



# Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

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## Preliminary Environmental Information Report

### Chapter 12 – Transport and Access

October 2023



Visit: [www.tweenbridgesolar.co.uk](http://www.tweenbridgesolar.co.uk)  
Email: [info@tweenbridgesolar.co.uk](mailto:info@tweenbridgesolar.co.uk)

## 12. Transport and Access

### 12.1. Introduction

12.1.1. This chapter of the working draft 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 working draft PEIR. The PEIR will be updated as further assessments become available and any updates to the baseline will be reported in the next iteration of the PEIR which will be presented as part of the statutory pre-application consultation. Consultation responses (from the consultees that we have so far engaged with as detailed at 12.2.1) 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.

12.1.3. 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).

12.1.4. This chapter is supported by the following figure (provided at the back of this chapter): -

- **Figure 12.1** – Site Location Plan

12.1.5. 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

12.1.6. Baseline and assessment work is ongoing. It is anticipated that the following information will be made available for the next iteration of the PEIR: -

- A breakdown of Personal Injury Collisions data
- Updates relating to new Institute of Environmental Management and Assessment (IEMA) guidance 'Environmental Assessment of Traffic and Movement', released in July 2023.
- Surveys of non-motorised users.
- Consideration of Cumulative Impacts.
- Assessment of detailed design parameters of the Scheme, including size and locations of the temporary construction / decommissioning compounds.

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- Assessment of trips associated with staff during the construction and operational phases.

**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	Confirmed agreement that proposed locations for traffic surveys are acceptable.	Conducted Automatic Traffic Count surveys in line with proposed scope.
North Lincolnshire Council	Advised that NLC are likely to have concerns about the site being accessed from Crowle.	Access and routing for construction traffic via Crowle is considered in detail in this ES chapter and the Outline CTMP. Consultation with NLC on this matter is ongoing.

**12.3. Assessment Approach**

**Methodology**

12.3.1. The assessment has been prepared in accordance with the Institute of Environmental Management and Assessment (IEMA) document 'Guidelines for the Environmental Impact of Road Traffic'. It is noted that this has recently been superseded by the 'Environmental Assessment of Traffic and Movement' document, which will be reviewed and the text within this Chapter will be updated as appropriate in the next iteration of the PEIR.

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 **Section 12.3**) as a result of the construction phase of the development on:

- Accidents and safety.
- Driver severance and delay.
- Pedestrian severance and delay.
- Pedestrian amenity;
- Fear/intimidation.

- Hazardous and dangerous loads; and
- Dust and dirt.

**Assessment of Significance**

- 12.3.3. As set out in **Chapter 3**, there are four levels of impact magnitude considered which are negligible, minor, moderate and major.
- 12.3.4. The IEMA 'Guidelines for the Environmental Assessment of Road Traffic' sets out two rules to be considered when assessing the impact of development traffic on a highway link<sup>1</sup> 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 flow (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 <sup>2</sup> 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
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
Pedestrian 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.			

<sup>1</sup> A highway link is a length of road between two junctions (DMRB CD109 Highway Link Design).

<sup>2</sup> Peak traffic relates to the busiest times on the highway network, usually 0800-0900 and 1700-1800

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Impact	Magnitude of Impact/Threshold			
	Negligible	Low	Medium	High
Driver 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
Pedestrian Amenity (relative pleasantness of a journey)	Non-Motorised User Amenity (formerly Pedestrian Amenity) is impacted by traffic flow, composition and width of pavement and is related to fear and intimidation thresholds. A threshold of where traffic or HGV flows have halved or doubled will be used to indicate whether there is a significant effect <sup>3</sup> .			
Accidents and Safety	Number of predicted personal injury collisions (PICs) does not exceed the number of observed PICs.	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 (AADT) <sup>4</sup> 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.		
Fear and intimidation	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.			

12.3.7. Negligible, minor, moderate and major impact magnitudes can have either a beneficial or adverse Impact Significance.

<sup>3</sup> Paragraph 3.30 of IEMA Guidelines 'Assessment of Traffic and Movement' (2023)

<sup>4</sup> The total volume of traffic travelling on a road (or part of a road) for a year divided by 365 days (DMRB GD 368, page 6).

Sensitive Receptors

12.3.8. Sensitive receptors have been identified using the principles set out in the IEMA guidelines (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**

Significance	Description
High	<ul style="list-style-type: none"> <li>Schools / colleges</li> <li>Care / retirement homes</li> <li>Roads with no footways that are likely to be used by pedestrians</li> <li>Accident black-spots</li> </ul>
Medium	<ul style="list-style-type: none"> <li>Hospitals / surgeries / clinics</li> <li>Parks and recreational areas</li> <li>Retail areas</li> <li>Roads with narrow footways that may be used by pedestrians</li> </ul>
Low	<ul style="list-style-type: none"> <li>Open spaces</li> <li>Tourist and visitor attractions</li> <li>Places of worship</li> </ul>
Negligible	<ul style="list-style-type: none"> <li>Links not covered by the above</li> </ul>

Significance of Effect

12.3.10. The Significance of Effect is determined by combining the predicted impact magnitude with the assigned sensitivity of the receptor. The Significance of Effect is set out in **Table 12.4**. The shading indicates those significance ratings that are deemed to be 'significant' effects.

**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

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12.3.1. 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

12.3.2. The traffic and transportation aspects of the Scheme have been carried out in accordance with IEMA 'Guidelines for the Environmental Assessment for Road Traffic'.

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

- National Policy Statement EN-1 and EN-3;
- Draft National Policy Statement EN-1 and EN-3 (March 2023);
- National Planning Policy Framework (2021);
- National Planning Policy Guidance (2014);

12.3.4. The Doncaster Local Plan (2021) and North Lincolnshire Core Strategy (2011) have also been reviewed but they do not contain any relevant transport related details relating to energy schemes.

### National Policy Statements

12.3.5. National Policy Statement EN-1<sup>5</sup> sets out guidance relating to Traffic and Transport at Section 5.13. It states at paragraph 5.13.3 that the applicant's ES should include a Transport Assessment (in this case provided as an OCTMP) using WebTAG guidance and that the relevant highway authorities should be consulted.

12.3.6. The subsequent Draft National Policy Statement EN-1<sup>6</sup> sets out guidance relating to Traffic and Transport at Section 5.14. The draft changes generally replicate the guidance principles set out within the current EN-1.

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<sup>5</sup> Department of Energy & Climate Change (2011) Overarching National Policy Statement for Energy (EN-1). [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/47854/1938-overarching-nps-for-energy-en1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf)

<sup>6</sup> Department for Business, Energy & Industrial Strategy (2021) Draft Overarching National Policy Statement for Energy (EN-1). [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1015233/en-1-draft-for-consultation.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015233/en-1-draft-for-consultation.pdf)

12.3.7. Draft National Policy Statement EN-3<sup>7</sup> sets out guidance relating to construction traffic at Section 3.10 and suggests that applicants should assess the potential routes for deliveries and the suitability of these routes. It also sets out potential mitigation measures that may be implemented by the local highway authority or Secretary of State.

### National Planning Policy Framework (NPPF)

12.3.8. In transport terms the thrust of the NPPF<sup>8</sup> is:

- A presumption in favour of sustainable development (paragraph 11).
- To make the fullest use of public transport, walking and cycling (paragraph 104) and when making planning decisions ensuring the opportunities for sustainable transport modes have been taken up (paragraph 110) whilst noting that opportunities will vary between urban and rural areas (paragraph 105).
- Ensuring a safe and suitable access to the can be achieved for all users (paragraph 110); and
- That development should only be refused on transport grounds where the residual cumulative impacts are severe (paragraph 111).

### National Planning Policy Guidance (NPPG)

12.3.9. The NPPG<sup>9</sup> 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

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<sup>7</sup> [NPS EN-3 – Renewable energy infrastructure \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)

<sup>8</sup> Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework. [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)

<sup>9</sup> 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>



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- Reducing the need for new development to increase existing road capacity or provide new roads.

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

**Scoping Criteria**

12.3.11. 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.

12.3.12. 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 3.15 and 3.16 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 5.9 to 5.11.
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.	The applicant notes that detailed information regarding the size and locations of the temporary construction compounds is required, and

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
			Any mitigation measures proposed to avoid or minimise impacts relating to the use of compounds should be described in the ES.	this will be made available in the next iteration of the PEIR/ once the layout has been fixed.
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 in the next iteration of the PEIR.
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 in the next iteration of the PEIR.
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	The applicant intends to undertake a survey of the PRow during September 2023. The information will be made available in the next iteration of the PEIR.

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ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
			<p>up of a PRoW (Doncaster footpath Thorne 19) may be required during construction and decommissioning and the reference to a "limited number" of pedestrians has not been quantified.</p> <p>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.</p> <p>Where relevant, the ES should assess potential interactions between aspect assessments (for example traffic and transport, noise, dust, recreation and visual impact).</p> <p>The locations of any diversions or closures should be illustrated on suitable figures in the ES.</p>	
3.11.2	Paras 2.24 and 10.7; Appendix 10.1	Access routes	<p>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.</p> <p>The ES should describe and assess the potential impacts (both positive and negative) associated with any</p>	<p>The proposed access arrangements and construction traffic routing is set out in detail in the draft OCTMP.</p> <p>The impacts, including sensitive receptors, are set out in in this PEIR.</p>

ID	REF	MATTER	PLANNING INSPECTORATE COMMENTS	APPLICANT'S RESPONSE
			improvements/ changes to the access routes which are either 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 the PEIR 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 <b>Appendix 12.2.</b>
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 12.3.12 of this PEIR.

**Extent of Study Area**

12.3.13. 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**

12.3.14. No limitations or difficulties have been identified.

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### 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 Parcel 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.

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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 about the site, these are shown on **Figure 12.1** and are summarised below in **Table 12.6**.

**Table 12.6 – PRoW within the site**

PRoW Name	Type of PRoW	Responsible Authority
Thorne 14	Footpath	Doncaster Council
Thorne 15	Footpath	Doncaster Council
Thorne 19	Footpath	Doncaster Council



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PRoW Name	Type of PRoW	Responsible Authority
CROW 17	Bridleway	North Lincolnshire
CROW 18	Bridleway	North Lincolnshire
CROW 21	Byway open to all traffic	North Lincolnshire
BELT 21	Footpath	North Lincolnshire

**Personal Injury Collisions**

- 12.4.32. Personal Injury Collision (PIC) data has been obtained from Crashmap.com for the most recent three-year period between 2019 and 2021.
- 12.4.33. 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 in the next iteration of the PEIR.
- 12.4.34. The PIC records show that the locations of the incidents are generally randomly located with no pattern or cluster and with no single contributory factor. The majority of incidents appear to have occurred as a result of temporary driver error or misjudgement. It is concluded that there are no obvious highway patterns of problems that would be exacerbated by the Scheme. This will continue to be considered in later iterations of the PEIR.

**Baseline Survey Information**

- 12.4.35. The sources of baseline information are included at **Table 12.7**.

**Table 12.7: Baseline Information**

Baseline Topic	Data Source	Date
<b>Automatic Traffic Count Surveys</b>	Paul Castle Associates	June 2023
<b>DfT Traffic Counts</b>	Department for Transport Road Traffic Statistics	June 2021
<b>Highway Search</b>	City of Doncaster Council	November 2022
	North Lincolnshire Council	October 2022

Baseline Topic	Data Source	Date
Personal Injury Collision Data	Crashmap.com	July 2023
Base Mapping	Ordnance Survey	Various

Baseline Traffic Flows

12.4.36. 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 6<sup>th</sup> and Monday 12<sup>th</sup> of June 2023. The traffic and speed surveys are summarised in Pegasus Group document "Baseline Traffic Survey Report" at **Appendix 12.4.**)

12.4.37. **Table 12.8** sets out the recorded baseline two-way flows for the PEIR transport study area.

**Table 12.8: 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%)

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Highway Link (see footnote 1)	2023 Baseline Two-Way AADT	Baseline Number of Heavy Goods Vehicles (HGV) with Percentage of AADT
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 – The Scheme

12.4.38. The number of trips by HGVs that could be associated with the construction phase of the Scheme is set out in detail in the draft OCTMP at **Appendix 12.2** and summarised in **Table 12.9**.

**Table 12.9: HGV Development Traffic Flows to the Scheme**

Delivery of:	Type of Vehicle	Total Number of Construction Vehicles
Solar Farm Components – Modules	16.5 metre articulated	6,221
Solar Farm Components – Frames		3,112
Battery units		637
Substations		126
Compound/Spares Containers		192
Inverters	12 metre Rigid	421

Delivery of:	Type of Vehicle	Total Number of Construction Vehicles
Transformer	Abnormal Indivisible Load	1
Substations		6
Crane	Crane	1
Access Tracks	10 metre Tipper Trucks	1,659
General	Front End JCBs	33
<b>Total</b>		<b>12,404 (13,644 including 10% contingency)</b>

12.4.39. Assuming a 30 month construction period and a six day working week (720 days total) equates to around 19 HGV deliveries per day on average (or up to 38 two way movements per day). This could be higher or lower at times depending on the stage of construction.

12.4.40. 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. 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.

12.4.41. In addition to the HGV movements identified in **Table 12.9**, 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.

12.4.42. It is assumed at this stage that a maximum of up to 606 construction workers are also anticipated to be at the Site at any one time during peak time of the construction period.

12.4.43. 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 12.4.38 above, there could be around 43 crew minibuses per day during the peak time of construction (86 two-way trips). 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 parcel per day, resulting in 80 trips (160 two-way trips). This is subject to confirmation and will be updated within the next iteration of the PEIR.

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- 12.4.44. It is anticipated that HGV deliveries will be made to primary construction compounds located within five separate parcels. 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 22 smaller vehicle deliveries per day on average (or up to 44 two way movements per day). This could be higher or lower at times depending on the stage of construction.
- 12.4.45. Therefore, a total of 328 two-way movements per day on average, including 38 two-way HGV trips, are forecast to be associated with the construction phase of the Scheme. This equates to an AADT value of around 281 two-way movements  $((328 \times 6 \text{ days})/7 \text{ days})$ , including 33 HGV trips.
- 12.4.46. As set out in the draft OCTMP, five primary construction compounds will be provided in parcels A, B, F, i and P. 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:
- Parcel A – 76 two-way movements per day (including 14 HGVs).
  - Parcel B – 22 two-way movements per day (including 2 HGVs).
  - Parcel F – 131 two-way movements per day (including 12 HGVs).
  - Parcel i – 15 two-way movements per day (including 4 HGVs).
  - Parcel P – 68 two-way movements per day (including 4 HGVs).
- 12.4.47. On the majority of links leading to the primary construction compounds, the number of vehicles is likely to be considered **Negligible** when assessed against the criteria at **Table 12.2** and would be on a temporary basis, and therefore in EIA terms is considered **Not Significant**. Link 19 – Marsh Road leading to parcel B – will be associated with a **Medium** magnitude of impact and **Major** significance, due to the presence of Crowle Primary School.

### Traffic Flows –Cable Route

- 12.4.48. The construction of the cable route 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.
- 12.4.49. 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.

- 12.4.50. In addition to the movements identified at **paragraph 12.4.40** 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).
- 12.4.51. 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).
- 12.4.52. The impact on each of the links is set out in **Table 12.9**. 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**.
- 12.4.53. Details of mitigation measures are summarised later in this chapter and considered in detail, (alongside the Cable Route shown in the Draft Order Limits at Appendix A) of the **OCTMP**.

**Table 12.9 – 2023 with Development Total Traffic Flows**

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)	4,5272 (535 HGVs)	66 [1.4%]	14 [2.6%]	Negligible	Negligible
Link Two	3,244 (627 HGVs)	3,310 (641 HGVs)	66 [2.0%]	14 [2.2%]	Negligible	Negligible
Link Three	6,457 (1361 HGVs)	6,523 (1,375 HGVs)	66 [1.0%]	14 [1.0%]	Negligible	Negligible
Link Four	8,706 (923 HGVs)	8,777 (937 HGVs)	64 [<1%]	14 [1.5%]	Negligible	Negligible
Link Five	4,180 (464 HGVs)	4,244 (478 HGVs)	64 [1.5%]	14 [2.9%]	Negligible	Negligible
Link Six	840 (180 HGVs)	904 (194 HGVs)	64 [7.6%]	14 [7.8%]	Low	Low
Link Seven	161 (24 HGVs)	192 (24 HGVs)	31 [19.3%]	0 [0%]	Medium	Negligible

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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 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 (1446 HGVs)	7,937 (1458 HGVs)	54 [<1%]	12 [<1%]	Negligible	Negligible
Link Eleven	7,950 (1544 HGVs)	7,989 (1,552 HGVs)	39 [<1%]	8 [<1%]	Negligible	Negligible
Link Twelve	7,582 (1661 HGVs)	7,653 (1661 HGVs)	71 [<1%]	0 [0%]	Negligible	Negligible
Link Thirteen	8,289 (1714 HGVs)	8,349 (1,724 HGVs)	60 [<1%]	10 [<1%]	Negligible	Negligible
Link Fourteen	2,318 (355 HGVs)	2,349 (359 HGVs)	31 [1.3%]	4 [1.1%]	Negligible	Negligible
Link Fifteen	2,224 (388 HGVs)	2,270 (391 HGVs)	46 [2.1%]	4 [1.0%]	Negligible	Negligible
Link Sixteen	2,434 (361 HGVs)	2,434 (361 HGVs)	0 [0%]	0 [0%]	Negligible	Negligible
Link Seventeen	8,279 (1060 HGVs)	8,301 (1062 HGVs)	22 [<1%]	2 [<1%]	Negligible	Negligible
Link Eighteen	5,317 (911 HGVs)	5,339 (913 HGVs)	22 [<1%]	2 [<1%]	Negligible	Negligible
Link Nineteen	113 (18 HGVs)	145 (24 HGVs)	22 [19.5%]	2 [11.1%]	Medium	Low

NOTE: HGVs included within total traffic flow. Link flows are two-way. As worst case assumes all site traffic could use any A40 east of west of the Site access.

12.4.54. 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.

12.4.55. Link 6 (Moor Edges Road) and Link 19 (Marsh Road) will experience a **Low** level of impact in relation to HGV traffic. Link 7 (High Bridge Road) will experience a **Medium** level of impact in relation to total vehicle traffic. Link 6 has a negligible sensitivity resulting in a **Negligible** level of significance. Link 7 has a high sensitivity, resulting in a **Moderate** significance. Link 19 has a high sensitivity, resulting in a **Moderate** significance.

### Accidents and Safety

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

12.4.57. 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 the highway network will not be affected, and the significance of effect will therefore be negligible, and therefore **No Significant** effects.

### Severance

12.4.58. 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 road or a physical barrier created by infrastructure'*.

12.4.59. 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

12.4.60. 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'*.

12.4.61. When assessed against the existing traffic levels in **Table 12.8** 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.



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### Pedestrian Delay

- 12.4.62. The increase in vehicles during the temporary construction phase is considered to represent a negligible to medium magnitude of change. As a result, it is considered that there will be a **Negligible** effect on pedestrian delay and therefore **Not Significant** in EIA terms. Counts of non-motorised users will be undertaken in September and a full review of the impact significance provided in further iterations of the PEIR.

### Pedestrian Amenity

- 12.4.63. 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 pedestrian amenity and therefore **Not Significant** in EIA terms.

### Fear and Intimidation

- 12.4.64. A threshold using the same parameters as pedestrian amenity has been applied '*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 fear and intimidation and therefore **Not Significant** in EIA terms.

### Hazardous and Dangerous Loads

- 12.4.65. There are no dangerous or hazardous loads associated with the construction of the Scheme and therefore **No Significant** effects.

### Dust and Dirt

- 12.4.66. The IEMA Guidelines suggest that '*problems with dust and dirt are unlikely to occur at distances greater than 50m from the road*'.
- 12.4.67. The primary site construction compounds will be located more than 50m from the adjacent adopted highway and it is considered that there will be a **Negligible** effect on dust and dirt and therefore **Not Significant** in EIA terms.

- 12.4.68. Mitigation measures are set out in detail in **Section 12.5**.

### Other Impacts

- 12.4.69. 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

- 12.4.70. 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.
- 12.4.71. 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.
- 12.4.72. Mitigation measures are set out in detail in **Section 12.5** and in the draft Construction Traffic Management Plan.

### Operation

- 12.4.73. Once operational, it is anticipated that there will be around one visit per day to each land parcel for equipment maintenance. The largest vehicles that are likely to be used for this is not expected to be any larger than a 7.5 tonne van or 4x4 vehicles.
- 12.4.74. 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.
- 12.4.75. Work no 5 of the scheme is anticipated to comprise two electric vehicle (EV) charging points for cars 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 (see paragraph 2.10.2) 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 future iterations of this PEIR.
- 12.4.76. During the operational phase there will be no direct, long-term, temporary, negative effects.

## 12.5. Mitigation, Enhancement and Residual Effects

- 12.5.1. 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.

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**Mitigation by Design**

12.5.2. The OCTMP will be implemented during the construction phase of the project (and which is proposed to be secured by the DCO). The aim of the Plan, included at **Appendix 12.1**, 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).

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

- 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.

12.5.4. A summary of the mitigation proposed for Transport and Access is included in **Table 12.10**.

**Table 12.10: 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.**

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

### **Residual Effects**

- 12.5.6. The mitigation measures proposed are expected to reduce the significance of effect by one step.

## **12.6. Cumulative and In-Combination Effects**

- 12.6.1. As part of the consultation on the working draft 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 next iteration for the PEIR which will be published to accompany the statutory pre-application consultation.

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

## **12.7. Summary**

### **Introduction**

- 12.7.1. This Transport and Access PEIR chapter assesses the potential effects relating to transport and access. It considers the potential effects on vehicular traffic flows, accidents and safety, severance, driver delay, hazardous and dangerous loads and dust and dirt.

- 12.7.2. This PEIR chapter has been prepared alongside a supporting Draft Outline Construction Traffic Management Plan and a Transport Statement.

### **Baseline Conditions**

- 12.7.3. 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.

- 12.7.4. 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**

- 12.7.5. Impact magnitudes have been defined for the construction phase with regard to 'Guidelines for the Environmental Assessment of Road Traffic', which states that a significant environmental impact may occur when traffic flows increase by more than 10% where the study area is of high sensitivity significance.

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- 12.7.6. 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.

### **Mitigation and Enhancement**

- 12.7.7. Mitigation has been provided in the form of a Draft Construction Traffic Management Plan to reduce the impacts of the construction phase.

### **Conclusion**

- 12.7.8. 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**.
- 12.7.9. There are therefore no highways or transportation reasons which should prevent the Scheme.
- 12.7.10. **Table 12.11** provides a summary of effects, mitigation and residual effects.

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Table 12.11: 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
<b>Construction</b>								
Link One – Marshland Road, north of the junction with The Avenue	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible		Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible				
	Severance		Negligible	Negligible				
	Driver Delay		Negligible	Negligible				
	Pedestrian Delay		Negligible	Negligible				
	Pedestrian Amenity		Negligible	Negligible				
	Fear and Intimidation		Negligible	Negligible				
	Hazardous and Dangerous Loads		Negligible	Negligible				

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	Dust and Dirt		Negligible	Negligible				
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 ( <b>not significant</b> )
	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		
	Dust and Dirt		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 ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		

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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		
	Dust and Dirt		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 ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		



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	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
	Dust and Dirt		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 ( <b>not significant</b> )
	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		

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	Dust and Dirt		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	Low	Local	Low	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Low		Negligible		
	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					
Link Seven – High Bridge Road, southeast of	Vehicular Traffic Flows		Medium	Low		Medium	Provision of an Outline Construction Traffic	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Medium	Negligible		Negligible		

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Transport and Access

the junction with Moor Road	Severance		Medium	Negligible		Negligible	Management Plan	
	Driver Delay		Medium	Low		Negligible		
	Pedestrian Delay		Medium	Negligible		Negligible		
	Pedestrian Amenity		Medium	Negligible		Negligible		
	Fear and Intimidation		Medium	Negligible		Negligible		
	Hazardous and Dangerous Loads		Medium	Negligible		Negligible		
	Dust and Dirt		Medium	Negligible		Negligible		
Link Eight – Green Bank Road, south of Clay Bank Road	Vehicular Traffic Flows	Temporary / Direct	Medium	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Medium	Negligible		Negligible		
	Severance		Medium	Negligible		Negligible		
	Driver Delay		Medium	Negligible		Negligible		
	Pedestrian Delay		Medium	Negligible		Negligible		

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	Pedestrian Amenity		Medium	Negligible		Negligible		
	Fear and Intimidation		Medium	Negligible		Negligible		
	Hazardous and Dangerous Loads		Medium	Negligible		Negligible		
	Dust and Dirt		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 ( <b>not significant</b> )
	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		

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	Dust and Dirt		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 ( <b>not significant</b> )
	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		
Dust and Dirt	Negligible	Negligible	Negligible					
Link Eleven – A18 Tudworth Road, south of	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		

# DRAFT PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

## Transport and Access

the Tudworth Roundabout	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		
	Dust and Dirt		Negligible	Negligible		Negligible		
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 ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		

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Transport and Access

	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
	Dust and Dirt		Negligible	Negligible		Negligible		
Link Thirteen – A18 Tudworth Road, northeast of the junction with Sandtoft Road	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse ( <b>not significant</b> )
	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		

# DRAFT PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

## Transport and Access

	Dust and Dirt		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 ( <b>not significant</b> )
	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		
Dust and Dirt	Negligible	Negligible	Negligible					
Link Fifteen – Low Levels Bank, west of the junction	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		



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Transport and Access

with Moor Lane/Crow Tree Bank	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		
	Dust and Dirt		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 ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		
	Pedestrian Delay		Negligible	Negligible		Negligible		

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Transport and Access

	Pedestrian Amenity		Negligible	Negligible		Negligible		
	Fear and Intimidation		Negligible	Negligible		Negligible		
	Hazardous and Dangerous Loads		Negligible	Negligible		Negligible		
	Dust and Dirt		Negligible	Negligible		Negligible		
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 ( <b>not significant</b> )
	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		

DRAFT PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

Transport and Access

	Dust and Dirt		Negligible	Negligible		Negligible		
Link Eighteen – A18 near Triangles Farm, southwest of Ealand	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	Provision of an Outline Construction Traffic Management Plan	Negligible Adverse ( <b>not significant</b> )
	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		
Dust and Dirt	Negligible	Negligible	Negligible					
Link Nineteen – Marsh Road, west of the junction	Vehicular Traffic Flows	Temporary / Direct	High	Medium	Local	Medium	Provision of an Outline Construction Traffic	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		High	Negligible		Negligible		

# DRAFT PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

## Transport and Access

between Windsor Road/Cross Street	Severance		High	Negligible		Negligible	Management Plan	
	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		
	Dust and Dirt		High	Negligible		Negligible		
<b>Operation</b>								
All	Vehicular Traffic Flows	Temporary / Direct	Negligible	Negligible	Local	Negligible	n/a	Negligible Adverse ( <b>not significant</b> )
	Accidents and Safety		Negligible	Negligible		Negligible		
	Severance		Negligible	Negligible		Negligible		
	Driver Delay		Negligible	Negligible		Negligible		

# DRAFT PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

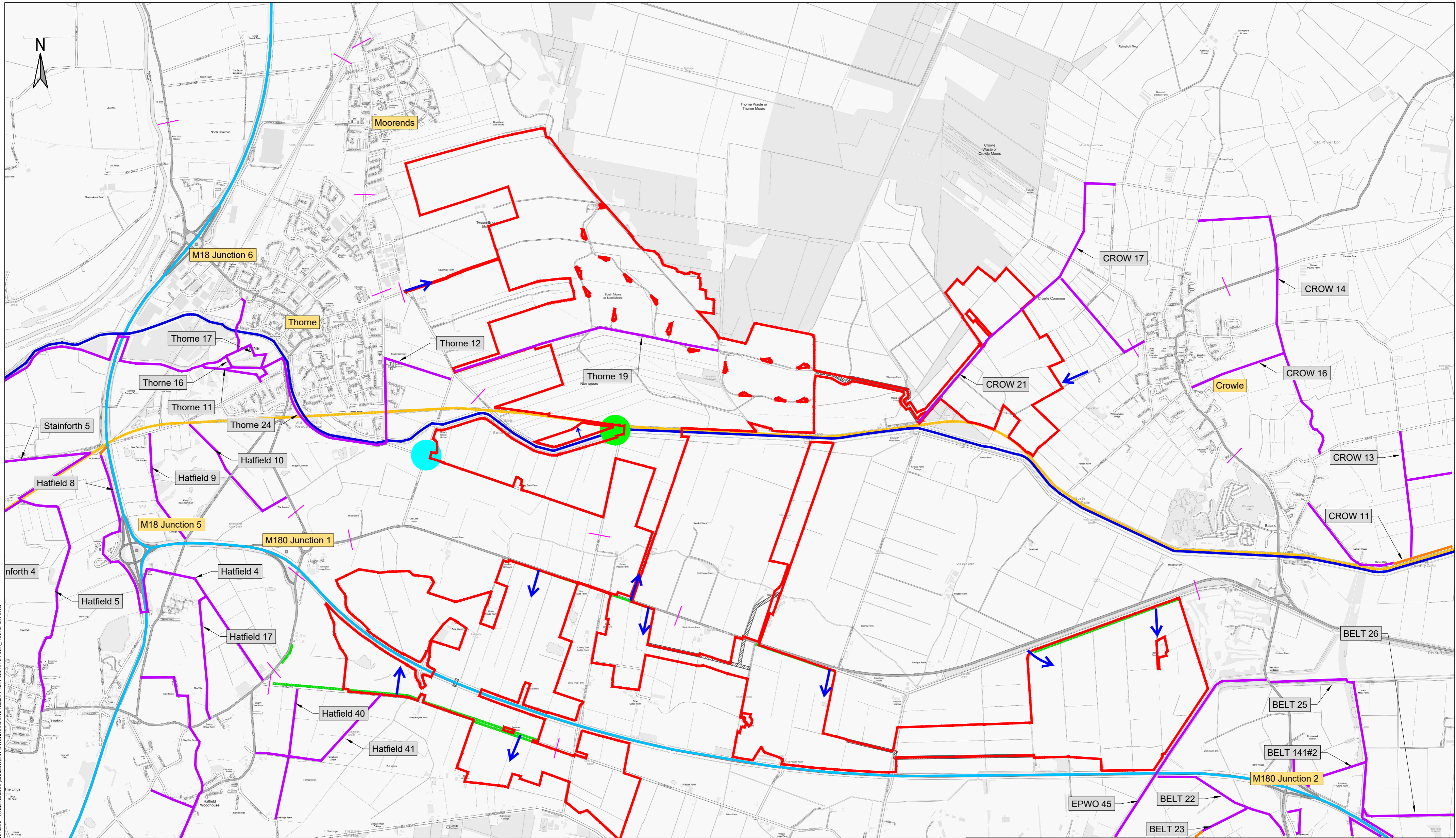
## Transport and Access

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	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		
<b>Cumulative and In-Combination</b>								
n/a								

Figure 12.1

SITE LOCATION PLAN

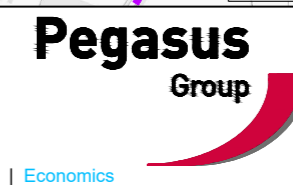


X:\BRISTOL\_PROJECTS\BRISTOL - LIVE PROJECTS\P21-3484 - RWE RENEWABLES - TWEEN BRIDGE (SHADOWS) WORKING DRAWINGS\DWG TR06 FIGURE12.1-3484\_FIGURE 12.1.DWG

**Key:**

- Approximate Red Line Boundary
- Approximate Extent of Cable Run between Land Parcels (not available for access)
- Weak Bridge (7.5 tonne)
- Constrained Junction
- Drain/Ditches
- Motorway
- Stainforth and Keadby Canal
- Railway Line
- Indicative locations to place Automatic Traffic Count surveys
- Public Right of Way
- Approximate Access Locations

First Floor, South Wing, Equinox  
North Great Park Road,  
Almondsbury, Bristol, BS32 4QL  
01454 625945  
www.pegasusgroup.co.uk  
Planning | Design | Environment | Economics



REV	DATE	BY	DESCRIPTION	CHK	APD

CLIENT:  
**RWE RENEWABLES**

PROJECT:  
**TWEEN BRIDGE**

TITLE:  
**INDICATIVE ACCESS STRATEGY**

SCALE @ A2: NTS	CHECKED: ADWS	APPROVED: KSS
DATE: 08/11/2022	DESIGN-DRAWN: JAN	DRAWING-STATUS: SK
PROJECT No: P21-3484	DRAWING No: FIGURE 12.1	REV: -

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