for the operational phase, but not in relation to construction and decommissioning. The temporary diversion or stopping up of a PRoW (Doncaster footpath Thorne 19) may be	Usage surveys of the PRoW routes within the site were carried out by an independent surveyor on Thursday 16 and Saturday 18 May 2024.Further details are provided at **Section 12.4** of this PEIR.

Transport and Access

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
			required during construction and decommissioning and the reference to a "limited number" of pedestrians has not been quantified. The ES should assess impacts to users of PRoW or other recreational routes (including severance, delay, amenity and fear/ intimidation) during construction and decommissioning which are likely to result in significant effects. Any such assessment should be supported by pedestrian/ user counts where possible, with effort made to agree the locations for such counts with relevant consultation bodies. Where relevant, the ES should assess potential interactions between aspect assessments (for example traffic and transport, noise, dust, recreation and visual impact). The locations of any diversions or closures should be illustrated on suitable figures in the ES.	
3.11.2	Paras 2.24 and 10.7; Appendix 10.1	Access routes	The ES should describe the proposed site entrance/s and the routes to be used for all vehicular access during construction and operation of the Proposed Development and this information should be clearly presented on supporting plans within the ES. The ES should describe and assess the potential impacts (both positive and negative) associated with any improvements/ changes to the access routes which are either	The proposed access arrangements and construction traffic routing is set out in detail in the draft OCTMP. The impacts, including sensitive receptors, are set out in **Table 12.11** of this PEIR.

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
			required to facilitate construction of the Proposed Development or are required for restoration purposes on completion of the works. For the assessment of impacts during construction the ES should explain how the proposed access route(s) relate to sensitive receptors.	
3.11.3	Paras 10.4 to 10.6	Baseline	The Scoping Report states that the Transport and Access ES chapter would consider baseline transportation conditions including traffic flows and highways safety. The ES should describe the baseline environment in full including pedestrian/ user counts (see above), existing land uses and existing site access.	The baseline environment is set out in detail in **Section 12.4** of this PEIR chapter and draft OCTMP.
3.11.4	Para 10.8	Construction Traffic Management Plan (CTMP)	A draft/ outline copy of the CTMP should be appended to the ES.	A draft OCTMP is included at **Appendix 12.2.**
3.11.5	n/a	Study area	The ES should explain the how the study area for the Transport and Access ES assessment has been defined, with reference to the extent of the likely impacts.	The study area has been agreed through scoping and is set out at paragraph 12.3.26 of this PEIR.

Extent of Study Area

12.3.24. The study area was confirmed through the EIA Scoping process. The links assessed and the sensitivity of each is included at **Appendix 12.3.**

Limitations to the Assessment

12.3.25. No limitations or difficulties have been identified.

12.4. Baseline Conditions

Site Description and Context

12.4.1. The Site is centred at approximately 10 kilometres to the northeast of Doncaster and 14 kilometres to the west of Scunthorpe. The site is split across the administrative boundaries of Doncaster Council (DC) and North Lincolnshire Council (NLC). The location of the site in its wider geographical context is shown in **Figure 12.1.**

12.4.2. The site comprises 16 separate land parcels and extends to over 1,500 hectares.

12.4.3. The Staniforth and Keadby Canal and the South Humberside Mainline railway line run in an east to west direction to the south of Land Area A.

Local Highway Network

12.4.4. A network of local roads connects the different land parcels as well as providing links to the wider local and strategic road networks.

A18

12.4.5. The A18 is a single carriageway road which is approximately seven metres wide. It is subject to the National Speed Limit (60mph) and facilitates travel between the towns of Hatfield to the west and Scunthorpe to the east. Streetlighting and footways are generally provided within the vicinity of local settlements.

A161

12.4.6. The A161 is a single carriageway road which is approximately seven metres wide. It is subject to the National Speed Limit. It connects via a junction onto the A18 to the north and can be used to join the M180 via Junction 2 to the south. Further afield the road facilitates travel between local towns such as Goole, Crowle, Epworth and Haxey.

Sandtoft Road

12.4.7. Sandtoft Road is a single carriageway road measuring around five to six metres in width. It is subject to the National Speed Limit and subject to a 7.5 tonne weight restriction, except for access. To the east it becomes Low Levels Bank Road and to the west it connects to the A18 via a priority junction. There are no footways or street lighting provided.

Low Levels Bank

12.4.8. Low Levels Bank consists of a single carriageway approximately five metres in width. It is subject to the National Speed Limit. To the east, it becomes Thorne Road and to the west it becomes Sandtoft Road. There are no footways or street lighting provided.

Crow Tree Bank

12.4.9. Crow Tree Bank is a single carriageway road measuring approximately six to seven metres wide. It is subject to the National Speed Limit. It connects onto High Levels Bank to the north and High Bridge Road to the south via a priority junction.

12.4.10. A short section of footway extends south for approximately 60 metres from the High Levels Bank junction. There is no street lighting provided.

High Bridge Road

12.4.11. High Bridge Road is an unmarked, single carriageway road measuring approximately three to four metres in width. It is subject to the National Speed Limit. To the east it becomes Green Bank and to the west it becomes Moors Edge Road. There are no footways or street lighting provided.

Green Bank

12.4.12. Green Bank is a single carriageway road measuring approximately four metres in width and is subject to the National Speed Limit. To the north it narrows to three metres as it crosses over the Stainforth and Keadby Canal before leading onto High Bridge Road, and to the south it connects onto the A18 via a priority junction. Where the road crosses the canal there is a 7.5 tonne weight restriction.

Clay Bank Road

12.4.13. Clay Bank Road is an unmarked single carriageway measuring approximately three to four metres wide. It is subject to the National Speed Limit. It connects to Green Bank to the east and to South End/Double Bridges Road to the west via priority junctions. There are no footways or street lighting provided.

Moor Road

12.4.14. Moor Road is a single carriageway that measures approximately four metres in width. It is subject to the National Speed Limit. It routes over a level crossing and the Stainforth and Keadby Canal, narrowing to around three metres as it crosses the canal. It connects to Moors Edge Road to the north and South End/Double Bridges Road to the south via priority junctions. There are no footways or street lighting provided.

Double Bridges Road

12.4.15. Double Bridges Road is a single carriageway which is around four to five metres wide. It is subject to the National Speed Limit. To the north it becomes South End whilst to the south it connects onto the A18 via a priority junction. There are no footways or street lighting provided.

South End

12.4.16. South End routes southeast through a residential area, before crossing a canal bridge. It becomes Ellison Street to the north and Double Bridges Road to the southeast.

12.4.17. North of the canal it measures approximately six metres wide and is subject to a 20mph speed limit. A continuous footway routes along the western side of the carriageway. On the eastern side, a footway extends for around 260 metres southwards from the point it for becomes Ellison Road. Street lighting is provided along its extent.

12.4.18. South of the canal bridge it measures approximately five metres wide and is subject to the National Speed Limit. There are no road markings, street lighting or footways provided.

Moors Edge Road

12.4.19. Moors Edge Road is a single carriageway that measures approximately four metres wide and is subject to the National Speed Limit. To the west it becomes Church Balk and to the south it becomes High Bridge Road. There are no footways or street lighting provided.

Coulman Street

12.4.20. Coulman Street is a single carriageway road that measures approximately seven to eight metres in width and is subject to a 30mph speed limit. It connects with King Edward/Marshland Road via a priority junction to the north and connects to Church Balk/Moor Edges Road and Wike Gate Road via a crossroad junction to the south.

12.4.21. A footway on the eastern side of the carriageway extends approximately 230 metres south of the King Edward/Marshland Road junction and a continuous footway routes along the western side of the carriageway. Street lighting is provided along its extent.

Coulman Road

12.4.22. This is a single carriageway road measuring approximately seven metres wide that loops through the Coulman Road Industrial Estate serving multiple businesses, storage warehouses, workshops and garages. Two priority junctions connect it to Coulman Street, one to the north and the other to the south. It is subject to a 30mph speed limit, street lighting is provided and a continuous footway exists along one side of the carriageway.

12.4.23. Traffic Regulation Orders in the form of double yellow lines are present along at least one side of the carriageway.

Goole Road

12.4.24. Goole Road is a private, single carriageway road which varies in width between seven and 10 metres, becoming Grange Road to the west. Street lighting is present and a section of footway follows the road east and then north for approximately 600 metres.

Marsh Road

12.4.25. Marsh Road is an unmarked single carriageway that measures approximately four metres wide and currently serves a small number of dwellings and agricultural buildings. No footways are provided, and street lighting is provided at its north eastern extent only, within the vicinity of dwellings within Crowle.

12.4.26. To the southwest it becomes Crook O Moor Road and to the northeast it forms the minor arm of a priority junction with Cross Street and Windsor Road.

12.4.27. Marsh Road is subject to the national speed limit which reduces to a 30mph speed limit approximately 90 metres southwest of the junction with Cross Street and Windsor Road. There are double yellow lines on both sides of the carriageway at this junction.

12.4.28. Approximately 100 metres south of the junction between Marsh Road/Cross Street/Windsor Road is Crowle Primary School. Warning signage indicating the school is nearby and that a reduction of the speed limit to 20mph 'when lights show' is present approximately five metres south of the junction between Marsh Road, Cross Street and Windsor Road.

Informal Lanes/Farm Tracks

12.4.29. Due to the more rural nature of the site, some locations are accessed by smaller informal lanes and farm tracks including:

- Marshland Road.
- Broadbent Gate Road.
- Thorne Waste Drain Road.
- Moor Owners Road; and
- Crook O'Moor Road

12.4.30. These roads consist of rural lanes with no kerbs, footways or street lighting. They generally measure around four metres in width.

Public Rights of Way

12.4.31. A number of Public Rights of Way (PRoW) route through and abut the site, these are shown on **Figure 12.1** and are summarised below in **Table 12.6**.

Table 12.6 – PRoW within the Scheme

PRoW Name	Type of PRoW	Responsible Authority
Thorne 15	Footpath	Doncaster Council
Thorne 19	Footpath	Doncaster Council
CROW 18	Bridleway	North Lincolnshire
CROW 21	Byway open to all traffic	North Lincolnshire

PRoW Name	Type of PRoW	Responsible Authority
BELT 21	Footpath	North Lincolnshire

12.4.32. The Stainford and Keady Canal path also routes within the vicinity of the site, to the south of Development Area A. This has also been considered.

12.4.33. The Thorne 15, Thorne 19, CROW 21 PRoW routes and the Canal Path, on the basis that these are anticipated to have the most footfall, were subject to 24 hour user surveys. The surveys were carried out by an independent surveyor on Thursday 16 and Saturday 18 May 2024. Further to correspondence with NLC PRoW officers in February 2024, it was agreed that undertaking the surveys in Spring/Summer would yield results which reflect peak usage. The results of the surveys are summarised in **Table 12.7**, with the survey data included at **Appendix 12.4.**

Table 12.7 – PRoW Usage (Two-Way)

User	Thursday 16 May 2024		Saturday 18 May 2024	
	Hourly Max	Daily Total	Hourly Max	Daily Total
	Thorne 15			
Pedestrian	3	8	3	12
Cycle	1	2	1	1
Equestrian	0	0	0	0
	Thorne 19			
Pedestrian	4	10	3	12
Cycle	0	0	1	1
Equestrian	0	0	0	0
	CROW 21			
Pedestrian	5	13	10	28
Cycle	2	4	2	4
Equestrian	0	0	1	1
	Stainford and Keady Canal Path			
Pedestrian	2	4	0	0
Cycle	0	0	0	0
Equestrian	0	0	0	0

12.4.34. As shown in **Table 12.7**, the Thorne 15 and Thorne 19 PRoWs had a total of 12 pedestrian and one cycle movements on its busiest day (Saturday), PRoW CROW 21 had a total of 28 pedestrian, four cycle and one equestrian movements on its busiest day (Saturday), and the Canal Path had a total of four pedestrian movements on its busiest day (Thursday). These are not considered to be material numbers of movements across a typical day with a maximum of 10 two-way movements (i.e., five outbound and five return trips) in any one hour.

Personal Injury Collisions

12.4.35. Personal Injury Collision (PIC) data has been obtained from Crashmap.com for the three-year period between 2021 and 2023.

12.4.36. The overall study area is identified at **Figure 12.1**. In summary, the data confirms that there has been a total of one fatal incident, 40 slight incidents and 10 serious incidents within the study area. The full PIC reports including a breakdown of where the recorded incidents occurred will be made available at a later date.

Baseline Survey Information

12.4.37. The sources of baseline information are included at **Table 12.8.**

Table 12.8: Baseline Information

Baseline Topic	Data Source	Date
Automatic Traffic Count Surveys	Paul Castle Associates	June 2023
DfT Traffic Counts	Department for Transport Road Traffic Statistics	June 2021
Non-Motorised User Surveys	Nationwide Data Collection	May 2024
Highway Search	City of Doncaster Council	November 2022
	North Lincolnshire Council	October 2022
Personal Injury Collision Data	Crashmap.com	December 2024
Base Mapping	Ordnance Survey	Various
	Landmark Surveys (Topographic Survey)	May 2023

Baseline Traffic Flows

12.4.38. Automatic Traffic Count (ATC) surveys have been carried out across the local highway network, further to agreement with Doncaster Council and North Lincolnshire Council between Tuesday 6th and Monday 12th of June 2023. The traffic and speed surveys are summarised in Pegasus Group document "Baseline Traffic Survey Report" at **Appendix 12.5**.).

12.4.39. **Table 12.9** sets out the recorded baseline two-way flows for the PEIR transport study area.

Table 12.9: 2023 Baseline AADT Flows

Highway Link (see footnote 1)	2023 Baseline Two-Way AADT	Baseline Number of Heavy Goods Vehicles (HGV) with Percentage of AADT
Link One	4,506	521 (11.6%)
Link Two	3,244	627 (19.3%)
Link Three	6,457	1,361 (21.1%)
Link Four	8,706	923 (10.6%)
Link Five	4,180	464 (11.1%)
Link Six	840	180 (21.4%)
Link Seven	161	24 (14.9%)
Link Eight	110	13 (11.8%)
Link Nine	5,108	640 (12.5%)
Link Ten	7,883	1,446 (18.3%)
Link Eleven	7,950	1,544 (19.4%)
Link Twelve	7,582	1,661 (21.9%)
Link Thirteen	8,289	1,714 (20.7%)
Link Fourteen	2,318	355 (15.3%)
Link Fifteen	2,224	388 (17.4%)
Link Sixteen	2,434	361 (14.8%)
Link Seventeen	8,279	1,060 (12.8%)
Link Eighteen	5,317	991 (18.6%)
Link Nineteen	113	18 (15.9%)

NOTE: HGVs included within total traffic flow. Link flows are two-way.

Assessment of Likely Significant Effects

Construction

Traffic Flows – Ground Mounted Solar Park

12.4.40. The number of trips by HGVs that could be associated with the construction phase of the ground mounted solar park element of the Scheme is set out in detail in the draft OCTMP at **Appendix 12.2**.

12.4.41. A total of 41,023 two-way HGV movements are forecast over the 30 month construction phase. This includes HGVs accessing the main construction compounds and then tractor and trailers moving the equipment to the adjacent Land Areas. This equates to 1,367 two-way trips per month, 342 two-way trips per week and 57 two-way trips per day on average. This equates to an AADT of 49 HDVs (57x6 / 7). This could be higher or lower at times depending on the stage of construction. This also assumes the worst case scenario with regards to the construction of the Scheme in a single continuous phase of development.

12.4.42. The construction of the Solar Park will require Abnormal Indivisible Loads (AIL) for the transformer and substation deliveries. The deliveries will be planned with an AIL route assessment and will be escorted and managed along the route from the port of entry into the UK and the Site. Any impacts will be minimised, and the arrangements will be secured through an AIL assessment in due course in conjunction with Doncaster Council, North Lincolnshire Council and the Police. Given the high level of management of these loads, no significant impacts are anticipated. This will be considered in more detail as part of future iterations of the PEIR.

12.4.43. In addition to the HGV movements identified above**,** there will also be a small number of construction movements associated with smaller vehicles such as the collection of skips for waste management, the transport of construction workers and sub-contractors.

12.4.44. It is assumed at this stage that a maximum of up to 680 construction workers are also anticipated to be at the Site at any one time during peak time of the construction period. This is based on an assumption of one worker per MegaWatt (MW).

12.4.45. The location where staff will travel from is unknown at this stage as it will depend on the appointed contractor. However, it is anticipated at this stage that the non-local workforce will stay at local accommodation and the vast majority of general operatives will be transported to the Site by minibuses to minimise the impact on the local highway network. Assuming 14-seater minibuses are used and based on the numbers in 12.4.44 above, there could be around 47 crew minibuses per day during the peak time of construction (94 two-way trips).

12.4.46. The number of car trips to the site will be minimised to those senior staff such as project managers and the Health and Safety Executive. At this stage, it is forecasted that there could be up to five individual car trips (10 two-way) to each Land Area per day, resulting in 25 trips (50 two-way trips).

12.4.47. It is anticipated that HGV deliveries will be made to Primary Construction Compounds located within five separate Land Areas. The Primary Construction Compounds will accommodate deliveries of construction materials by HGVs where they will decant the materials. Smaller vehicles (i.e. tractor and trailer) will then be used to transport materials to the other parcels which will have designated storage and set down areas. Assuming a 30 month construction period and a six day working week, this equates to around 15 smaller vehicle deliveries per day on average (or up to 30 two way movements per day (rounded)). This is calculated on the basis that there could be 20,810 two-way vehicle trips by smaller vehicles across 720 working days. This could be higher or lower at times depending on the stage of construction.

12.4.48. As set out in the draft OCTMP, five primary construction compounds will be provided; one in each Land Area, with secondary construction compounds also located across smaller land parcels. The number of deliveries will therefore be split between each of these compounds. Based on the approximate size of each land parcel, this is estimated to be around:

- Land Area A – 47 two-way AADT movements per day (including 5 HGVs).
- Land Area B – 18 two-way AADT movements per day (including one HGV).
- Land Area D (north of motorway) - 28 two-way AADT movements per day (including 16 HGVs).
- Land Area D (south of motorway) - 9 two-way AADT movements per day (including 4 HGVs).
- Land Area E - 33 two-way movements per day (including 4 HGVs).

12.4.49. The site access arrangements for each of the above Land Areas are set out in the OCTMP at **Appendix 12.2**.

Traffic Flows – Cable Route

12.4.50. Underground cabling (132kV) running from the main on-site 400kV RWE substation would be required to be laid in order to connect the Scheme to a proposed National Grid Substation. A cable route will be provided from the substation in Land Area E to a yet to be identified National Grid substation. Although the exact location has not been confirmed, it is anticipated that the substation will be located to the east of Land Area E. The current cable routing being considered runs within Land Area F.

12.4.51. The site access arrangements for Land Area F which serve the Cable Route area are set out in the OCTMP at **Appendix 12.2**.

12.4.52. The construction of the cable route within Land Area F will be associated with a number of vehicles and machinery including 21 tonne, 13 tonne and 8 tonne excavators, 9 tonne dumpers, tractors, self-propelled tracked drill rigs and a small number of 16.5 metre articulated vehicles.

12.4.53. Vehicles/machinery will generally be brought to the site at the start of the construction of the Scheme and stored overnight within a temporary fenced area within the vicinity of where construction works are being carried out. Light plant, fuel and staff vehicles would return to the compound on a daily basis. As such, it is expected that there will typically only be around five vehicles moving between the main Scheme site and the cable route corridor each day on average (around ten two-way movements) . This could be higher or lower at times depending on the stage of construction.

12.4.54. In addition to the movements identified at **paragraph 12.4.52** there will also be a small number of construction movements associated with smaller vehicles such as the transport of construction workers and sub-contractors. This is assumed to be one minibus arriving and departing each day (noting that there is anticipated to be a maximum of ten staff working on the cable route).

12.4.55. Based on the above, it is estimated that there could be around 12 daily vehicle movements associated with the cable route in total. This equates to a maximum AADT value of around 10 two-way movements ((12 x 6 days) / 7 days).

12.4.56. The impact on each of the links is set out in **Table 12.10**. Negative refers to a negative impact magnitude and positive refers to a positive impact magnitude, in line with the parameters previously set out within the significance scale in **Chapter 3: Approach to Environmental Impact Assessment**.

12.4.57. Details of mitigation measures are summarised later in this chapter and considered in detail in the OCTMP at **Appendix 12.2**.

Table 12.11 – 2023 with Development Total Traffic Flows (Solar Park & Cable Trips)

Link	2023 Baseline Two-Way AADT	With Dev Total Traffic Flow	Additional Two-way traffic Dev Total Traffic Flow		Impact significance	
			Total Veh	HGVs	Total Veh	HGVs
Link One	4,506 (521 HGVs)	4,544 (526 HGVs)	38 [<1%]	5 [1.0%]	Negligible	Negligible
Link Two	3,244 (627 HGVs)	3,282 (632 HGVs)	38 [1.2%]	5 [<1.0%]	Negligible	Negligible
Link Three	6,457 (1,361 HGVs)	6,495 (1,366 HGVs)	38 [<1%]	5 [<1%]	Negligible	Negligible
Link Four	8,706 (923 HGVs)	8,744 (928 HGVs)	38 [<1%]	5 [<1%]	Negligible	Negligible

Link	2023 Baseline Two-Way AADT	With Dev Total Traffic Flow	Additional Two-way traffic Dev Total Traffic Flow		Impact significance	
			Total Veh	HGVs	Total Veh	HGVs
Link Five	4,180 (464 HGVs)	4,218 (469 HGVs)	38 [<1.0%]	5 [1.1%]	Negligible	Negligible
Link Six	840 (180 HGVs)	878 (185 HGVs)	38 [4.4%]	5 [2.8%]	Negligible	Negligible
Link Seven	161 (24 HGVs)	161 (24 HGVs)	0 [0%]	0 [0%]	Negligible	Negligible
Link Eight	110 (13 HGVs)	110 (13 HGVs)	0 [0%]	0 [0%]	Negligible	Negligible
Link Nine	5,108 (640 HGVs)	5,108 (640 HGVs)	0 [0%]	0 [0%]	Negligible	Negligible
Link Ten	7,883 (1,446 HGVs)	7,909 (1,459 HGVs)	26 [<1%]	13 [1%]	Negligible	Negligible
Link Eleven	7,950 (1,544 HGVs)	7,970 (1,552 HGVs)	20 [<1%]	8 [<1%]	Negligible	Negligible
Link Twelve	7,582 (1,661 HGVs)	7,622 (1678 HGVs)	40 [<1%]	17 [1.0%]	Negligible	Negligible
Link Thirteen	8,289 (1714 HGVs)	8,303 (1,718 HGVs)	14 [<1%]	4 [<1%]	Negligible	Negligible
Link Fourteen	2,318 (355 HGVs)	2,332 (359 HGVs)	14 [<1%]	4 [1.0%]	Negligible	Negligible
Link Fifteen	2,224 (388 HGVs)	2,224 (388 HGVs)	0 [0%]	0 [0%]	Negligible	Negligible
Link Sixteen	2,434 (361 HGVs)	2,434 (361 HGVs)	0 [0%]	0 [0%]	Negligible	Negligible
Link Seventeen	8,279 (1,060 HGVs)	8,295 (1,062 HGVs)	16 [<1%]	2 [<1%]	Negligible	Negligible

Link	2023 Baseline Two-Way AADT	With Dev Total Traffic Flow	Additional Two-way traffic Dev Total Traffic Flow		Impact significance	
			Total Veh	HGVs	Total Veh	HGVs
Link Eighteen	5,317 (911 HGVs)	5,340 (934 HGVs)	23 [<1%]	23 [2.5%]	Negligible	Negligible
Link Nineteen	113 (18 HGVs)	129 (20 HGVs)	16 [12.4%]	2 [9.4%]	Moderate	Moderate

NOTE: *HGVs included within total traffic flow. Link flows are two-way.*

12.4.1. Environmental impact will occur as a result of vehicular traffic associated with the development proposals on the proposed routes. The implications are increases in vehicular traffic, including HGVs. Increases in traffic generally result in a temporary **Negligible** level of impact significance and therefore **Not Significant** in EIA terms.

12.4.2. Link 19 (Marsh Road) will experience a **Low** level of impact in relation to HGV traffic and has a high sensitivity, resulting in a **Moderate** significance.

Accidents and Safety

12.4.3. As set out in the supporting Transport Statement, there is not considered to be any underlying highway safety problem on the local highway network close to the Scheme.

12.4.4. Due to the negligible to low magnitude of change in traffic flows as a result of the Scheme it is considered that the safety and operation of any of the links assessed will not be affected, and the significance of effect will therefore be negligible, and therefore **No Significant** effects.

Severance

12.4.5. IEMA guidelines states *'In the context of a traffic and movement assessment, severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure… Severance may result from the difficulty of crossing a heavily trafficked toad or a physical barrier created by infrastructure'*.

12.4.6. IEMA guidance suggests that "changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively." With the traffic flow change being negligible to low during the construction phase, it is considered to represent less than a slight change in severance and the significance of effect will therefore be **Negligible** and therefore **Not Significant** in EIA terms.

Driver Delay

12.4.7. IEMA Guidance states that '*The assessment of driver delay will normally be based on the technical work reported within the Transport Assessment, which generally focuses on conditions in the network peak periods'*.

12.4.8. When assessed against the existing traffic levels in **Table 12.9** it evident that there would be no significant traffic impact on the surrounding highway network as a result of the temporary construction phase during the morning and evening peak periods. It is therefore considered to be **Not Significant** in EIA terms.

Non-Motorised User Delay

12.4.9. The increase in vehicles during the temporary construction phase is considered to represent a low magnitude of change on Link 19 only, and negligible on all other links with all other impacts. As a result, it is considered that there will be a **Negligible** effect on non-motorised user delay and therefore **Not Significant** in EIA terms. Surveys of the non-motorised user movements on the PRoW routes which cross the site and the Canal Path which abuts Land Area A have been carried out and due to the low usage, it is also considered that there will be a **Negligible** effect on non motorised user delay and therefore **Not Significant** in EIA terms.

Non-Motorised User Amenity

12.4.10. The IEMA guidance suggests that a threshold for judging this would be '*where the traffic flows (or its lorry component) is halved or doubled*'. With reference to **Table 12.2,** HGV movements will not increase by 100 percent across the course of 24 hours and therefore it is considered that there will be a **Negligible** effect on non-motorised user amenity and therefore **Not Significant** in EIA terms.

Fear and Intimidation

12.4.11. The IEMA traffic guidance suggests that a threshold for judging this would be assessing the degree of hazard with reference to previously established thresholds. Link 19 is forecast to be associated with 113 vehicles during the 'without development' scenario and 132 vehicles during the 'with development' scenario and 18 HGVs 'without development' and 20 HGVs 'with development'. The posted speed limit is 30mph and this will not change as a result of the Proposed Development. The Proposed Development therefore falls within the lowest category, both with and without development, leading to being categorised as a 'Small' level of fear and intimidation. Therefore Link 19 has a '**negligible**' Magnitude of Impact for fear and intimidation as a result of the Proposed Development.

12.4.12. The overall significance of effect is considered to be **Negligible** when the thresholds at **Table 12.3** are applied, which is not considered significant

Hazardous Loads / Large Loads

12.4.13. The IEMA traffic guidance suggests that where frequent abnormal load movements are anticipated that the impacts on fear and intimidation, driver delay etc should be considered.

12.4.14. As set out at paragraph 12.4.42, the construction of the Scheme will require Abnormal Indivisible Loads (AIL) for the transformer and substation deliveries. The deliveries will be planned with an AIL route assessment and will be escorted and managed along the route from the port of entry into the UK and the Site.

12.4.15. The Scheme will not be associated with frequent abnormal load movements and therefore there will be **No Significant** effects.

Other Impacts

12.4.16. The key potential impacts of construction traffic to be considered are:

- unsocial hours disturbance.
- mud on the roads; and
- dust, noise and air quality nuisance

12.4.17. It is envisaged that the construction working hours at the Scheme will generally be 0800-1800 Monday to Friday and between 09:00 to 13:00 on Saturdays. In some circumstances, such as when drilling for the cable works has begun and cannot be stopped until it is complete, operational hours may be required to be extended beyond 18:00. However, it is considered that this will be an infrequent occurrence as works will be planned to avoid nighttime hours and works will typically be complete by 18:00. Therefore, it is considered that noise related to construction traffic movements will not give rise to disturbance to local receptors. Confirmation regarding the potential for night time working will be considered further in the next iteration of the PEIR.

12.4.18. In hot, dry conditions dust will be managed through the provision of sprinklers. The transfer of mud on to the local highway will be managed through the provision of wheel washing facilities at the point where the access road meets the adopted highway, although this is likely to be minimal due to the use of existing tracks and the runway within the site. A road sweeper can also be provided as and when necessary.

12.4.19. Mitigation measures are set out in detail in **Section 12.5** and in the draft Outline Construction Traffic Management Plan.

Operation

12.5. Once operational, it is anticipated that there could be 20 people employed at the site with around one visit to each Land Area at the Scheme per day on average associated with equipment maintenance, ground maintenance, security checks etc. This would typically be made by light van or 4x4 type vehicles.

12.6. There will also be approximately one visit per day to each land parcel associated with a Shepherd (for sheep grazing on site). These vehicles frequently use the local highway network on a daily basis. It is therefore considered that there will be a negligible impact on the local highway network whilst the development is operational.

12.6.1. The site access arrangements for the operational phase are set out in the Transport Statement at **Appendix 12.1**.

12.6.2. The Applicant is exploring the option of providing an EV charging point with the Draft Order Limits (Land Parcel A) to the immediate east of Moor Edges Road and north of Moor Owners Road. As the facility would be for the use of the local community and due to the small scale nature of the proposals, vehicles are not expected to divert from the strategic road network or elsewhere outside of Thorne to use the EV charging points. As such, any vehicles utilising the facility are expected to already be on the highway network in the locality and therefore there will be no additional vehicle movements. It is likely that the significance of effect will therefore be **Negligible** and **Not Significant** in EIA terms. This will be considered further with the Applicant and confirmed in the ES chapter.

12.6.3. During the operational phase there will be no direct, long-term, temporary, negative effects.

12.7. Mitigation, Enhancement and Residual Effects

12.7.1. The impact significance of the construction phase is generally considered to be of 'Negligible or Minor Significance' on a typical construction day. The mitigation measures discussed below are forecast to reduce the residual impact of the construction phase by one level of significance, resulting in overall **Negligible Adverse** Impact.

Mitigation by Design

12.7.2. The OCTMP will be implemented during the construction phase of the project (and is proposed to be secured as a requirements within the DCO). The aim of the Plan, included at **Appendix 12.2**, is to minimise the impact of the construction phase on residents, businesses, and the highway network. Construction traffic movements will be kept to agreed working hours where practicable and designed to minimise disruption to the highway network and residents (including during the night-time).

12.7.3. The OCTMP contains a package of mitigation measures which are expected to include:

- Temporary off site highway improvements to accommodate HGV construction traffic, where necessary.
- Provision of contractor's compounds within the Site, providing an area on site for HGVs to park and manoeuvre, off the local highway network.
- The arrival and departure of the HGVs will be strictly managed by the site manager. The drivers will adhere to a delivery schedule and will be required to call ahead to ensure that any emerging vehicles can be held within the compound. No HGVs will therefore be required, or permitted, to wait on the public highway.

- Details limiting the hours of site operation and the routing of construction traffic to protect local residential areas from construction traffic, especially from HGVs where possible. This will be discussed at the appropriate stage and if considered necessary by the highway authority, these could be secured separately in a final version of the CTMP, expected to be secured through the DCO and discharged prior to commencement of development.

- The introduction of wheel washing facilities should ground condition dictate, before allowing vehicles to return to the local highway. In addition, a road sweeping vehicle could be made available to remove any site residue upon the local roads as and when necessary.

- Temporary signage will be erected in the vicinity of the Scheme as appropriate during the construction phase to indicate that heavy construction vehicles are turning; and

- The contact details of the contractor and those of the highway department at North Lincolnshire Council and The City of Doncaster Council will be exchanged before commencement of works on site. This will allow for any issues to be resolved efficiently.

12.7.4. A summary of the mitigation proposed for Transport and Access is included in **Table 12.12**.

Table 12.12: Mitigation

Ref	Measure to avoid, reduce or manage any adverse effects and/or to deliver beneficial effects	How measure would be secured	
		By Design	By DCO Requirements
1	Draft Construction Traffic Management Plan		X

Enhancements.

12.7.5. Only mitigation is required with no enhancements due to the nature of the Scheme.

Residual Effects

12.7.6. The mitigation measures proposed are expected to reduce the significance of effect by one step resulting in **Medium** significance being reduced to **Low** significance, and **Low** significance being reduce to **Negligible** significance.

12.8. Cumulative and In-Combination Effects

12.8.1. As part of the consultation on the PEIR, the applicant will seek to agree the long list of potential cumulative sites with the relevant local planning authorities. An assessment of cumulative impacts will be provided in the ES chapter in due course.

12.8.2. In-combination effects arising from Transport and Access would adversely affect air and noise quality, which are considered separately within this PEIR.

12.9. Summary

Introduction

12.9.1. This Traffic and Transportation PEIR Chapter assesses the potential likely significant effects of the Proposed Development on vehicular traffic flows, severance, pedestrian delay, driver delay, pedestrian amenity, accidents and safety, fear and intimidation, hazardous loads and dust and dirt.

12.9.2. This PEIR chapter has been prepared alongside a supporting Transport Statement (**Appendix 12.1**) and Draft Outline Construction Traffic Management Plan (**Appendix 12.2**).

Baseline Conditions

12.9.3. The Scheme is centred at approximately 10 kilometres to the northeast of Doncaster and 14 kilometres to the west of Scunthorpe. Access to the site during the construction and operational phases is anticipated to be provided from Moors Edge Road; High Bridge Road; the A18 Tudworth Road; Marsh Road; an unnamed access road which links the A161 and High Levels Bank; High Levels Bank; Sandtoft Road and Low Levels Bank.

12.9.4. Data from the most recent five-year period shows that there are not any existing highway safety issues on the local highway network that would be exacerbated by the Scheme.

Likely Significant Effects

12.9.5. Impact magnitudes have been defined for the construction phase with regard to the IEMA traffic guidance which states that a significant environmental impact may occur when traffic flow or HGV component of 30% or 10% where a link is 'sensitive'.

12.9.6. The impact of the construction phase traffic is considered to be of **Negligible to Low** significance. This position will be reviewed following assessment of the detailed design and operational phase.

Mitigation and Enhancement

12.9.7. Mitigation has been provided in the form of a Draft Outline Construction Traffic Management Plan (**Appendix 12.2**) to reduce the impacts of the construction phase.

Conclusion

12.9.8. It is concluded that the proposed package of mitigation measures will ensure that the Scheme is acceptable and that there will be **no adverse significant effects**.

12.9.9. There are therefore no highways or transportation reasons which should prevent the Scheme.

12.9.10. **Table 12.13** provides a summary of effects, mitigation and residual effects.

Table 12.13: Summary of Effects, Mitigation and Residual Effects

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Construction								
Link One – Marshland Road, north of the junction with The Avenue	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Non-Motorised User Delay		Negligible	Negligible		Negligible		
	Non-Motorised User Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous/Large Loads		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Link Two – North Common Road, east of the junction with Mount Pleasant Road	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible		Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Three – A614 Selby Road, south of the junction	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
with North Common Road	Severance		Negligible	Negligible		Negligible	Management Plan	
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Four – Marshland Road, north of the junction with Broadbent Gate Road	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Five - Coulman Street, north of the Church Balk/Coulman Street/Moor Edges Road/Wike Gate Road Junction	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Six - Moor Edges Road, east of the Church Balk/Coulman Street/Moor Edges Road/Wike Gate Road Junction	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Link Seven – High Bridge Road, southeast of the junction with Moor Road	Vehicular Traffic Flows		Medium	Negligible		Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Medium	Negligible		Negligible		
	Severance		Medium	Negligible		Negligible		
	Driver Delay		Medium	Negligible		Negligible		
	Pedestrian Delay		Medium	Negligible		Negligible		
	Pedestrian Amenity		Medium	Negligible		Negligible		
	Fear and Intimidation		Medium	Negligible		Negligible		
	Hazardous and Dangerous Loads		Medium	Negligible		Negligible		
Link Eight – Green Bank Road, south of	Vehicular Traffic Flows	Temporary / Direct	Medium	Negligible	Local	Negligible	Provision of an Outline Construction Traffic	Negligible Adverse **(not significant)**
	Accidents and Safety		Medium	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Clay Bank Road	Severance		Medium	Negligible		Negligible	Management Plan	
	Driver Delay		Medium	Negligible		Negligible		
	Pedestrian Delay		Medium	Negligible		Negligible		
	Pedestrian Amenity		Medium	Negligible		Negligible		
	Fear and Intimidation		Medium	Negligible		Negligible		
	Hazardous and Dangerous Loads		Medium	Negligible		Negligible		
Link Nine – A614, Tudworth Road, north of the Tudworth Roundabout	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Ten – A18, High Levels Bank, east of the Tudworth Roundabout	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Eleven – A18 Tudworth Road, south of the Tudworth Roundabout	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Link Twelve – A18 High Levels Bank, east of the Black Bull Inn	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Thirteen – A18 Tudworth Road, northeast of	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
the junction with Sandtoft Road	Severance		Negligible	Negligible		Negligible	Management Plan	
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Fourteen - Sandtoft Road, east of the junction with A18 Tudworth Road	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Fifteen – Low Levels Bank, west of the junction with Moor Lane/Crow Tree Bank	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Sixteen - A161 Eastoft Road, in between the Eastoft Road bus stop and the junction with Carr Lane	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Link Seventeen - Wharf Road, near the Park View bus stops	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Eighteen - A18 near Triangles Farm,	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
southwest of Ealand	Severance		Negligible	Negligible		Negligible	Management Plan	
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
Link Nineteen - Marsh Road, west of the junction between Windsor	Vehicular Traffic Flows	Temporary / Direct	High	Medium	Local	Moderate	Provision of an Outline Construction Traffic Management Plan	Minor Adverse **(not significant)**
	Accidents and Safety		High	Negligible		Negligible		Negligible Adverse **(not significant)**
	Severance		High	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
Road/Cross Street	Driver Delay		High	Medium		Negligible		
	Pedestrian Delay		High	Negligible		Negligible		
	Pedestrian Amenity		High	Negligible		Negligible		
	Fear and Intimidation		High	Negligible		Negligible		
	Hazardous and Dangerous Loads		High	Negligible		Negligible		
Operation								
All	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	n/a	Negligible Adverse **(not significant)**
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		

Receptor / Receiving Environment	Description of Effect	Nature of Effect	Sensitivity Value	Magnitude of Effect	Geographical Importance	Significance of Effects	Mitigation / Enhancement Measures	Residual Effects
	Pedestrian Delay		Negligible	Negligible		Negligible		
	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
	Dust and Dirt		Negligible	Negligible		Negligible		
Cumulative and In-Combination								
n/a								