
FENWICK SOLAR FARM

Fenwick Solar Farm
EN010152

Environmental Statement

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13. Transport and Access

13.1 Introduction

- 13.1.1 This chapter of the Environmental Statement presents the findings of an assessment of the likely significant effects of Transport and Access as a result of the proposed Fenwick Solar Farm (hereafter referred to as the 'Scheme'). A description of the Scheme is provided in **ES Volume I Chapter 2: The Scheme [EN010152/APP/6.1]**.
- 13.1.2 This chapter identifies and proposes measures to address the potential impacts and likely significant effects of the Scheme on Transport and Access during the construction, operation and maintenance, and decommissioning phases.
- 13.1.3 This chapter is supported by the following figures in **ES Volume II [EN010152/APP/6.2]**:
- Figure 13-1: Transport and Access Study Area;**
 - Figure 13-2: Traffic Survey Locations;**
 - Figure 13-3: Indicative HGV [Heavy Goods Vehicles] routing;**
 - Figure 13-4: Study Area Road Network;** and
 - Figure 13-5: Traffic Accident Locations.**
- 13.1.4 This chapter is supported by the following appendices in **ES Volume III [EN010152/APP/6.3]**:
- Appendix 13-1: Legislation, Policy and Guidance (Transport and Access);**
 - Appendix 13-2: Traffic Flow Diagrams;**
 - Appendix 13-3: Base Counts;** and
 - Appendix 13-4: Transport Assessment.**
- 13.1.5 This chapter is supported by the **Framework Construction Traffic Management Plan (CTMP) [EN010152/APP/7.17]** and the **Framework Public Rights of Way Management Plan [EN010152/APP/7.13]** submitted as part of the DCO Application.
- 13.1.6 A glossary and list of abbreviations are defined in **ES Volume I Chapter 0: Table of Contents, Glossary and Abbreviations [EN010152/APP/6.1]**.
- 13.1.7 A Non-Technical Summary is presented in **ES Volume IV Non-Technical Summary [EN010152/APP/6.4]**.

13.1.7/13.1.8 This document has been updated at Deadline 1 of examination in response to the City of Doncaster Council's Relevant Representation [RR-001] to make minor corrections relating to Public Rights of Way and Roads.

13.2 Legislation, Policy and Guidance

- 13.2.1 Legislation, policy, and guidance relating to Transport and Access and pertinent to the Scheme comprises of the documents listed below.

Legislation

- 13.2.2 There is currently no specific legislation related to transport and access that should be referenced as part of the ES.

National Policy

- 13.2.3 National Policy that has been considered includes:
- Overarching National Policy Statement for Energy (NPS EN-1) (November 2023) (Ref. 13-1);
 - National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (November 2023) (Ref. 13-2);
 - National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (November 2023) (Ref. 13-3)
 - National Planning Policy Framework (NPPF) (December 2023) (Ref. 13-4);
 - Department for Transport's (DfT) guidance on Travel Plans, Transport Assessments, and Statements in Decision Taking (2014) (Ref. 13-5); and
 - DfT Circular 01/2022, Strategic Road Network (2022) (Ref. 13-6).

Local Policy

- 13.2.4 Local Policy that has been considered includes:
- Doncaster Local Plan 2015–2035 (Ref. 13-7);
 - Doncaster Infrastructure Strategy 2019 (Ref. 13-8); and

Guidance

- 13.2.5 Supporting guidance that has been considered includes:
- Institute of Environmental Management and Assessment (IEMA) Guidelines – Environmental Assessment of Traffic and Movement (2023) (hereafter referred to as the 'IEMA Guidelines') (Ref. 13-9); and
 - Design Manual for Road and Bridges (DMRB) CD 123 Geometric Design of at Grade Priority and Signal-Controlled Junctions (November 2021) (Ref. 13-10).
- 13.2.6 More detailed information regarding the above legislation, policy and guidance can be found in **ES Volume III Appendix 13-1: Legislation, Policy and Guidance (Transport and Access) [EN010152/APP/6.3]**.

13.3 Consultation

- 13.3.1 This section provides a summary of the consultation undertaken to date regarding the Scheme. Further detail on the consultation can also be found in **ES Volume I Chapter 4: Consultation [EN010152/APP/6.1]**.

Scoping Opinion

- 13.3.2 A scoping exercise was undertaken in Spring 2023 to establish the content of the assessment and the approach and methods to be followed. The scoping exercise outcomes were presented in the Scoping Report (**ES Volume III Appendix 1-1: EIA Scoping Report [EN010152/APP/6.3]**) which

was submitted to the Planning Inspectorate on 1 June 2023. The Scoping Report records the findings of the scoping exercise and details the technical guidance, standards, good practice, and criteria to be applied in the assessment to identify and evaluate the likely significant effects of the Scheme on Transport and Access.

- 13.3.3 A Scoping Opinion was received from the Planning Inspectorate on 11 July 2023 (**ES Volume III Appendix 1-2: EIA Scoping Opinion [EN010152/APP/6.3]**).
- 13.3.4 A full review of all comments raised in the Scoping Opinion is provided in **ES Volume III Appendix 1-3: EIA Scoping Opinion Responses [EN010152/APP/6.3]**. This outlines how and where the Scoping Opinion comments have been addressed within this ES.

Statutory Consultation

- 13.3.5 Further consultation in response to formal pre-application engagement was undertaken through the Preliminary Environmental Information Report (PEIR) which was issued in Spring 2024. Responses to statutory consultation are presented in the **Consultation Report [EN010152/APP/5.1]**.
- 13.3.6 Statutory consultation responses relating to Transport and Access are presented in **Appendix O** of the **Consultation Report [EN010152/APP/5.1]**.

Additional Consultation

- 13.3.7 Additional consultation has been in the form of agreeing additional traffic count locations with City of Doncaster Council Highways along the Grid Connection Corridor to the south of the Study Area.
- 13.3.8 Further consultation with City of Doncaster Council Highways has been carried out in relation to the suitability of proposed access locations (for example the main access east of Moss and associated minor diversion of PRoW Moss 6 and Fenwick 14), outline designs and associated visibility splays. Consultation relating to the PRoW on Haggs Lane has also been undertaken in relation to the potential usage as an access for non HGV traffic. PRoW diversions are indicated on **ES Volume II Figure 2-2: Public Rights of Way [EN010152/APP/6.2]**.

13.4 Assessment Methodology

- 13.4.1 This section sets out the scope and methodology for the assessment of the impacts of the Scheme on Transport and Access.

Study Area

- 13.4.2 Based on the extent of the Order limits, several roads on the local and strategic highway network have been identified as roads that would be used by Scheme traffic and therefore could be subject to increases in traffic. The roads identified cover likely routes to the Order limits from the strategic road network and from local/regional population centres between a 45–60-minute drive time of the Order limits. This is the likely catchment area for construction workers.

13.4.3 The roads within the Study Area were therefore determined as follows:

- a. M62;
- b. M18;
- c. M180;
- d. A19 Selby Road;
- e. Moss Road;
- f. Fenwick Common Lane;
- g. Trumfleet Lane;
- h. Marsh Road;
- i. Thorpe Bank;
- j. Fordstead Lane West;
- k. Fordstead Lane East;
- l. Kirkhouse Green Road;
- m. West Lane;
- n. Sykehouse Road;
- o. A614;
- p. Sour Lane; and
- q. Fishlake Nab.

13.4.4 Automatic Traffic Counts (ATCs) have been carried out at specific locations on the roads above, which together form the Study Area. ATCs collect data in relation to traffic flows passing a point on the road network in both directions. Further details of the ATCs are provided within Section 13.5 and Table 13-13 summarises the peak hour flows. Furthermore, a plan of the locations is provided in **ES Volume II Figure 13-2: Traffic Survey Locations [EN010152/APP/6.2]**.

Sources of Information

13.4.5 In preparation of this chapter, the following sources of published information have been referenced:

- a. Personal Injury Collision (PIC) data;
- b. ATCs have been undertaken at 23 locations in the Study Area to identify the baseline traffic conditions on the surrounding highway network. The resulting traffic flow diagrams are presented in **ES Volume III Appendix 13-2: Traffic Flow Diagrams [EN010152/APP/6.3]**, and the traffic data is summarised in Table 13-13 and Table 13-14;
- c. Local travel information has been gathered from various sources including local bus and rail operators;
- d. Ordnance Survey (OS)/Architectural Base Mapping has been used to ascertain an accurate geographical representation of the areas in the vicinity of the Scheme; and
- e. Population data from the 2011 Census (Ref. 13-11). Data from the more recent 2021 Census is available, however due to being collected during

the COVID-19 pandemic, with travel restrictions still in place, the travel to work data is not thought to be an accurate reflection of normal times. Therefore, the 2011 Census data is still considered acceptable.

- 13.4.6 A site visit was undertaken on 12 July 2023 by the transport and access technical team, who made observations of local road network operations and local facilities. This information has been used to inform the baseline details contained in Section 13.5 of this chapter. Observations were also used to support the road link sensitivity designations, as provided in Table 13-2.

Methodology

- 13.4.7 This section presents the methodology used to assess the Transport and Access effects, including the criteria for determining the sensitivity of receptors and the magnitude of change from the baseline condition for construction phase traffic.
- 13.4.8 The impact of additional development-generated traffic on the surrounding road network during the construction phase is anticipated to be the most significant stage of the Scheme, with the operation/maintenance phases anticipated to create much less traffic.
- 13.4.9 Decommissioning is anticipated to take place approximately 40 years after final commissioning and it is expected to lead to effects that are no worse than during the construction phase.
- 13.4.10 The decommissioning phase impact has not been specifically quantified on the basis of the similar but lesser anticipated traffic compared to the construction phase and due to significant levels of uncertainty in forecasting that far into the future. The effects and mitigation for construction are considered applicable to the decommissioning phase, as a robust assessment. In addition, the mitigation of any decommissioning effects is secured by a Decommissioning Traffic Management Plan, which will be produced before the commencement of the decommissioning phase and will be based in part on the Framework CTMP. This provision is included in the **Framework Decommissioning Environmental Management Plan (DEMP) [EN010152/APP/7.9]** submitted as part of the DCO Application.
- 13.4.11 The methodology for assessing the impact of development-generated traffic is based on that outlined in the IEMA Guidelines (Ref. 13-9).
- 13.4.12 The IEMA Guidelines state that a link on the highway network should be included within the study if one of the following criteria is met:
- Rule 1** – Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); or
 - Rule 2** – Include highway links of high sensitivity where traffic flows have increased by 10% or more.
- 13.4.13 The IEMA Guidelines recommend that several environmental effects may be considered important when considering traffic from an individual development. This chapter provides an assessment of the following effects:
- Severance of communities;
 - Road vehicle driver and passenger delay;
 - Non-motorised user delay;

- d. Non-motorised amenity;
 - e. Fear and intimidation on and by road users;
 - f. Road user and pedestrian safety; and
 - g. Hazardous/large loads.
- 13.4.14 The impacts of worker traffic and HGV traffic increases associated with the Scheme are fundamental to determining the effects in the above categories.
- 13.4.15 The significance of the effect is determined through consideration of two elements: the magnitude of the impact and the sensitivity of the receptor. The following sections outline the approach that has been used to determine to what extent an effect is environmentally significant.
- 13.4.16 The overall effect will be determined by measuring the magnitude of the impact following the introduction of embedded mitigation measures (where applicable) against criteria including the predicted increase in traffic; the type and sensitivity of the receptor; and the type of impact.
- 13.4.17 In order to ensure the EIA and the assessment presented in this ES are robust in considering the likely significant effects of the Scheme, appropriate assessment scenarios and years have been identified and are discussed below. The scenarios considered appropriate for assessment are:
- a. Baseline Year (2023) – AM development peak hour (06:00–07:00), PM development peak hour (19:00–20:00) and daily traffic flows (including total vehicles and total HGVs); and
 - b. Peak Construction Year (2028) With and Without Development – AM development peak hour (06:00–07:00), PM development peak hour (19:00–20:00) and daily traffic flows (including total vehicles and total HGVs).
- 13.4.18 During the winter months, worker numbers may be reduced, with the workers possibly arriving at the Order limits later and departing the Order limits earlier and working shorter hours. These traffic movements would still occur outside the network peak hours, so these key periods would not be impacted. In addition, the percentage increase in traffic would likely be lower in this situation due to higher traffic baseline in later hours in the AM period and earlier hours in the PM period. The assessment of worker traffic during the summer months therefore represents a robust worst-case scenario.
- 13.4.19 As the arrival and departure of construction staff via the local highway network will occur outside of the traditional network peak hours and will make use of the residual capacity of the local highway network, a network peak hour assessment has been excluded.
- 13.4.20 A weekday assessment (Monday to Friday) has been carried out to provide a worst-case assessment of the peak construction phase based on the above. A Saturday assessment has been excluded given that both baseline traffic flows and construction traffic flows would be lower than weekday traffic flows i.e. the network will have more capacity to accommodate construction traffic at this time.

Receptor Sensitivity

- 13.4.21 As stated above the methodology for assessing the impact of the Scheme's generated traffic will be based on that outlined in the IEMA Guidelines. The

general criteria for defining the importance or sensitivity of receptors are set out in Table 13-1, which draws on guidance set out in Sections 1.28 to 1.32 of the IEMA Guidelines (Ref. 13-9).

Table 13-1: Receptor Sensitivity Criteria (Transport and Access)

| Receptors | Built Environment Indicator on Highway Link | Highway Link Sensitivity to Changes in Traffic Flow |
|---|---|--|
| Residents | Residential properties | <p>High: Where there is a high concentration of properties with direct frontage to the highway link being used as a construction route.</p> <p>Medium: Where there are several properties with direct frontage to the highway link being used as a construction route.</p> <p>Low: Where there are few properties with direct frontage to the highway link being used as a construction traffic route.</p> <p>Very Low: Where there are no properties with direct frontage to the highway link being used as a construction traffic route.</p> |
| Workers | Offices, industrial units, employment uses. | <p>High: Where there is a high concentration of offices/other workplaces with direct frontage to the highway link being used as a construction route.</p> <p>Medium: Where there are several offices/other workplaces with direct frontage to the highway link being used as a construction route.</p> <p>Low: Where there are few offices/other workplaces with direct frontage to the highway link being used as a construction traffic route.</p> <p>Very Low: Where there are no offices/other workplaces with direct frontage to the highway link being used as a construction traffic route.</p> |
| Sensitive groups (children, elderly and disabled) | Schools, play areas, care/retirement homes, disabled parking bays | <p>High: Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Medium: Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Very Low: Where no indicator of sensitive groups is present.</p> |

| Receptors | Built Environment Indicator on Highway Link | Highway Link Sensitivity to Changes in Traffic Flow |
|--|---|--|
| Sensitive locations (hospitals, places of worship, schools historic buildings) | Hospitals, places of worship, schools, historic buildings | <p>High: Where there are multiple indicators of sensitive locations with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Medium: Where one indicator of sensitive locations is present with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Very Low: Where no indicator of sensitive locations is present.</p> |
| People walking | Footways, PRow, crossings | <p>High: Where there are multiple indicators of sensitive locations with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Medium: Where one indicator of sensitive locations is present with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Very Low: Where no indicator of sensitive locations is present.</p> |
| People cycling | On/off-road designated cycle routes | <p>High: On-road designated cycle routes present along highway link plus other significant cycle infrastructure present.</p> <p>Medium: On-road designated cycle routes present along highway link.</p> <p>Very Low: Off-road designated cycle routes present along highway link.</p> |
| Open spaces, recreational sites, shopping areas | Parks, play areas, shops, community centres | <p>High: Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Medium: Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route.</p> <p>Low/Very Low: Where no indicator of sensitive groups is present.</p> |

| Receptors | Built Environment Indicator on Highway Link | Highway Link Sensitivity to Changes in Traffic Flow |
|------------|--|--|
| Road users | Roads, junctions, road classification, baseline traffic volumes, signage | Sensitivity is determined by other receptors, together with professional judgement to assess the implications of local circumstances or factors which may elevate or lessen risks of accidents, e.g. junction conflicts. |

Link Sensitivity

13.4.22 The road link sensitivity has been based upon the worst-case sensitivity of the whole link considering the criteria outlined in Table 13-1. The links are represented by the ATC locations.

Table 13-2: Link Sensitivity

| ATC | Link Description | Sensitivity |
|-----|--|-------------|
| 1 | M62 West of J34 | Very Low |
| 2 | M62 between J34 and J35 | Very Low |
| 3 | M62 East of J35 | Very Low |
| 4 | M18 between M62 J35 and M18 J6 | Very Low |
| 5 | M180 | Very Low |
| 6 | M18 between M18 J4 and J5 | Very Low |
| 7 | A19 Selby Road – South of Station Road A19 | Medium |
| 8 | A19 Selby Road North of Station Road A19 | Medium |
| 9 | Moss Road – Askern Village | High |
| 10 | Moss Road – East of Askern | Medium |
| 11 | Fenwick Common Lane | Medium |
| 12 | Trumfleet Lane – South of Moss | Medium |
| 13 | Marsh Road | Medium |
| 14 | Thorpe Bank | Medium |
| 15 | Fordstead Lane West | Low |
| 16 | Fordstead Lane East | Low |
| 17 | Moss Road – East of Moss | Low |
| 18 | Kirkhouse Green Road | Low |
| 19 | West Lane – West of Sykehouse | Low |
| 20 | Sykehouse Road – East of Sykehouse | Low |
| 21 | A614 | Very Low |
| 22 | Sour Lane | Medium |
| 23 | Fishlake Nab | Medium |

13.4.23 The link sensitivities outlined above have been used to assess the significance of the impact of the impact of the Scheme combining the magnitude of change.

Magnitude

13.4.24 General criteria for defining the magnitude of an impact are set out in Table 13-3. Key factors influencing this include:

- a. The physical or geographical scale of the impact;
- b. The duration of the impact – will it be short-term (lasting for a few days or weeks), medium-term (lasting months) or long-term (lasting for several years);
- c. The frequency of the impact – will it occur hourly, daily, monthly or will it be permanent lasting for the duration of the Scheme; and
- d. The reversibility of the effect – can it be reversed following the completion of construction of the Scheme?

13.4.25 The IEMA Guidelines set out several criteria by which the magnitude of impact can be measured, outlined below. Many of the criteria do not provide specific thresholds by which such impacts can be measured, and as a result, will be measured qualitatively where appropriate and professional judgement will be used when necessary. These are described below and summarised in Table 13-3:

- a. 'Severance' is defined in the IEMA Guidelines as the *"...perceived division that can occur with a community when it becomes separated by major traffic infrastructure"*. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure. IEMA Guidelines suggest that a change in the traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic.
- b. 'Non-motorised user (NMU) Amenity' is defined within the IEMA Guidelines as *"...the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic"*. The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenities would be where the traffic flow (or HGV component) is halved or doubled.
- c. The 'Driver Delay' assessment approach set out in the IEMA Guidelines states that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. The capacity of a road or a particular junction can be determined by establishing the ratio of flow to capacity (RFC). For this assessment, criteria from the IEMA Guidelines will be used to assess the effects on traffic levels and driver delay, which states the need for assessment where changes in traffic flows exceed 30%.
- d. 'Fear and Intimidation' is defined within the IEMA Guidelines as *"...dependent on the total volume of traffic, HGV composition, the speed vehicles are passing, the proximity of traffic to people and/or the feeling of the inherent lack of protection created by factors such as a narrow*

pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles”.

- e. A detailed assessment of ‘Accidents and Safety’ has been carried out by examination of road traffic accident data for the most recent five-year period available. This analysis is included in **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]** and undertaken to highlight if there are any existing safety issues on the local road network which may be exacerbated by the Scheme. The outcome of the assessment is presented in this Section 13.5.

13.4.26 Information provided in Table 13-3 shows further details of the individual aspects of the assessment and the thresholds to be applied for each, considering the increase in traffic.

Table 13-3: Impact Magnitude Criteria (Transport and Access)

| Magnitude | Description | Illustrative Criteria |
|-------------------|---|--|
| High ¹ | Construction Traffic | High number of construction vehicles using roads over a protracted period: a. More than a 40% increase for more than 6 months. |
| | NMU Amenity | Increase in total traffic flows of 100% or above. |
| | Severance of Communities | Increase in total traffic flows or HGV flows of 90% and above. |
| | Road Vehicle Driver and Passenger Delay | Change in total traffic or HGV flows over 90%. |
| | Road User and Pedestrian Safety | All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis. |
| | Fear and Intimidation | Two-step changes in level, e.g. if the level of fear and intimidation rises from small to great/extreme or moderate to extreme. |
| Medium | Construction Traffic | Moderate number of construction vehicles using roads over a protracted time: a. 16-39% increase for more than 6 months; or b. More than 40% increase for 3-6 months. |
| | NMU Amenity | Increase in total traffic flows of 70-99%. |
| | Severance of Communities | Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%). |
| | Road Vehicle Driver and Passenger Delay | Change in total traffic or HGV flows of 60-89%. |
| | Road User and Pedestrian Safety | All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis. |

¹ Professional judgement will be applied where baseline traffic flows are low, and a traffic percentage change criterion is not appropriate. Therefore, where a high magnitude of impacts is apparent based on low baseline traffic flows, the overall magnitude will be reduced to medium.

| Magnitude | Description | Illustrative Criteria |
|-----------|---|---|
| | Fear and Intimidation | One step change in level (e.g. small to moderate), but with >400 vehicle increase in average 18 hr two-way all vehicle flow; and/or >500 HGV increase in total 18 hr HGV flow. |
| Low | Construction Traffic | Small number of construction vehicles using roads over a short period: a. 6-15% increase for more than 6 months; or b. 16-39% for 3-6 months; or c. More than 40% increase for less than 3 months. |
| | NMU Amenity | Increase in total traffic flows of 50-69%. |
| | Severance of Communities | Increase in total traffic flows of 30-59% (or increase in HGV flows of 20-39%). |
| | Road Vehicle Driver and Passenger Delay | Change in total traffic or HGV flows of 30-59%. |
| | Road User and Pedestrian Safety | All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis. |
| | Fear and Intimidation | One step change in level (e.g. small to moderate), with <400 vehicle increase in average 18 hr two-way all vehicle flow; and/or <500 HGV increase in total 18 hr HGV flow. |
| Very Low | Construction Traffic | Occasional construction vehicles using roads over a short period: a. Less than 5% increase for more than 6 months; or b. Between 6-30% increase for 3 - 6 months; or c. Between 31-40% for less than 3 months. |
| | NMU Amenity | Increase in total traffic flows of 49% or under. |
| | Severance of Communities | Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%). |

| Magnitude | Description | Illustrative Criteria |
|-----------|---|---|
| | Road Vehicle Driver and Passenger Delay | Change in total traffic or HGV flows of 29% or under. |
| | Road User and Pedestrian Safety | Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%). |
| | Fear and Intimidation | No step changes. |

13.4.27 As noted in Table 13-3, professional judgement will be applied where baseline traffic flows are low, and a percentage change criterion is not appropriate. In such instances, it is possible for a high percentage change to be associated with a low number of trips that can be easily accommodated within the road network, where the magnitude should not be considered 'High'.

Significance

13.4.28 The general approach adopted for evaluating the significance of effects considering the sensitivity of the receptor and the magnitude of impact is outlined in Table 13-4. Effects are defined as beneficial or adverse.

Table 13-4: Significance of Effects Matrix (Transport and Access)

| Receptor Sensitivity | High | Medium | Low | Very Low |
|----------------------|--------------|-----------------|-----------------|-----------------|
| High | Major (S) | Major (S) | Moderate (S) | Minor (S) |
| Medium | Major (S) | Moderate (S) | Minor (S) | Negligible (NS) |
| Low | Moderate (S) | Minor (S) | Negligible (NS) | Negligible (NS) |
| Very Low | Minor (S) | Negligible (NS) | Negligible (NS) | Negligible (NS) |

S = Significant; NS = Not Significant

13.4.29 Effects predicted to be 'major' or 'moderate' are considered 'significant' whilst effects predicted to be 'minor' or 'negligible' are considered 'not significant'.

Matters Scoped In and Scoped Out

13.4.30 A summary of the potential impacts scoped in and out of the assessment of transport and access for the construction, operation and maintenance, and decommissioning phases are presented in Table 13-5. This selection is the same as that presented within the PEIR at the statutory consultation stage and as presented within the EIA Scoping Report (**ES Volume III Appendix 1-1 [EN010152/APP/6.3]**).

Table 13-5: Potential Impacts Scoped In and Out

| Potential Impact | Scoped In/Out |
|---|---------------|
| Severance – The temporary increase in traffic could generate potentially significant impacts on severance. | In |
| Driver delay – The temporary increase in traffic could have potentially significant impacts on driver delay. | In |
| Pedestrian delay – Significant effects related to pedestrian delays are not expected due to the low numbers of pedestrians (e.g. local area rural in nature and not near many land uses that generate pedestrian movements) potentially affected by the Scheme. | Out |
| Non-motorised user (NMU) amenity – The temporary increase in traffic could have potentially significant impacts on pedestrian, equestrian and cyclist amenities. | In |

| Potential Impact | Scoped In/Out |
|--|---------------|
| Fear and intimidation – The temporary increase in traffic could have potentially significant impacts on fear and intimidation. | In |
| Road safety and accidents – The temporary increase in traffic could have potentially significant impacts on road safety. | In |
| Total traffic increase – The temporary increase in traffic could have potentially significant impacts. | In |
| HGV increase – The temporary increase in traffic could have potentially significant impacts in relation to HGVs. | In |
| Hazardous loads – There are no nearby road features which suggest that the transfer of materials poses a risk beyond that which would be expected on the general highway network (as agreed with Planning Inspectorate). | Out |

13.4.31 A quantitative assessment has been conducted for the construction phase impacts, whilst a qualitative assessment has been conducted for the operational and decommissioning phases. This is due to low vehicle numbers associated with operation and maintenance activities and the decommissioning of the Scheme is expected to result in similar traffic to the construction phase; therefore, decommissioning is expected to lead to effects that are no worse than during the construction phase. This is confirmed in the Scoping Opinion (**ES Volume III Appendix 1-2: EIA Scoping Opinion [EN010152/APP/6.3]**).

Assumptions, Limitations and Uncertainties

13.4.32 The information presented in this ES chapter is accurate at the time of reporting and is based on the maximum extent of land required for the Scheme's construction, operation (including maintenance and repairs) and decommissioning.

13.4.33 The Order limits is located within a rural area where access is likely to be constrained in terms of highway design and access to public transport. It is assumed that the road network and local services will remain as it is currently (i.e. the future baseline will broadly align with the present-day baseline).

13.4.34 Baseline traffic surveys are representative of average weekday traffic conditions and construction traffic flows have been based upon a best estimate of likely construction requirements.

13.4.35 The approach used within this chapter considers a worst-case assessment, based on the construction phase's highest number of hourly two-way road trips (for vehicles) and the construction phase's highest daily two-way movements for HGVs.

13.4.36 The impact of traffic during the construction and decommissioning phases is anticipated to be the most significant stage of the Scheme, with similar levels of traffic expected. Operational traffic numbers will be significantly lower than construction or decommissioning phases.

- 13.4.37 Decommissioning is anticipated to take place approximately 40 years after the start of operation and it is expected to have impacts no worse than the construction phase (and over a shorter period). The decommissioning phase has therefore not been specifically modelled and the effects and mitigation for construction are considered applicable for decommissioning.
- 13.4.38 Subject to being granted consent and following a final investment decision, the earliest construction could start is in 2028. Construction of the Grid Connection Cables is anticipated to require an estimated 12 months; construction of the Solar PV Site is anticipated to require an estimated 24 months, with operation therefore anticipated to commence in 2030. If the construction phase were longer, the impacts of traffic would be the same or lower, and therefore the 24-month construction phase considered to be a reasonable worst case for estimating maximum daily trips. In addition, if construction starts later than modelled, the impacts would not be affected.
- 13.4.39 The Grid Connection Line Drop would comprise of below ground cables connecting the On-Site Substation to a new cable sealing end compound at the base of an existing on-site 400 kV overhead line tower located within Field SE2; these works have also been considered as part of this assessment.

13.5 Baseline Conditions

- 13.5.1 This section describes the baseline conditions for the Transport and Access assessment, with specific reference to the highway network, walking, cycling, equestrian, and public transport facilities on the strategic and local highway network.

Existing Baseline

- 13.5.2 The existing baseline includes a description of the SRN, the local road, accessibility in terms of walking, cycling, and public transport, road safety, and the baseline traffic flows, in **ES Volume II Figure 13-1: Transport and Access Study Area [EN010152/APP/6.2]** shows the Order limits, with key roads shown on **ES Volume II Figure 13-4: Study Area Road Network [EN010152/APP/6.2]**.

Strategic Road Network

- 13.5.3 The M62 forms part of the SRN and is a 172 km motorway that connects Liverpool to Hull via Bradford and Leeds. The motorway generally has three lanes heading in each direction with the inclusion of a hard shoulder. The road is managed by National Highways and provides a link for onward strategic journeys in all directions.
- 13.5.4 The M18 is also located to the east of the Scheme which runs from Junction 35 of the M62 towards Doncaster towards the east of Sheffield in a southerly direction. The M18 is characterised by two lanes between the M18 Junction 5 and Junction 2 with three lanes on the remainder of the M18.
- 13.5.5 Furthermore, the M180 joins the M18 at Junction 5 near Stainforth which provides connections in an easterly direction towards the Humber Estuary and Scunthorpe, Grimsby, and Cleethorpes.
- 13.5.6 The M62 Junction 34 is approximately 14 km to the northwest of Fenwick which provides the nearest vehicular access from the SRN to the Scheme.

- 13.5.7 The M62 provides access from major urban areas such as Leeds to the northwest of the Scheme, as well as other small surrounding towns.
- 13.5.8 To the east the M62 meets the M18 at Junction 35, which provides access from areas to the north of the Humber Estuary such as Hull. This then leads to the M18 in which access to the Scheme is then achieved through the local road network which is described in the section below.

Local Highway Network

- 13.5.9 This section describes detail surrounding the local highway network which is supported by the following figures from **ES Volume II Figure 13-3: Indicative HGV Routing [EN010152/APP/6.2]** and **ES Volume II Figure 13-4: Study Area Road Network [EN010152/APP/6.2]**.
- 13.5.10 From the west the A19 runs for approximately 18 km between the M62 Junction 34 and St Mary's Roundabout in Doncaster to the west of the Scheme. The A19 passes through more built-up areas such as Whitley to the north of the A19 and Askern, where it joins with Moss-Station Road via a 34-arm signalised junction.
- 13.5.11 The A19 is characterised as a primary route with a single carriageway with a variable speed limit ranging between 60 mph in the areas with limited urban build-up and 30 mph within Askern itself with areas along the link also 40 mph. A level crossing is also present to the north of Askern adjacent to the Aldi store approximately 650 m from the A19/Station Road junction.
- 13.5.12 Moss Road is a single-carriageway road that runs west to east from the A19 through Askern and the village of Moss before changing to Kirkhouse Green Road just before the New Junction Canal near Kirkhouse Green.
- 13.5.13 Moss Road has a speed limit of 30 mph within Askern before changing to 50 mph on the eastern edge of the village which then continues until approximately 650 m to the west of the level crossing near the 3-arm priority with Fenwick Common Lane, where it changes to 40 mph. There are two separate HGV haulage businesses currently using Moss Road, one on Moss Road itself and one on West Lane. This indicates that HGVs are already using this road and that the route is likely suitable for these types of movements.
- 13.5.14 Fenwick Common Lane runs north from Moss Road for approximately 2 km before entering the village of Fenwick which then forms a junction with Lawn Lane and Fenwick Lane.
- 13.5.15 Fenwick Common Lane is characterised by a single-lane carriageway with no lane markings and no footways present on either side of the carriageway. The link is also subject to the national speed limit for much of the link before changing to 30 mph before entering Fenwick approximately 225 m on from the priority junction with Shaw Lane. It is proposed that Fenwick Common Lane will provide access for inbound construction staff only. Other construction vehicles will use the main access off Moss Road. Main operational access to the Solar PV Site will be via Lawn Lane.
- 13.5.16 Approximately 1 km along Fenwick Common Lane, Haggs Lane forms a priority junction that is used as an access to fields. A temporary blockade (heavy tyres/concrete blocks) has been placed across Haggs Lane to prevent vehicles other than those used by farmers from entering the fields. The Scheme proposals would include gating this entrance with a secure gate

allowing vehicular access for the Scheme, the local farmers and the Internal Drainage Board (IDB) maintenance staff only.

- 13.5.17 PRow Fenwick 16 exists on the ~~northern side~~entire width of Haggs Lane and separation between vehicles and the PRow will be managed through the measures described in the **Framework PRow Management Plan [EN010152/APP/7.13]** and secured within the **Framework CTMP [EN010152/APP/7.17]**.
- 13.5.18 From the east, access towards the Scheme is achieved via the A614/Between Rivers Lane priority junction. The A614 runs in a north/south direction in which it forms a roundabout with the A1041 near the village of East Cowick before continuing into the village of Snaith.
- 13.5.19 The A1041 then continues north towards the A63 near Selby. From here the A63 links to both the A1(M) towards Leeds and north towards York along the A19. To the south, the A614 meets the SRN at M18 Junction 6 which then provides further access to the wider area as described in the SRN section above.
- 13.5.20 Between Rivers Lane is located approximately 1 km south of the A1041/A614 roundabout and is accessed from the east of the A614 via a large priority Bellmouth junction. Between Rivers Lane is characterised as a rural single-carriageway with verges on either side subject to the national speed limit. Between Rivers Lane leads onto Oak Road near the PD Tattersall trucking depot.
- 13.5.21 Oak Road continues in an east/west direction onto Pincheon Green Lane, Marsh Hill Lane, Sykehouse Road, Broad Lane, West Lane, and then Flashley Carr Lane before forming into Moss Road in which the link then continues through Moss before meeting Fenwick Common Lane.

Walking, Cycling and Equestrian Facilities

- 13.5.22 The Scheme generally falls within a rural setting with local country lanes making up the predominant road type. As a result, there are limited footways and other pedestrian/cycle facilities in the area apart from in towns and villages such as Askern where there are footways present to facilitate pedestrian movements. These are generally located in the centre of the village providing access to shops and other community amenities.
- 13.5.23 There are no segregated footways present along Fenwick Common Lane with only grass verge present on both sides of the carriageway. To the south on Moss Road there are also no footways present meaning a continuous journey by foot would likely be undesirable to the Order limits from the surrounding area.
- 13.5.24 There are no specific cycle facilities on local roads within the Study Area, such as advisory cycle lanes. The nearest section of the National Cycle Network is part of Route 62 (which also forms part of the Trans Pennine Trail) and lies approximately 4 km to the east and south of the Solar PV Site. It is therefore possible that some construction workers would cycle to the Solar PV Site, however due to proximity to population centres numbers are likely to be small (if any).
- 13.5.25 In terms of PRow there are a variety of routes that cross the Solar PV Site (**ES Volume II Figure 2-2: Public Rights of Way [EN010152/APP/6.2]**). These include Footpath Fenwick 16 which continues along Haggs Lane in an

east-west direction (the location of the access point) into the fields beyond. At the end of Haggs Lane, Footpath Fenwick 11 runs in a north-south direction towards the village of Fenwick to the north and into the fields to the south. Other PRow continue off Footpath Fenwick 11 and Fenwick 16 within the Order limits. PRow Sykehouse 29 is also partly within the Solar PV Site.

13.5.26 Footpath Fenwick 10 runs in an east-west direction to the north of Haggs Lane and connects into the village of Fenwick to the west and into the fields towards Bunfold Shaw surrounding the Scheme to the east. Footpath Fenwick 14 runs from the terminus of Footpath Fenwick 16 in a north-south direction between Fenwick Footpath 10 to the north before terminating at the Ell Wood and Fenwick Grange Drain and continuing south from there towards Moss via the Footpath Moss 6. Footpath Fenwick 15 also runs through the Order limits in an east-west direction just to the north of Fenwick Footpath 16 which then meets Footpath Fenwick 13. This runs in a north-south direction from Bunfold Shaw in the north before also terminating in the south at Ell Wood and Fenwick Grange Drain to the south before continuing onto the outskirts of Moss via Footpath Moss 7. Observations on site indicated that the routes are infrequently used, and generally used by people for dog walking and leisure purposes. In addition, it has been observed that several footpath bridges were showing vegetation growing completely across them ~~indicating there had been no recent usage at all.~~

13.5.27 A number of PRow also interact with the Grid Connection Corridor, as follows: Moss 6, 20 and 21, Thorpe in Balne 6, 7, 8, 11 and 13.

13.5.28 At this stage of the assessment, it is understood that these PRow are the only ones that will be affected directly by the Scheme proposals. It should be noted that the routes as per the definitive map are also not necessarily used on the ground. A **Framework PRow Management Plan [EN010152/APP/7.13]** has been produced as part of the DCO Application to establish any potential impacts on these PRow and how these will be mitigated.

13.5.29 It is unlikely that construction workers would walk to the Solar PV Site or other areas of construction, due to proximity to population centres, therefore numbers are likely to be small (if any).

13.5.30 Due to the presence of Fir Tree Farm Equestrian Centre and the Orchard Equine College and Equestrian Centre, which lie close to the Order limits, there is some equestrian usage of local roads, which will be managed through the **Framework CTMP [EN010152/APP/7.17]**.

Public Transport Facilities – Bus

13.5.31 The area surrounding the Order limits is predominately rural in nature with only one bus route (51 Doncaster to Norton) within relative proximity of the Scheme, which runs through Askern off the A19 through a residential estate within Askern and then back onto the A19. However, this bus stop is approximately 4.3 km from the proposed site access into the Scheme.

13.5.32 There are bus stops along Moss Road and within Fenwick, however, these are designated as being school bus services and as such operate once in the morning and once in the afternoon. Therefore, these services would not be usable by the Scheme's staff.

13.5.33 The relative distance, the lack of sufficient safe footways and the lack of services within the area indicate that the existing public transport services will not be a viable option for workers seeking to use the bus to access the Order limits.

Public Transport Facilities – Rail

13.5.34 The nearest rail facilities to the Order limits include Adwick (10 km), Hatfield and Stainforth (10.6 km) and Thorne North (14.7 km), to the west, south, and east respectively. As such, based on these distances and the lack of other public transport facilities alongside insufficient footway provision, using the train from these locations would likely be unviable for the Scheme's workers.

Summary

13.5.35 In summary, it can be concluded that opportunities to support sustainable travel are mostly related to car sharing and the potential for the contractor to operate a worker minibus. People wishing to cycle will also be encouraged and accommodated, but not relied on in terms of trip assessment. These opportunities have been further covered within the **Framework CTMP [EN010152/APP/7.17]**.

13.5.36 Therefore, it has been assumed for assessment purposes that all staff working on-site in the Solar PV Site or at locations on the Grid Connection Corridor, will predominantly travel by private vehicles (sole occupancy or car sharing) or minibus (dependent on location).

Road Safety

13.5.37 A review of road safety on the local highway network has been carried out.

13.5.38 Personal Injury Collision (PIC) data has been obtained from City of Doncaster Council between January 2018 to March 2023.

13.5.39 The PIC Study Area includes key routes that are anticipated to be used by HGV and construction worker traffic travelling to the Solar PV Site and the Grid Connection Corridor. The accident Study Area is shown in **ES Volume II Figure 13-5: Traffic Accident Locations [EN010152/APP/6.2]**.

13.5.40 A total of 51 collisions occurred over the five years within the accident Study Area, categorised as slight, severe, or fatal collisions. A slight collision is one in which at least one person has been slightly injured. A serious collision is one in which at least one person has been seriously injured and a fatal collision is one in which at least one person has been killed.

13.5.41 Table 13-6 provides a summary of collisions by severity and year and shows that the greatest number of collisions occurred in 2020 with a total of 14 collisions (10 slight and 4 serious); 2019 recorded a slightly lower number, with a total of 12 collisions (6 slight and 6 serious). The information also shows that since 2020 collisions have generally reduced with a slight upturn in 2022.

Table 13-6: Collisions by Year and Severity

| Year | Slight | Serious | Fatal | Total |
|------|--------|---------|-------|-------|
| 2018 | 6 | 2 | 0 | 8 |
| 2019 | 6 | 6 | 0 | 12 |

| Year | Slight | Serious | Fatal | Total |
|-------------------|---------------|----------------|--------------|--------------|
| 2020 | 10 | 4 | 0 | 14 |
| 2021 | 3 | 2 | 0 | 5 |
| 2022 | 4 | 5 | 0 | 9 |
| 2023 ² | 1 | 2 | 0 | 3 |
| Total | 30 | 21 | 0 | 51 |

13.5.42 The data has been split to show collisions on road links, as shown in Table 13-7, and collisions that occurred at or near junctions, as shown in Table 13-10. The highest number of collisions (12) were recorded on the A19 Doncaster Road and Moss Road with the remaining links having significantly fewer recorded incidents.

Table 13-7: Collisions by Link and Severity

| Link | Slight | Serious | Fatal | Total |
|----------------------|---------------|----------------|--------------|--------------|
| Broad Lane | 1 | 0 | 0 | 1 |
| Doncaster Road | 3 | 1 | 0 | 4 |
| Doncaster Road (A19) | 6 | 6 | 0 | 12 |
| Heyworth Lane | 1 | 0 | 0 | 1 |
| High Street (A19) | 2 | 0 | 0 | 2 |
| Instone Terrace | 0 | 1 | 0 | 1 |
| Market Place (A19) | 2 | 1 | 0 | 3 |
| Moss Road | 6 | 6 | 0 | 12 |
| Rushey Moor Lane | 1 | 0 | 0 | 1 |
| Selby Road | 1 | 1 | 0 | 2 |
| Selby Road (A19) | 2 | 2 | 0 | 4 |
| Selby Road (A614) | 0 | 1 | 0 | 1 |
| Sykehouse Road | 0 | 1 | 0 | 1 |
| Station Road | 2 | 0 | 0 | 2 |
| Sutton Road | 1 | 0 | 0 | 1 |
| Trumfleet Lane | 1 | 1 | 0 | 2 |
| West Lane | 1 | 0 | 0 | 1 |
| Total | 30 | 21 | 0 | 51 |

² It should be noted that accident data for 2023 is only available up to March.

13.5.43 The information in Table 13-8 further analyses the temporal variation in terms of collisions on Doncaster Road (A19) and Moss Road.

Table 13-8: Collisions on Doncaster Road (A19) and Moss Road by Year

| Link | Doncaster Road (A19) | Moss Road |
|-------------------|----------------------|-----------|
| 2018 | 2 | 2 |
| 2019 | 5 | 0 |
| 2020 | 5 | 4 |
| 2021 | 0 | 2 |
| 2022 | 0 | 3 |
| 2023 ³ | 0 | 1 |
| Total | 12 | 12 |

13.5.44 The collision record on Doncaster Road (A19) shows all the collisions occurred before 2021 with two in 2018, five in 2019 and five in 2020 with no recorded collisions since. In terms of Moss Road there is much more of a spread with the highest number (four) occurring in 2020 followed by two in 2021 and three in 2022 with one recorded collision in 2023 (January to March).

13.5.45 To further understand the collision analysis on these links, Table 13-9 below shows the causation of collisions on Moss Road and Doncaster Road (A19), as these were the locations showing the highest number of collisions.

Table 13-9: Collision Causation Factor Doncaster Road (A19) and Moss Road

| Causation Factor | Doncaster Road (A19) | Moss Road |
|---|----------------------|-----------|
| Aggressive Driving | 0 | 0 |
| Careless/Reckless/In a Hurry | 2 | 1 |
| Crossed Road Masked by Stationary or Parked Vehicle | 0 | 1 |
| Cyclist Entering Road from Pavement | 0 | 1 |
| Dazzling Sun | 1 | 0 |
| Deposit on the Road (e.g. oil, mud, chippings) | 0 | 0 |
| Exceeding Speed Limit | 0 | 2 |
| Failed to Judge Other Person's Path or Speed | 2 | 1 |

³ It should be noted that accident data for 2023 is only available up to March.

| Causation Factor | Doncaster Road (A19) | Moss Road |
|-----------------------------------|----------------------|-----------|
| Failed to Look Properly | 4 | 3 |
| Fatigue | 0 | 0 |
| Following Too Close | 0 | 0 |
| Impaired by Alcohol | 0 | 0 |
| Inexperience with Type of Vehicle | 0 | 0 |
| Junction Overshoot | 0 | 1 |
| Loss of Control | 0 | 1 |
| Not Coded | 1 | 1 |
| Other | 1 | 0 |
| Poor Turn or Manoeuvre | 0 | 0 |
| Vehicle Blind Spot | 1 | 0 |
| Total | 12 | 12 |

13.5.46 As can be seen in Table 13-9 the main contributory factor is associated with vehicles failing to look properly which accounts for 33% of collisions on Doncaster Road (A19) and 25% of collisions on Moss Road. A further 33% of collisions on Doncaster Road (A19) are associated with careless driving (2) and failing to judge another person's path or speed (2). In terms of Moss Road the next highest contributory factor was exceeding the speed limit (2) along with other reasons such as loss of control and failing to judge another person's path or speed.

13.5.47 Table 13-10 shows the collisions that occurred at or close to junctions with those that occurred away from a junction discarded from the dataset.

Table 13-10: Collisions by Junction and Severity

| Link | Slight | Serious | Fatal | Total |
|-----------------------------------|--------|---------|-------|-------|
| Broad Lane/Whispering Meadows | 1 | 0 | 0 | 1 |
| Doncaster Road (A19)/Manor Way | 1 | 0 | 0 | 1 |
| Doncaster Road (A19)/Rockley Lane | 1 | 1 | 0 | 2 |
| Doncaster Road (A19)/Rockley Road | 0 | 1 | 0 | 1 |
| Doncaster Road (A19)/Sutton Road | 1 | 3 | 0 | 4 |
| Doncaster Road/Sutton Road | 1 | 0 | 0 | 1 |
| High Street (A19)/Lakeside Rise | 1 | 0 | 0 | 1 |
| High Street (A19)/Station Road | 1 | 0 | 0 | 1 |
| Market Place (A19)/Station Road | 2 | 0 | 0 | 2 |

| Link | Slight | Serious | Fatal | Total |
|-------------------------------------|-----------|-----------|----------|-----------|
| Moss Road/Doncaster Road | 3 | 0 | 0 | 3 |
| Moss Road/Flashley Carr Lane | 1 | 0 | 0 | 1 |
| Moss Road/Kings Road | 0 | 1 | 0 | 1 |
| Moss Road/Old Green Lane | 0 | 1 | 0 | 1 |
| Moss Road/Sunnymede Avenue | 0 | 1 | 0 | 1 |
| Moss Road/Thompson Terrace | 1 | 0 | 0 | 1 |
| Rushy Moor Lane/Moss Road | 1 | 0 | 0 | 1 |
| Selby Road (A19)/Norton Common Road | 2 | 0 | 0 | 2 |
| Selby Road (A19)/Private Drive | 0 | 1 | 0 | 1 |
| Selby Road (A19)/Private Entrance | 0 | 1 | 0 | 1 |
| Selby Road/Campsall Road | 1 | 0 | 0 | 1 |
| Station Road/High Street (A19) | 1 | 0 | 0 | 1 |
| Station Road/Pool Avenue | 1 | 0 | 0 | 1 |
| Sutton Road/Doncaster Road (A19) | 1 | 0 | 0 | 1 |
| Trumfleet Lane/Private Drive | 0 | 1 | 0 | 1 |
| Total | 21 | 11 | 0 | 32 |

13.5.48 The data shows that the highest number of recorded incidents occurred at the Doncaster Road (A19)/Sutton Road junction to the south of Askern with four recorded collisions (one slight and three serious) followed by Moss Road/Doncaster Road in which three slight collisions occurred. This information has then been further analysed in Table 13-11 below using the given causation factor.

Table 13-11: Collisions by Junction and Causality

| Causation Factor | Doncaster Road (A19)/Rockley Lane | Doncaster Road (A19)/Sutton Road | Market Place (A19)/Station Road | Selby Road (A19)/Norton Common Road | Moss Road/Doncaster Road |
|---|--|---|--|--|---------------------------------|
| Aggressive Driving | 0 | 0 | 0 | 0 | 0 |
| Careless/Reckless/In a Hurry | 0 | 0 | 0 | 0 | 0 |
| Crossed Road Masked by Stationary or Parked Vehicle | 0 | 0 | 0 | 0 | 0 |
| Cyclist Entering Road from Pavement | 0 | 0 | 0 | 0 | 0 |
| Dazzling Sun | 1 | 0 | 0 | 0 | 0 |
| Deposit on the Road (e.g. oil, mud, chippings) | 0 | 0 | 0 | 0 | 0 |
| Exceeding Speed Limit | 0 | 0 | 0 | 0 | 1 |
| Failed to Judge Other Person's Path or Speed | 1 | 1 | 0 | 1 | 0 |
| Failed to Look Properly | 0 | 1 | 0 | 1 | 1 |
| Fatigue | 0 | 0 | 0 | 0 | 0 |
| Following Too Close | 0 | 0 | 0 | 0 | 0 |
| Impaired by Alcohol | 0 | 0 | 0 | 0 | 0 |
| Inexperience with Type of Vehicle | 0 | 0 | 0 | 0 | 0 |
| Junction Overshoot | 0 | 0 | 0 | 0 | 0 |
| Loss of Control | 0 | 0 | 0 | 0 | 0 |

| Causation Factor | Doncaster Road (A19)/Rockley Lane | Doncaster Road (A19)/Sutton Road | Market Place (A19)/Station Road | Selby Road (A19)/Norton Common Road | Moss Road/Doncaster Road |
|------------------------|--------------------------------------|-------------------------------------|------------------------------------|--|--------------------------|
| Not Coded | 0 | 0 | 2 | 0 | 1 |
| Other | 0 | 1 | 0 | 0 | 0 |
| Poor Turn or Manoeuvre | 0 | 0 | 0 | 0 | 0 |
| Vehicle Blind Spot | 0 | 1 | 0 | 0 | 0 |
| Total | 2 | 4 | 2 | 2 | 3 |

13.5.49 As can be seen for those collisions that have been coded the most common factor is associated with failing to judge a person's speed or path or failing to look properly.

13.5.50 Moreover, in terms of collisions involving NMUs, Table 13-12 shows the locations of incidents involving either a pedestrian or a cyclist.

Table 13-12: NMu Collisions by Link

| Link | Pedestrians | | | | Cyclists | | | |
|----------------------|-------------|----------|----------|----------|----------|----------|----------|----------|
| | Slight | Serious | Fatal | Total | Slight | Serious | Fatal | Total |
| Broad Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Doncaster Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Doncaster Road (A19) | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 3 |
| Heyworth Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| High Street (A19) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Instone Terrace | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Market Place (A19) | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| Moss Road | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 1 |
| Rushey Moor Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Selby Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Selby Road (A19) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Selby Road (A614) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sykehouse Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Station Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sutton Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Trumfleet Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Lane | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Total | 2 | 2 | 0 | 4 | 4 | 2 | 0 | 6 |

13.5.51 Table 13-12 shows there were a total of four collisions involving pedestrians, two slight and two serious. One slight and one serious collision occurred on Moss Road, one serious on Market Place (A19) with a further slight collision on Doncaster Road (A19).

13.5.52 In terms of cyclists there were a total of six collisions (four slight and two serious). Three of these collisions (one slight and two serious) occurred on Doncaster Road (A19) with further slight collisions on Market Place (A19)

and Moss Road. The final slight collision in terms of cyclists occurred on West Lane.

13.5.53 Based on the information available, the PIC data provided did not show incidents occurring frequently at any location in the accident Study Area in any given year.

Baseline Traffic Flows

13.5.54 To understand baseline traffic levels, ATC surveys were carried out at 23 locations with 13 of these surveyed during the week of Friday 14 to Thursday 20 July 2023 and the remainder conducted between Wednesday 6 to Tuesday 12 December 2023. The surveys carried out in December were undertaken to cover the roads potentially affected by traffic accessing the Grid Connection Corridor construction accesses. The surveys on the SRN were extracted from the National Highways WEBTRIS portal, which represents ATCs 1 to 6.

13.5.55 Survey locations were set out in the Scoping Report and City of Doncaster Council agreed on the proposed locations. The ATC locations are shown in **ES Volume II Figure 13-2: Traffic Survey Locations [EN010152/APP/6.2]**. The ATC locations form the extent of the Study Area.

13.5.56 Data was recorded for 7 days, 24 hours a day at 15-minute intervals. The surveys were timed outside of the school holidays to provide representative traffic levels.

13.5.57 The following traffic data has been included representing the summer construction traffic peaks and local road network peak periods:

- a. 06:00 to 07:00 – construction AM peak hour;
- b. 08:00 to 09:00 – network AM peak hour;
- c. 17:00 to 18:00 – network PM peak hour;
- d. 19:00 to 20:00 – construction PM peak hour; and
- e. 24 hr annual average daily traffic (AADT).

13.5.58 Winter working hours are expected to be shorter and worker numbers will fluctuate and may be reduced in winter depending on the chosen contractor. However, the worst case scenario for traffic impacts is still expected to be within the 06:00–07:00 and 19:00–20:00 periods during summer months.

13.5.59 Table 13-13 below shows the baseline traffic flows for 2023 that will be used as the basis for assessment.

Table 13-13: Baseline Traffic Flows 2023 – Total Vehicles (Two-Way)

| ATC | Link Description | 06:00-07:00 | 08:00-09:00 | 17:00-18:00 | 19:00-20:00 | 24 Hour AADT |
|-----|-------------------------|-------------|-------------|-------------|-------------|--------------|
| 1 | M62 West of J34 | 2,763 | 4,017 | 4,761 | 2,001 | 59,494 |
| 2 | M62 between J34 and J35 | 2,606 | 3,540 | 4,039 | 1,650 | 51,544 |
| 3 | M62 East of J35 | 2,069 | 2,893 | 3,335 | 1,412 | 42,909 |

| ATC | Link Description | 06:00-07:00 | 08:00-09:00 | 17:00-18:00 | 19:00-20:00 | 24 Hour AADT |
|-----|--|-------------|-------------|-------------|-------------|--------------|
| 4 | M18 between M62 J35 and M18 J6 | 2,326 | 3,098 | 3,569 | 1,573 | 46,686 |
| 5 | M180 | 1,793 | 2,700 | 2,988 | 1,307 | 39,985 |
| 6 | M18 between M18 J4 and J5 | 2,419 | 3,598 | 4,376 | 1,915 | 55,862 |
| 7 | A19 Selby Road – South of Station Road A19 | 441 | 614 | 647 | 328 | 9,200 |
| 8 | A19 Selby Road North of Station Road A19 | 501 | 908 | 908 | 558 | 13,802 |
| 9 | Moss Road – Askern Village | 154 | 358 | 326 | 212 | 5,129 |
| 10 | Moss Road – East of Askern | 106 | 229 | 207 | 132 | 3,302 |
| 11 | Fenwick Common Lane | 11 | 18 | 23 | 22 | 363 |
| 12 | Trumfleet Lane – South of Moss | 28 | 91 | 93 | 26 | 1,042 |
| 13 | Marsh Road | 39 | 117 | 98 | 26 | 1,240 |
| 14 | Thorpe Bank | 51 | 191 | 134 | 33 | 1,719 |
| 15 | Fordstead Lane West | 161 | 380 | 458 | 154 | 5,277 |
| 16 | Fordstead Lane East | 119 | 285 | 372 | 140 | 4,757 |
| 17 | Moss Road – East of Moss | 71 | 131 | 167 | 77 | 1,949 |
| 18 | Kirkhouse Green Road | 62 | 112 | 100 | 66 | 1,674 |
| 19 | West Lane – West of Sykehouse | 10 | 37 | 30 | 30 | 611 |
| 20 | Sykehouse Road – East of Sykehouse | 8 | 39 | 33 | 13 | 458 |
| 21 | A614 | 196 | 305 | 91 | 179 | 4,915 |
| 22 | Sour Lane | 62 | 114 | 24 | 73 | 1,769 |
| 23 | Fishlake Nab | 45 | 111 | 14 | 93 | 1,842 |

13.5.60 Table 13-14 below shows the baseline HGV traffic flows for 2023 that will be used as the basis for assessment.

Table 13-14: Baseline Traffic Flows 2023 – HGVs

| ATC | Link Description | 06:00-07:00 | 08:00-09:00 | 17:00-18:00 | 19:00-20:00 | 24 Hour AADT |
|-----|--|-------------|-------------|-------------|-------------|--------------|
| 1 | M62 West of J34 | 638 | 926 | 1,093 | 459 | 13,687 |
| 2 | M62 between J34 and J35 | 690 | 934 | 1,062 | 433 | 13,585 |
| 3 | M62 East of J35 | 434 | 608 | 701 | 297 | 9,011 |
| 4 | M18 between M62 J35 and M18 J6 | 639 | 839 | 961 | 425 | 12,632 |
| 5 | M180 | 572 | 862 | 953 | 417 | 12,755 |
| 6 | M18 between M18 J4 and J5 | 470 | 700 | 850 | 372 | 10,865 |
| 7 | A19 Selby Road – South of Station Road A19 | 71 | 81 | 87 | 20 | 1,078 |
| 8 | A19 Selby Road North of Station Road A19 | 97 | 143 | 113 | 37 | 1,536 |
| 9 | Moss Road – Askern Village | 17 | 31 | 34 | 9 | 417 |
| 10 | Moss Road – East of Askern | 17 | 26 | 26 | 6 | 318 |
| 11 | Fenwick Common Lane | 1 | 1 | 3 | 0 | 27 |
| 12 | Trumfleet Lane – South of Moss | 2 | 9 | 4 | 2 | 90 |
| 13 | Marsh Road | 2 | 9 | 3 | 1 | 79 |
| 14 | Thorpe Bank | 2 | 28 | 7 | 1 | 180 |
| 15 | Fordstead Lane West | 11 | 59 | 28 | 11 | 578 |
| 16 | Fordstead Lane East | 6 | 33 | 17 | 7 | 475 |
| 17 | Moss Road – East of Moss | 11 | 13 | 10 | 5 | 192 |
| 18 | Kirkhouse Green Road | 12 | 15 | 10 | 5 | 201 |
| 19 | West Lane – West of Sykehouse | 1 | 4 | 2 | 2 | 49 |
| 20 | Sykehouse Road – East of Sykehouse | 0 | 3 | 5 | 1 | 56 |
| 21 | A614 | 37 | 45 | 7 | 15 | 627 |
| 22 | Sour Lane | 3 | 5 | 0 | 1 | 70 |
| 23 | Fishlake Nab | 3 | 13 | 1 | 6 | 146 |

Future Baseline

- 13.5.61 This section considers those changes to the baseline conditions, described above, that might occur in the absence of the Scheme and during the period over which the Scheme would have been in place.
- 13.5.62 The future baseline scenarios are set out in **ES Volume I Chapter 5: Environmental Impact Assessment Methodology [EN010152/APP/6.1]** and described for Transport and Access below.
- 13.5.63 Subject to being granted consent and following a final investment decision, the earliest construction could start is in 2028. Construction on the Solar PV Site and Grid Connection Corridor would start in tandem.
- 13.5.64 The installation of the Grid Connection Cables would require approximately 12 months, and the construction of the Solar PV Site would require an estimated 24 months, with operation and maintenance anticipated to commence in 2030. The construction phase could be of longer duration; however, these timings have been used within the ES as a worst-case assumption to present the maximum predicted daily traffic flows and the amount of construction activity that could occur at any given time.
- 13.5.65 The use of a short-duration construction phase may overestimate the number of jobs during peak construction, however, the overall amount of construction activity, associated employment, and spending benefits would remain unchanged.
- 13.5.66 The peak year for traffic movements is assumed to be 2028 (when construction of both the Solar PV Site and the Grid Connection will coincide). As such, 2028 has been used as the future assessment year.
- 13.5.67 Future year baseline traffic flows for the assessment year of 2028 for the peak of construction have been derived by applying the national standard Trip End Model Presentation Program v8.1 (TEMPro) to derive traffic growth factors as indicated in Table 13-15. The following locations were used to growth the baseline data:
- Doncaster 002 – E02001540 – Askern, Campsall and Norton; and
 - Doncaster 004 – E02001542 – Stainforth.
- 13.5.68 This growth factor has been considered when comparing the baseline and future traffic scenarios.

Table 13-15: TEMPro Growth Factors (2023–2028)

| Period | Growth Factor |
|-----------|---------------|
| 2023–2028 | 1.03485 |

- 13.5.69 The 2028 Baseline traffic flows are shown below in Table 13-16 and Table 13-17. These are the anticipated baseline flows for the peak of the construction phase, with the absence of the scheme along local road links.

Table 13-16: 2028 Baseline Flows (Two-Way)

| ATC | Link Description | 06:00-07:00 | 08:00-09:00 | 17:00-18:00 | 19:00-20:00 | 24 Hour AADT |
|-----|--|-------------|-------------|-------------|-------------|--------------|
| 1 | M62 West of J34 | 2,907 | 4,227 | 5,008 | 2,104 | 62,668 |
| 2 | M62 between J34 and J35 | 2,742 | 3,725 | 4,248 | 1,736 | 54,294 |
| 3 | M62 East of J35 | 2,177 | 3,044 | 3,507 | 1,485 | 45,198 |
| 4 | M18 between M62 J35 and M18 J6 | 2,448 | 3,260 | 3,754 | 1,654 | 49,177 |
| 5 | M180 | 1,887 | 2,841 | 3,143 | 1,375 | 42,118 |
| 6 | M18 between M18 J4 and J5 | 2,546 | 3,786 | 4,602 | 2,015 | 58,842 |
| 7 | A19 Selby Road – South of Station Road A19 | 464 | 646 | 680 | 345 | 9,712 |
| 8 | A19 Selby Road North of Station Road A19 | 527 | 955 | 955 | 587 | 14,538 |
| 9 | Moss Road – Askern Village | 162 | 376 | 343 | 223 | 5,402 |
| 10 | Moss Road – East of Askern | 111 | 241 | 218 | 138 | 3,478 |
| 11 | Fenwick Common Lane | 12 | 19 | 25 | 24 | 383 |
| 12 | Trumfleet Lane – South of Moss | 29 | 96 | 97 | 27 | 1,098 |
| 13 | Marsh Road | 41 | 123 | 103 | 28 | 1,306 |
| 14 | Thorpe Bank | 54 | 201 | 141 | 35 | 1,811 |
| 15 | Fordstead Lane West | 169 | 400 | 481 | 162 | 5,558 |
| 16 | Fordstead Lane East | 125 | 300 | 391 | 148 | 5,011 |
| 17 | Moss Road – East of Moss | 74 | 138 | 176 | 81 | 2,053 |
| 18 | Kirkhouse Green Road | 65 | 118 | 105 | 69 | 1,764 |
| 19 | West Lane – West of Sykehouse | 11 | 39 | 31 | 31 | 643 |
| 20 | Sykehouse Road – East of Sykehouse | 8 | 41 | 34 | 14 | 482 |
| 21 | A614 | 207 | 321 | 96 | 189 | 5,178 |
| 22 | Sour Lane | 66 | 120 | 25 | 77 | 1,864 |
| 23 | Fishlake Nab | 47 | 117 | 14 | 97 | 1,940 |

Table 13-17: 2028 Baseline Flows (Two-Way) – HGVs

| ATC | Link Description | 06:00-07:00 | 08:00-09:00 | 17:00-18:00 | 19:00-20:00 | 24 Hour AADT |
|-----|--|-------------|-------------|-------------|-------------|--------------|
| 1 | M62 West of J34 | 672 | 975 | 1,150 | 483 | 14,417 |
| 2 | M62 between J34 and J35 | 726 | 983 | 1,117 | 456 | 14,310 |
| 3 | M62 East of J35 | 457 | 639 | 737 | 312 | 9,462 |
| 4 | M18 between M62 J35 and M18 J6 | 672 | 883 | 1,011 | 447 | 13,306 |
| 5 | M180 | 602 | 907 | 1,002 | 439 | 13,436 |
| 6 | M18 between M18 J4 and J5 | 495 | 737 | 894 | 391 | 11,444 |
| 7 | A19 Selby Road – South of Station Road A19 | 74 | 85 | 91 | 21 | 1,136 |
| 8 | A19 Selby Road North of Station Road A19 | 102 | 151 | 119 | 39 | 1,618 |
| 9 | Moss Road – Askern Village | 18 | 33 | 36 | 10 | 440 |
| 10 | Moss Road – East of Askern | 18 | 27 | 27 | 6 | 335 |
| 11 | Fenwick Common Lane | 1 | 2 | 3 | 0 | 29 |
| 12 | Trumfleet Lane – South of Moss | 2 | 9 | 4 | 2 | 95 |
| 13 | Marsh Road | 2 | 10 | 3 | 1 | 83 |
| 14 | Thorpe Bank | 2 | 29 | 8 | 1 | 190 |
| 15 | Fordstead Lane West | 11 | 62 | 30 | 12 | 609 |
| 16 | Fordstead Lane East | 6 | 35 | 18 | 7 | 500 |
| 17 | Moss Road – East of Moss | 11 | 14 | 11 | 5 | 203 |
| 18 | Kirkhouse Green Road | 13 | 15 | 11 | 6 | 211 |
| 19 | West Lane – West of Sykehouse | 1 | 4 | 2 | 2 | 52 |
| 20 | Sykehouse Road – East of Sykehouse | 0 | 3 | 5 | 1 | 59 |
| 21 | A614 | 39 | 48 | 7 | 16 | 661 |
| 22 | Sour Lane | 3 | 6 | 0 | 1 | 74 |
| 23 | Fishlake Nab | 3 | 13 | 1 | 6 | 153 |

13.6 Embedded Mitigation

13.6.1 The Scheme has been designed, as far as practicable, to avoid and reduce impacts and effects on Transport and Access through the process of design

development, and by embedding measures into the Scheme design. In addition, how the Scheme is constructed, operated and maintained, and decommissioned would be appropriately controlled to manage and minimise potential environmental effects (required as a result of legislative requirements and/or standard sectoral practices).

- 13.6.2 The delivery of these embedded mitigation measures is secured through the detailed Construction Environmental Management Plan (CEMP), detailed Operational Environmental Management Plan (OEMP) and detailed Decommissioning Environmental Management Plan (DEMP) via Requirements in the DCO. A **Framework CEMP [EN010152/APP/7.7]**, **Framework OEMP [EN010152/APP/7.8]** and **Framework DEMP [EN010152/APP/7.9]** have been prepared and submitted as part of the DCO Application.
- 13.6.3 Embedded measures are taken into account before the assessment of effects to avoid considering assessment scenarios that are unrealistic in practice i.e. effects do not take account of measures even though they are likely to be standard practice and/or form part of the Scheme design. These have been followed through into the assessment to ensure that realistic likely environmental effects have been identified.

Measures Embedded into the Scheme Design

- 13.6.4 The specific measures embedded into the Scheme design are set out below with respect to the construction/decommissioning phases and operation and maintenance phases respectively.
- 13.6.5 A **Framework CTMP [EN010152/APP/7.17]**, forming part of the DCO Application, sets out the routes that HGVs would adhere to when accessing the Order limits and measures to improve the sustainability of worker travel, along with other measures to minimise transport effects from construction traffic.

Construction and Decommissioning Phase

- 13.6.6 During both the construction and decommissioning phases, detailed CTMP and Decommissioning Traffic Management Plan (DTMP) would be developed and implemented to ensure the safe management of traffic in each phase. These documents will contain the required embedded mitigation for each phase, including:
- Suitable access points to enable movement of vehicles into the Order limits, where appropriate;
 - All access points that require the creation of a junction bellmouth would be designed based on the relevant standard from the Design Manual for Roads and Bridges (DMRB) CD 123 Geometric Design of at Grade Priority and Signal-Controlled Junctions and in consultation with the local highway authority, thereby negating any potential safety impact associated with construction activity. Further details on access designs are provided within the **Framework CTMP [EN010152/APP/7.17]**.
 - Swept path analysis for AILs, HGVs, and tractor/trailers has been conducted to ensure there is knowledge of where routing is appropriate. This information has been compiled within the **Framework CTMP [EN010152/APP/7.17]**.

- d. HGVs and AILs will be routed in accordance with the findings of the routing review for large vehicles as set out in the **Framework CTMP [EN010152/APP/7.17]**. There are expected to be 10 two-way movements associated with the delivery of transformers to the On-Site Substation;
- e. Utilising internal routes within the Solar PV Site to avoid using the existing road network where practicable;
- f. Managing the areas where traffic may have to use the road network, by providing appropriate visibility splays between construction vehicles and other road users, implementing traffic management (e.g. advanced signage to advise other users of the works, as well as manned controls at each crossing point (marshals/banksmen)), with a default priority that construction traffic will give-way to other users. This will also apply where construction traffic and PRoW may intersect;
- g. Restricting HGV movements to certain routes as follows: Moss Road – SRN, A19;
- h. Route a proportion of inbound staff vehicles via Fenwick Common Lane/Haggs Lane to reduce traffic through Moss during the morning peak;
- i. Restricting HGV movements to ensure arrivals/departures between 09:00 and 17:00 to avoid increasing traffic levels on the surrounding highway network during the typical weekday peak hours;
- j. Implementing a Delivery Management System to control the bookings of HGV deliveries from the start of the construction phase. This will be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance with HGV routing. In addition, adequate space will be made available within the Solar PV Site to ensure no queuing back onto the surrounding road network occurs;
- k. Implementing a monitoring system to record the route of all HGVs travelling to and from the Scheme, to record any non-compliance with the agreed routing strategy/delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes and times are followed;
- l. Construction staff (e.g. non-HGV vehicles) will be directed to take the most direct route to the Scheme using 'higher' order roads, such as A and B classified roads or the SRN;
- m. Encouraging local construction workers to car share to reduce single occupancy car trips. This will promote the benefits of car sharing, such as reduced fuel costs. A car share system will be implemented to match potential sharers and to help staff identify any colleagues who could potentially be collected along their route to/from the Scheme;
- n. Implementing a shuttle bus service to transfer non-local workers to/from local worker accommodation or pick-up locations (assumed minibus capacity of 25), to reduce vehicle trips on the surrounding highway network;
- o. Providing limited (but sufficient) on-site car and cycle parking to accommodate the expected parking demand of workers for the Scheme; and

- p. A specialised haulage service will be employed to allow AILs to transport components with the necessary escort, permits and traffic management, with the contractor consulting the relevant highways authorities to ensure the correct permits are obtained. The police will also be given advanced notification under the Road Vehicle Authorisation of Special Types Order 2003 (Ref. 13-12).
- q. The Grid Connection Cables would be buried below ground and would typically be installed using an open trench method. At this stage, ten potential Horizontal Directional Drilling (HDD) locations have been identified. The precise locations of the HDD crossing points within the Order limits will be determined at the detailed design stage post-consent, however, indicative locations are illustrated in **ES Volume II Figure 2-4: Location of Temporary Construction Compounds and Indicative HDD Areas [EN010152/APP/6.2]**. The Grid Connection Corridor will also cross the Network Rail freight line near Thorpe Marsh, also using HDD.

Operation and Maintenance Phase

13.6.7 During the operation and maintenance phase, the following embedded design mitigation measures are proposed:

- a. Operation and maintenance staff will be encouraged to take the most direct route to the Scheme using 'higher' order roads, such as A and B classified roads or the SRN;
- b. HGV movements are anticipated to be low across the 40-year operation and maintenance phase, but when required HGV movements will be restricted to certain times of day (between 09:00 and 17:00) and restricted to the SRN and other 'higher' order roads where applicable (M62, M18, M180, A19);
- c. Ensuring operation and maintenance staff park within the Solar PV Site during operation and maintenance to limit impact on parking available within the local road network;
- d. Providing sufficient protection/separation between existing PRow and the Scheme infrastructure (Solar PV Panels, BESS Area and the On-Site Substation) where necessary using perimeter fencing installed at a minimum distance of 20 m on either side of the centre of the PRow where solar infrastructure lies to both sides or 15 m if solar infrastructure is to one side only;
- e. Main operational access to the Solar PV Site will be via Lawn Lane; and
- f. Emergency access to the BESS Area and the On-Site Substation will be provided via Fenwick Common Lane/Haggs Lane and from Moss Road.

13.7 Assessment of Likely Impacts and Effects

13.7.1 This section sets out the likely impacts and effects of the Scheme on Transport and Access, taking account of the embedded mitigation measures as detailed in Section 13.6.

Construction Effects

- 13.7.2 The traffic impact methodology for the construction phase is set out in full within the **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]**. The numbers of vehicles expected to travel to and from the Order limits during this phase have been provided by the Applicant.
- 13.7.3 The peak construction traffic generated by the Scheme is anticipated to be between Months 1 to 12 and is summarised below:
- a. 280 daily two-way construction worker vehicle movements, including:
 - i. 248 private worker vehicles (two-way) – 124 arriving in the AM and 124 departing in the PM;
 - ii. 32 minibuses (two-way) – 8 arriving and 8 departing in the AM (16 two-way) and 8 arriving and 8 departing in the PM (16 two-way);
 - b. 36 two-way HGV movements (18 in and 18 out) are anticipated to be travelling to and from the Order limits daily during this period.
- 13.7.4 Should concrete blocks be required to be installed in areas of archaeological mitigation, the delivery of these concrete blocks would require approximately 1 HGV per day (2 two-way HGV movements) as a worst-case scenario based on the **Draft Archaeological Mitigation Strategy [EN010152/APP/7.19]**, although it is likely that the analysis of trial trenching results will reduce the extent of areas requiring concrete blocks for the Solar PV Panels, and fewer deliveries will be required. Therefore, it has been assumed that the peak HGV count assumption of 36 two-way movements does not need changing to account for the delivery of concrete blocks foundations.
- 13.7.5 The assessment has been conducted based on flows recorded across the ATC network throughout construction occurring from Months 1 to 12. Month 6 of the construction could occur as early as 2028.
- 13.7.6 Traffic will be distributed across the Grid Connection Corridor and the Solar PV Site during the construction programme as set out in Table 16 of the **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3]**. HGVs and tractor/trailers will move around the Order limits along set routes, and construction workers are expected to travel to the varying construction compounds taking the fastest route possible to them.
- 13.7.7 Access to the Solar PV Site will be taken from either Fenwick Common Lane/Haggs Lane (Access Point 4) or from Moss Road (east of Moss Village) (Access Point 1). Fenwick Common Lane/Haggs Lane will only be used for a proportion of inbound car/minibus movements (e.g. one-way traffic movement). Access to the Solar PV Site via West Lane will be for emergency use only.
- 13.7.8 Further details of access points, including the location of the access point references are provided in **ES Volume II Figure 2-4: Location of Temporary Construction Compounds and Indicative HDD Areas [EN010152/APP/6.2]**.
- 13.7.9 The access proposals are described further below:
- a. Staff vehicle movements

- i. 75% of all staff movements enter via Fenwick Common Lane/Haggs Lane access
 - ii. 25% of all staff movements enter via Moss Road access
 - iii. 100% of all staff movements exit via Moss Road access
- b. HGV movements
 - i. 100% of all HGV movements will enter/exit via Moss Road access

13.7.10 The access arrangements to the Grid Connection Corridor are as follows:

- a. Staff and HGV vehicle movements:
 - i. 100% of all staff and HGV movements will enter/exit via Trumfleet Lane (South of Moss)/Marsh Road/Thorpe Bank.

13.7.11 The proposed increase in two-way vehicle movements during the construction weekday peak hours, and across the day (24 hours), both in terms of actual increases and percentage increase relative to the future baseline traffic flows are presented in the tables below at each link location.

13.7.12 Table 13-18 provides an overview of the total percentage increase for total vehicles on each of the links associated with the scheme during the peak construction year (2028).

Table 13-18: 2028 Future Year Flows Peak of Construction AM, PM and AADT (Two-Way Flows)

| ATC Link | | AM Dev Peak (06:00-07:00) | | | | PM Dev Peak (19:00-20:00) | | | | 24 Hour AADT | | | |
|----------|--|---------------------------|-----|-------|---------------|---------------------------|-----|-------|--------------|--------------|-----|--------|-------|
| | | Base | Dev | Total | %Inc | Base | Dev | Total | %Inc | Base | Dev | Total | %Inc |
| 1 | M62 West of J34 | 2,907 | 44 | 2,951 | 1.5% | 2,104 | 44 | 2,148 | 2.1% | 62,668 | 96 | 62,764 | 0.2% |
| 2 | M62 between J34 and J35 | 2,742 | 0 | 2,742 | 0.0% | 1,736 | 0 | 1,736 | 0.0% | 54,294 | 27 | 54,321 | 0.0% |
| 3 | M62 East of J35 | 2,177 | 5 | 2,182 | 0.2% | 1,485 | 5 | 1,490 | 0.3% | 45,198 | 19 | 45,217 | 0.0% |
| 4 | M18 between M62 J35 and M18 J6 | 2,448 | 5 | 2,453 | 0.2% | 1,654 | 5 | 1,660 | 0.3% | 49,177 | 28 | 49,205 | 0.1% |
| 5 | M180 | 1,887 | 3 | 1,890 | 0.2% | 1,375 | 3 | 1,378 | 0.2% | 42,118 | 15 | 42,133 | 0.0% |
| 6 | M18 between M18 J4 and J5 | 2,546 | 0 | 2,546 | 0.0% | 2,015 | 0 | 2,015 | 0.0% | 58,842 | 9 | 58,851 | 0.0% |
| 7 | A19 Selby Road – South of Station Road A19 | 464 | 53 | 517 | 11.3% | 345 | 53 | 397 | 15.3% | 9,712 | 105 | 9,817 | 1.1% |
| 8 | A19 Selby Road North of Station Road A19 | 527 | 63 | 591 | 12.0% | 587 | 63 | 650 | 10.8% | 14,538 | 162 | 14,700 | 1.1% |
| 9 | Moss Road – Askern Village | 162 | 108 | 270 | 66.5% | 223 | 108 | 331 | 48.3% | 5,402 | 251 | 5,654 | 4.6% |
| 10 | Moss Road – East of Askern | 111 | 108 | 219 | 96.9% | 138 | 108 | 246 | 78.0% | 3,478 | 251 | 3,730 | 7.2% |
| 11 | Fenwick Common Lane | 12 | 92 | 104 | 763.1% | 24 | 6 | 30 | 25.4% | 383 | 98 | 480 | 25.5% |

| ATC Link | AM Dev Peak (06:00-07:00) | | | | PM Dev Peak (19:00-20:00) | | | | 24 Hour AADT | | | |
|---------------------------------------|---------------------------|-----|-------|--------------|---------------------------|-----|-------|--------------|--------------|-----|-------|------|
| | Base | Dev | Total | %Inc | Base | Dev | Total | %Inc | Base | Dev | Total | %Inc |
| 12 Trumfleet Lane – South of Moss | 29 | 20 | 50 | 69.2% | 27 | 20 | 48 | 74.6% | 1,098 | 47 | 1,144 | 4.3% |
| 13 Marsh Road | 41 | 20 | 62 | 49.3% | 28 | 20 | 48 | 73.6% | 1,306 | 47 | 1,353 | 3.6% |
| 14 Thorpe Bank | 54 | 20 | 74 | 37.8% | 35 | 20 | 55 | 58.2% | 1,811 | 47 | 1,857 | 2.6% |
| 15 Fordstead Lane West | 169 | 0 | 169 | 0.0% | 162 | 0 | 162 | 0.0% | 5,558 | 0 | 5,558 | 0.0% |
| 16 Fordstead Lane East | 125 | 14 | 139 | 11.5% | 148 | 14 | 162 | 9.7% | 5,011 | 29 | 5,039 | 0.6% |
| 17 Moss Road – East of Moss | 74 | 10 | 84 | 13.5% | 81 | 10 | 91 | 12.4% | 2,053 | 20 | 2,073 | 1.0% |
| 18 Kirkhouse Green Road | 65 | 10 | 75 | 15.5% | 69 | 10 | 79 | 14.5% | 1,764 | 20 | 1,784 | 1.1% |
| 19 West Lane – West of Sykehouse | 11 | 0 | 11 | 0.0% | 31 | 0 | 31 | 0.0% | 643 | 0 | 643 | 0.0% |
| 20 Sykehouse Road – East of Sykehouse | 8 | 0 | 8 | 0.0% | 14 | 0 | 14 | 0.0% | 482 | 0 | 482 | 0.0% |
| 21 A614 | 207 | 0 | 207 | 0.0% | 189 | 0 | 189 | 0.0% | 5,178 | 0 | 5,178 | 0.0% |
| 22 Sour Lane | 66 | 11 | 76 | 16.7% | 77 | 11 | 88 | 14.2% | 1,864 | 22 | 1,886 | 1.2% |
| 23 Fishlake Nab | 47 | 11 | 58 | 23.2% | 87 | 11 | 108 | 11.2% | 1,940 | 22 | 1,962 | 1.1% |

The numbers highlighted in **bold** represent where there is an increase in traffic of >30%.

13.7.13 The results in Table 13-18 indicate the following:

- a. The Scheme's peak hours of worker-generated traffic are between 06:00-07:00 and 19:00-20:00. This is when all construction workers are expected to arrive and leave the compounds. A total of 140 one-way movements will occur during each hour (e.g. this accounts for the arrival of vehicles in the AM hour and departure of vehicles in the PM hour);
- b. The Scheme is anticipated to have the largest proportional increase in traffic flows at ATC 11 (Fenwick Common Lane), with a 763.1% increase in traffic during the hours of 06:00-07:00 due to the very low baseline, as outlined in Section 13.7.16; and
- c. Moss Road is predicted to experience the highest level of additional traffic associated with the Scheme during the construction phase. In the AM (06:00-07:00), 108 construction worker vehicles, including minibuses and private worker cars, will travel along the road to arrive. In the PM (19:00-20:00), 108 construction worker vehicles will depart via Moss Road.

13.7.14 With reference to the IEMA Guidelines (Ref. 13-9) a two-rule approach can be used to assess the extent of any traffic assessment as follows:

- a. **Rule 1** – Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
- b. **Rule 2** – Include highway links of high sensitivity where traffic flows have increased by 10% or more.

13.7.15 Table 13-18 indicates that some of the links would experience an increase in traffic of more than 30% during a development peak hour which are highlighted in **bold**.

13.7.16 It should be noted that where there is an increase of more than 30%, the 2028 baseline hourly two-way traffic flows were very low (between 2023 and 2028 depending on the link and period). As per Table 13-3, to take account of this low baseline, the magnitude of impact has been lowered by one step so that the impact magnitude is therefore medium instead of high, which given the low baseline is considered to be an appropriate method. This methodology is based on professional judgement and is considered a reasonable approach with regard to the assessment of very low traffic routes.

13.7.17 Table 13-19 below shows the links where the peak flow is considered to be very low which for the purposes of this assessment is less than 150. This figure has been chosen based on professional judgement and experience of traffic flow capacity on specific road types.

Table 13-19: Links with Low AM and PM 2028 Base Flows

| ATC | Link Description | AM Dev Peak 06:00-07:00 | PM Dev Peak 19:00-20:00 |
|-----|--------------------------------|----------------------------|----------------------------|
| 10 | Moss Road – East of Askern | 111 | 138 |
| 11 | Fenwick Common Lane | 12 | 24 |
| 12 | Trumfleet Lane – South of Moss | 96 | 27 |

| ATC | Link Description | AM Dev Peak 06:00-07:00 | PM Dev Peak 19:00-20:00 |
|-----|------------------|----------------------------|----------------------------|
| 13 | Marsh Road | 123 | 28 |
| 14 | Thorpe Bank | 54 | 35 |

13.7.18 With the addition of construction traffic, this then results in a high percentage increase, particularly on Fenwick Common Lane (ATC 11) which is the link that will be used by 75% of workers to access the Solar PV Site. In addition, the hourly construction traffic numbers on ATC 9,10,11,12,13 and 14 are considered relatively small and it is expected there would be sufficient capacity on the road network to accommodate these additional trips.

13.7.19 During the construction phase the impact would be temporary and would be managed through the embedded mitigation measures (the construction trip generation already takes these into account) including a **Framework CTMP [EN010152/APP/7.17]** and the above impact represents the peak of the activity on the Order limits.

13.7.20 The following sections summarise the likely effects on receptors in terms of total construction traffic, severance, pedestrian amenity, fear and intimidation and highway safety.

13.7.21 Table 13-20 and Table 13-21 indicate the magnitude of impacts for the AM and PM respectively measured against the criteria set out within Table 13-3.

13.7.22 As noted, for the purposes of the assessment, professional judgement has been used to amend the 'High' magnitudes for road links to 'Medium' where baseline flows are low, and it is considered there is sufficient capacity on the road network to accommodate the trips generated by the Scheme. The basis of this assumption is detailed as part of Table 13-3.

13.7.23 For the purposes of the highway safety analysis, all links estimated to experience increases in total traffic flows above 30% have been analysed further on a case-by-case basis, based on the collision analysis, in the subsection Accidents and Safety below.

Table 13-20: Magnitude of Impact (Construction) – 2028 AM 06:00-07:00

| ATC Link | Sensitivity | All Traffic Increase % | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety |
|--|-------------|------------------------|----------------------|--------------------------|-------------|-----------------------|---|----------------------|
| 1 M62 West of J34 | Very Low | 1.5% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 2 M62 between J34 and J35 | Very Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 3 M62 East of J35 | Very Low | 0.2% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 4 M18 between M62 J35 and M18 J6 | Very Low | 0.2% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 5 M180 | Very Low | 0.2% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 6 M18 between M18 J4 and J5 | Very Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 7 A19 Selby Road – South of Station Road A19 | Medium | 11.3% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 8 A19 Selby Road North of Station Road A19 | Medium | 12.0% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 9 Moss Road – Askern Village | High | 66.5% | High | Medium | Low | Very Low | Medium | See Table 13-24 |
| 10 Moss Road – East of Askern | Medium | 96.9% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |

| ATC Link | Sensitivity | All Traffic Increase % | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety |
|---------------------------------------|-------------|------------------------|----------------------|--------------------------|-------------|-----------------------|---|----------------------|
| 11 Fenwick Common Lane | Medium | 763.1% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |
| 12 Trumfleet Lane – South of Moss | Medium | 69.2% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |
| 13 Marsh Road | Medium | 49.3% | Medium | Low | Low | Low | Low | See Table 13-24 |
| 14 Thorpe Bank | Medium | 37.8% | Medium | Low | Very Low | Low | Low | See Table 13-24 |
| 15 Fordstead Lane West | Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 16 Fordstead Lane East | Low | 11.5% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 17 Moss Road – East of Moss | Low | 13.5% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 18 Kirkhouse Green Road | Low | 15.5% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 19 West Lane – West of Sykehouse | Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 20 Sykehouse Road – East of Sykehouse | Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 21 A614 | Very Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 22 Sour Lane | Medium | 16.7% | Medium | Very Low | Very Low | Very Low | Very Low | Very Low |

| ATC Link | Sensitivity | All Traffic Increase % | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety |
|-----------------|-------------|------------------------|----------------------|--------------------------|-------------|-----------------------|---|----------------------|
| 23 Fishlake Nab | Medium | 23.2% | Medium | Very Low | Very Low | Very Low | Very Low | Very Low |

Table 13-21: Magnitude of Impact (Construction) – 2028 PM 19:00-20:00

| ATC Link | Sensitivity | All Traffic Increase % | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety |
|--|-------------|------------------------|----------------------|--------------------------|-------------|-----------------------|---|----------------------|
| 1 M62 West of J34 | Very Low | 2.1% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 2 M62 between J34 and J35 | Very Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 3 M62 East of J35 | Very Low | 0.3% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 4 M18 between M62 J35 and M18 J6 | Very Low | 0.3% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 5 M180 | Very Low | 0.2% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 6 M18 between M18 J4 and J5 | Very Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 7 A19 Selby Road – South of Station Road A19 | Medium | 15.3% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |

| ATC Link | Sensitivity | All Traffic Increase % | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety |
|--|-------------|------------------------|----------------------|--------------------------|-------------|-----------------------|---|----------------------|
| 8 A19 Selby Road North of Station Road A19 | Medium | 10.8% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 9 Moss Road – Askern Village | High | 48.3% | High | Low | Very Low | Low | Low | See Table 13-24 |
| 10 Moss Road – East of Askern | Medium | 78.0% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |
| 11 Fenwick Common Lane | Medium | 25.4% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |
| 12 Trumfleet Lane – South of Moss | Medium | 74.6% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |
| 13 Marsh Road | Medium | 73.6% | Medium | Medium | Medium | Medium | Medium | See Table 13-24 |
| 14 Thorpe Bank | Medium | 58.2% | Medium | Low | Low | Low | Low | See Table 13-24 |
| 15 Fordstead Lane West | Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 16 Fordstead Lane East | Low | 9.7% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 17 Moss Road – East of Moss | Low | 12.4% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |

| ATC Link | Sensitivity | All Traffic Increase % | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety |
|---------------------------------------|-------------|------------------------|----------------------|--------------------------|-------------|-----------------------|---|----------------------|
| 18 Kirkhouse Green Road | Low | 14.5% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 19 West Lane – West of Sykehouse | Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 20 Sykehouse Road – East of Sykehouse | Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 21 A614 | Very Low | 0.0% | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 22 Sour Lane | Medium | 14.2% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| 23 Fishlake Nab | Medium | 11.2% | Low | Very Low | Very Low | Very Low | Very Low | Very Low |

13.7.24 As shown in Table 13-20 and Table 13-21, a number of links would experience either a medium or high magnitude of impact within at least one of the assessment criteria, e.g.:

- a. Link 9: Moss Road – Askern Village;
- b. Link 10: Moss Road – East of Askern;
- c. Link 11: Fenwick Common Lane
- d. Link 12: Trumfleet Lane - South of Moss
- e. Link 13: Marsh Road;
- f. Link 14: Thorpe Bank;
- g. Link 22: Sour Lane; and
- h. Link 23: Fishlake Nab.

13.7.25 As noted above, links 10, 11, 12, 13 and 14 have been revised and lowered to one magnitude step below based on the low baseline flow. This methodology is based on professional judgement and is considered a reasonable approach with regard to the assessment of very low traffic routes.

13.7.26 The medium/high magnitude of effects is mostly related to the high percentage increase of vehicles, which is driven by the low baseline hourly traffic flows.

13.7.27 With reference to Table 13-4 (significance of effects matrix) and based upon the above impact magnitudes and applied sensitivity of the transportation links, traffic and transportation-related significance of effects are detailed in Table 13-22 ~~Table 13-22~~ and Table 13-23 ~~Table 13-23~~ during the peak construction year (2028) within the AM and PM peak respectively.

Table 13-22: Summary of the Assessment (Significance of Effect) – 2028 + Construction AM (06:00-07:00)

| ATC Link | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety | Overall Significance |
|--|------------------------------|------------------------------|------------------------------|------------------------------|---|------------------------------|----------------------|
| 1 M62 West of J34 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 2 M62 between J34 and J35 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 3 M62 East of J35 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 4 M18 between M62 J35 and M18 J6 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 5 M180 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 6 M18 between M18 J4 and J5 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 7 A19 Selby Road – South of Station Road A19 | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 8 A19 Selby Road North of Station Road A19 | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 9 Moss Road – Askern Village | Major– Significant | Major– Significant | Moderate– Significant | Minor – Not Significant | Major– Significant | See Table 13-24 | Significant |

| ATC Link | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety | Overall Significance |
|-----------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---|------------------------------|----------------------|
| 10 Moss Road – East of Askern | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 11 Fenwick Common Lane | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 12 Trumfleet Lane – South of Moss | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 13 Marsh Road | Moderate – Significant | Minor – Not Significant | Minor – Not Significant | Minor – Not Significant | Minor – Not Significant | See Table 13-24 | Significant |
| 14 Thorpe Bank | Moderate – Significant | Minor – Not Significant | Negligible – Not Significant | Minor – Not Significant | Minor – Not Significant | See Table 13-24 | Significant |
| 15 Fordstead Lane West | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 16 Fordstead Lane East | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 17 Moss Road – East of Moss | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 18 Kirkhouse Green Road | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |

| ATC Link | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety | Overall Significance |
|---------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---|------------------------------|----------------------|
| 19 West Lane – West of Sykehouse | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 20 Sykehouse Road – East of Sykehouse | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 21 A614 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 22 Sour Lane | Moderate – Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 23 Fishlake Nab | Moderate – Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |

Table 13-23: Summary of the Assessment (Significance of Effect) – 2028 + Construction PM (19:00-20:00)

| ATC Link | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety | Overall Significance |
|--|------------------------------|------------------------------|------------------------------|------------------------------|---|------------------------------|----------------------|
| 1 M62 West of J34 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 2 M62 between J34 and J35 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 3 M62 East of J35 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 4 M18 between M62 J35 and M18 J6 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 5 M180 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 6 M18 between M18 J4 and J5 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 7 A19 Selby Road – South of Station Road A19 | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 8 A19 Selby Road North of Station Road A19 | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 9 Moss Road – Askern Village | Major– Significant | Moderate – Significant | Minor – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |

| ATC Link | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety | Overall Significance |
|-----------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---|------------------------------|----------------------|
| 10 Moss Road – East of Askern | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 11 Fenwick Common Lane | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 12 Trumfleet Lane – South of Moss | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 13 Marsh Road | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | Moderate – Significant | See Table 13-24 | Significant |
| 14 Thorpe Bank | Moderate – Significant | Minor – Not Significant | Minor – Not Significant | Minor – Not Significant | Minor – Not Significant | See Table 13-24 | Significant |
| 15 Fordstead Lane West | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 16 Fordstead Lane East | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 17 Moss Road – East of Moss | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 18 Kirkhouse Green Road | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |

| ATC Link | Construction Traffic | Severance of Communities | NMU Amenity | Fear and Intimidation | Road Vehicle Driver and Passenger Delay | Accidents and Safety | Overall Significance |
|---------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---|------------------------------|----------------------|
| 19 West Lane – West of Sykehouse | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 20 Sykehouse Road – East of Sykehouse | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 21 A614 | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 22 Sour Lane | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |
| 23 Fishlake Nab | Minor – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Negligible – Not Significant | Not Significant |

13.7.28 As shown in ~~Table 13-22~~ ~~Table 13-22~~ and ~~Table 13-23~~ ~~Table 13-23~~ a number of links have the potential to experience a significant effect within at least one of the assessment criteria, for example:

- a. Link 9: Moss Road - Askern Village;
- b. Link 10: Moss Road - East of Askern;
- c. Link 11: Fenwick Common Lane;
- d. Link 12: Trumfleet Lane - South of Moss;
- e. Link 13: Marsh Road; and
- f. Link 14: Thorpe Bank.

Accidents and Safety

13.7.29 Road links 9,10, 11, 12, 13 and 14 have been considered further in terms of accidents and safety, due to a 30% or higher increase in total traffic along the network, as stated within Table 13-3.

13.7.30 The data for each of these locations is set out in Section 13.5. The analysis of collision data does not suggest a pattern of safety issues that could be aggravated by the construction of the Scheme.

13.7.31 Based on this assumption, the road links with traffic increases of greater than 30% have been given a magnitude rating of Very Low, as shown in Table 13-24.

Table 13-24: Accidents and Safety magnitude on Links with Traffic Increases Greater than 30%

| ATC | Link Description | Accidents and Safety Criteria Magnitude |
|-----|--------------------------------|---|
| 9 | Moss Road - Askern Village | Very Low |
| 10 | Moss Road - East of Askern | Very Low |
| 11 | Fenwick Common Lane | Very Low |
| 12 | Trumfleet Lane - South of Moss | Very Low |
| 13 | Marsh Road | Very Low |
| 14 | Thorpe Bank | Very Low |

13.7.32 Throughout the construction phase, measures delivered (including those in the **Framework CTMP [EN010152/APP/7.17]**) would be focused on reducing traffic impacts in these areas where needed.

Operation and Maintenance Effects

13.7.33 During operation and maintenance, activity on the Solar PV Site would be restricted principally to vegetation management, equipment maintenance and servicing, ad hoc replacement of any components that fail or reach the end of their lifespan, periodic fence inspection, monitoring to ensure the continued effective operation and maintenance of the Scheme and other ancillary activities.

- 13.7.34 Along the route of the Grid Connection Cables, operation and maintenance activity would consist of routine inspections and any reactive maintenance such as where a cable has been damaged.
- 13.7.35 There should be no requirement for regular HGV movements during the operation and maintenance of the Scheme. Limited use of HGVs will be required for the replacement of batteries, inverters and transformers associated with the Field Stations and the BESS Containers. It has been assumed that during the replacement activity up to five pieces of equipment will be replaced per day (equating to 10 two-way HGV movements) over a period of several months, every ten years during operation.
- 13.7.36 ALL movements during the operation and maintenance phase are not anticipated due to the delivery of spare transformer phases during construction.
- 13.7.37 It is anticipated there would be up to two permanent staff on-site at any one time during the operation and maintenance phase, based at the Operations and Maintenance Hub. Additional staffing/visitors, such as maintenance workers and deliveries, would be ad hoc as needed. It is assumed this would equate to an average of four additional workers per month.
- 13.7.38 It is anticipated that any components which are removed (replaced), other than larger equipment such as batteries and inverters, would be transported to the Scheme's storage facilities in the existing barn in Field NW08 (by transit van or similar LGV). Once a sufficient volume of waste has been accumulated to make a 'load' for transport offsite, it is anticipated that these movements would also be undertaken by LGV (not by HGV).
- 13.7.39 Currently existing field accesses are proposed for the operational access where this is practicable and would reuse construction accesses. Main operational access to the Solar PV Site will be via Lawn Lane, while the access to the BESS Area and the On-Site Substation will be from Moss Road. Emergency access to the BESS Area and the On-Site Substation will be provided via Fenwick Common Lane/Haggs Lane and from Moss Road; at the Fenwick Common Lane/Haggs Lane access point emergency vehicles will be able to enter the Solar PV Site however all egress would be via Moss Road. Access to the Solar PV Site off West Lane will be for emergency use only. **ES Volume II Figure 2-3: Indicative Site Layout Plan [EN010152/APP/6.2]** illustrates the existing and proposed accesses.
- 13.7.40 These low levels of operation and maintenance traffic would remain for the operational lifetime of the Scheme and therefore the predicted impacts would not be influenced by the operation and maintenance phase being extended beyond 2070 (i.e. the predicted start of decommissioning).
- 13.7.41 The impact of additional development-generated traffic on the surrounding road network during the construction and decommissioning phases is anticipated to be the most significant stage of the Scheme, with the operation and maintenance phase anticipated to create much less traffic.
- 13.7.42 Therefore, as predicted traffic levels owing to the operation and maintenance phase are minimal, operation and maintenance effects are therefore expected to be negligible.

Decommissioning Effects

- 13.7.43 For the purposes of the EIA, the decommissioning assessment year is assumed to be 2070 or later, as described in **ES Volume I Chapter 5: Environmental Impact Assessment Methodology [EN010152/APP/6.1]**. The decommissioning period is expected to be similar in duration and nature to the construction phase and could be phased. It is expected that fewer road trips will be required, particularly if cables are left in situ which will be determined in accordance with good industry practice at the time.
- 13.7.44 Therefore, as the decommissioning phase is planned to commence 40 years after final commissioning, leading to significant levels of uncertainty in forecasting traffic that far into the future and as it is likely to result in no more traffic than the construction phase, decommissioning is expected to lead to effects that are no worse than during construction. The decommissioning phase has therefore not been specifically quantified and the effects and mitigation for construction are considered applicable for decommissioning and represent a worst-case scenario.

Summary

- 13.7.45 A summary table of the assessment of effects for Transport and Access is provided in Table 13-25.

Table 13-25: Summary of Assessment of Effects – Transport and Access

| Phase | Potential Impacts | Duration | Embedded Mitigation | Likely Significance of Effect |
|---------------------|---|--|--|--|
| Construction | Construction traffic increase Moderate adverse at links 10, 11, 12, 13 and 14. Major adverse at 9. Negligible/minor adverse at all other links. | Short Term Temporary (construction phase only) | Embedded mitigation is described in Table 13-27. | Significant at links 9, 10, 11, 12, 13 and 14 Not Significant at all other locations |
| | Severance of communities Moderate adverse at links 10, 11, 12, and 13. Major adverse at 9. Negligible/minor adverse at all other links. | Short Term Temporary (construction phase only) | Embedded mitigation is described in Table 13-27. | Significant at links 9, 10, 11, 12 and 13. Not Significant at all other locations |
| | NMU Amenity Moderate adverse at links 9, 10, 11, 12, and 13. Negligible/minor adverse at all other links. | Short Term Temporary (construction phase only) | Embedded mitigation is described in Table 13-27. | Significant at links 9, 10, 11, 12 and 13. Not Significant at all other locations |
| | Fear and Intimidation Moderate adverse at links 9, 10, 11, 12 and 13. Negligible/minor adverse at all other links. | Short Term Temporary (construction phase only) | Embedded mitigation is described in Table 13-27. | Significant at links 9, 10, 11, 12 and 13. Not Significant at all other locations |

| Phase | Potential Impacts | Duration | Embedded Mitigation | Likely Significance of Effect |
|----------------------------------|---|--|--|---|
| | Road vehicle driver and passenger delay Moderate adverse at links 10,11,12 and 13. Major adverse at 9. Negligible/minor adverse at all other links. | Short Term Temporary (construction phase only) | Embedded mitigation is described in Table 13-27. | Significant at links 9, 10, 11, 12 and 13. Not Significant at all other locations |
| | Road user and pedestrian safety Negligible/minor adverse at other links. | Short Term Temporary (construction phase only) | Embedded mitigation is described in Table 13-27. | Not Significant all locations |
| Operation and Maintenance | The traffic levels associated with the operation and maintenance phase of the Scheme will be low. Operation and maintenance effects are therefore expected to be negligible. | | | |
| Decommissioning | As the decommissioning phase is planned to commence 40 years after final commissioning and is expected to result in similar traffic than the construction phase (and over a shorter period), decommissioning is expected to lead to effects that are no worse than during construction. The decommissioning phase has therefore not been specifically modelled and the effects and mitigation for construction are considered applicable for decommissioning and represent the worst-case scenario. | | | |

13.8 Additional Mitigation and Enhancement Measures

13.8.1 Additional mitigation measures would only be required where significant effects are identified following the application of embedded mitigation measures. Significant impacts have been identified at several links during the construction (and decommissioning) phase. However, as all mitigation is embedded within the Scheme design in relation to transport and access, it is not considered that further mitigation measures can be implemented. All measures to address the significant effects on the highway are incorporated within the **Framework CTMP [EN010152/APP/7.17]**.

13.9 Residual Effects

13.9.1 This section summarises the residual effects of the Scheme on Transport and Access following the implementation of embedded and additional mitigation.

Construction and Decommissioning Phase

13.9.2 Based on the outcome of the assessments there could still be potentially significant adverse effects at links 9, 10, 11, 12, 13 and 14. These significant effects are generally driven by low baseline traffic movements experienced at these links such that the relatively low number of additional traffic movements as a consequence of the Scheme results in high percentage increases in traffic.

13.9.3 Throughout a 24-hour period, during construction (and decommissioning), it is anticipated that the links will experience the following increases in total traffic, set out in Table 13-26.

Table 13-26: 24-hour Period Traffic Increases by Link (2028)

| ATC | Link Description | Base | Development | Total | % Increase |
|-----|--------------------------------|-------|-------------|-------|------------|
| 9 | Moss Road - Askern Village | 5,402 | 251 | 5,654 | 4.6% |
| 10 | Moss Road - East of Askern | 3,478 | 251 | 3,730 | 7.2% |
| 11 | Fenwick Common Lane | 383 | 98 | 480 | 25.5% |
| 12 | Trumfleet Lane - South of Moss | 1,098 | 47 | 1,144 | 4.3% |
| 13 | Marsh Road | 1,306 | 47 | 1,353 | 3.6% |
| 14 | Thorpe Bank | 1,811 | 47 | 1,857 | 2.6% |

13.9.4 This indicates that the overall magnitude of impact (based on the magnitude of impact criteria information in Table 13-3) on the road network will be low at all link locations, aside from Link 11, during the hours of 07:00-19:00.

Operation and Maintenance Phase

- 13.9.5 Operational traffic numbers will be significantly lower than construction or decommissioning phases. Operational effects are therefore expected to be negligible and not significant.

Summary

Table 13-27 and

- 13.9.6 Table 13-28~~Table 13-28~~ provide a summary of the residual effects in relation to transport and access.

Table 13-27: Residual Effects – Transport and Access (Construction and Decommissioning Phase)

| Receptor | Description of Impacts Including Duration | Embedded Mitigation | Significance of Effect with Embedded Mitigation | Additional Mitigation/Enhancement Measures | Residual Effect |
|-----------------|---|--|---|---|---|
| Road links | Increase in construction and decommissioning phase traffic (medium-term, temporary) | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP [EN010152/APP/7.7] , Framework DEMP [EN010152/APP/7.9] ; access points to the Order limits | <p>Major Adverse (Link 9) – Significant</p> <p>Moderate adverse at links 10 11, 12, 13 and 14 – Significant</p> <p>Negligible/Minor Adverse (All other links) – Not Significant</p> | None identified. | <p>Major Adverse (Link 9) – Significant</p> <p>Moderate adverse at links 10 11,12,13 and 14 – Significant</p> <p>Negligible/Minor Adverse (All other links) – Not Significant</p> |
| Road links | Increase in construction and decommissioning phase HGV traffic (medium-term, temporary) | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP [EN010152/APP/7.7] , Framework DEMP [EN010152/APP/7.9] ; access points to the Order limits | Negligible-Minor Adverse – Not Significant | None identified. | Negligible-Minor Adverse – Not Significant |

| Receptor | Description of Impacts Including Duration | Embedded Mitigation | Significance of Effect with Embedded Mitigation | Additional Mitigation/Enhancement Measures | Residual Effect |
|------------|---|--|---|--|---|
| Road links | Severance during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP [EN010152/APP/7.7] , Framework DEMP [EN010152/APP/7.9] ; access points to the Order limits | <p>Major Adverse (Link 9) – Significant</p> <p>Moderate adverse at links 10,11,12, and 13 – Significant</p> <p>Negligible/Minor Adverse (All other links) – Not Significant</p> | None identified. | <p>Major Adverse (Link 9) – Significant</p> <p>Moderate adverse at links 10,11,12, and 13 – Significant</p> <p>Negligible/Minor Adverse (All other links) – Not Significant</p> |
| Road links | Driver delay during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP [EN010152/APP/7.7] , Framework DEMP [EN010152/APP/7.9] ; access points to the Order limits | <p>Major Adverse (Link 9) – Significant</p> <p>Moderate adverse at links 10,11,12 and 13 – Significant</p> <p>Negligible/Minor Adverse (All other</p> | None identified | <p>Major Adverse (Link 9) – Significant</p> <p>Moderate adverse at links 10,11,12 and 13 – Significant</p> <p>Negligible/Minor Adverse (All other</p> |

| Receptor | Description of Impacts Including Duration | Embedded Mitigation | Significance of Effect with Embedded Mitigation | Additional Mitigation/Enhancement Measures | Residual Effect |
|---------------------------------------|--|--|---|--|---|
| | | | links) – Not Significant | | links) – Not Significant |
| Pedestrians, equestrians and cyclists | NMU amenities during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP [EN010152/APP/7.7] , Framework DEMP [EN010152/APP/7.9] ; access points to the Order limits | Moderate adverse at links 9,10,11,12, and 13 – Significant Negligible-Minor Adverse (All other links) – Not Significant | None identified. | Moderate adverse at links 9,10,11,12, and 13 – Significant Negligible-Minor Adverse – Not Significant |
| Pedestrians, equestrians and cyclists | Fear and intimidation during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP [EN010152/APP/7.7] , Framework DEMP [EN010152/APP/7.9] ; access points to the Order limits | Moderate Adverse (Link 9, 10, 11, 12 and 13) – Significant Negligible/Minor Adverse (All other links) – Not Significant | None identified. | Moderate Adverse (Link 9, 10, 11, 12 and 13) – Significant Negligible/Minor Adverse (All other links) – Not Significant |
| Road users | Road safety during construction and decommissioning | Various traffic management measures to be implemented by Framework CTMP [EN010152/APP/7.17] , Framework CEMP | Negligible-Minor Adverse – Not Significant | None identified. | Negligible-Minor Adverse – Not Significant |

| Receptor | Description of Impacts Including Duration | Embedded Mitigation | Significance of Effect with Embedded Mitigation | Additional Mitigation/Enhancement Measures | Residual Effect |
|----------|---|--|---|--|-----------------|
| | (medium-term, temporary) | [EN010152/APP/7.7], Framework DEMP [EN010152/APP/7.9]; access points to the Order limits | | | |

Table 13-28: Residual Effects – Transport and Access (Operation and Maintenance Phase)

| Receptor | Description of Impacts Including Duration | Embedded Mitigation | Significance of Effect with Embedded Mitigation | Additional Mitigation/Enhancement Measures | Residual Effect |
|-----------------|---|--|--|---|------------------------------|
| Road links | Increase in construction and decommissioning phase traffic (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |
| Road links | Increase in construction and decommissioning phase HGV traffic (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |
| Road links | Severance during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |
| Road links | Driver delay during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |

| Receptor | Description of Impacts Including Duration | Embedded Mitigation | Significance of Effect with Embedded Mitigation | Additional Mitigation/Enhancement Measures | Residual Effect |
|---------------------------------------|--|--|--|---|------------------------------|
| Pedestrians, equestrians and cyclists | NMU amenities during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |
| Pedestrians, equestrians and cyclists | Fear and intimidation during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |
| Road users | Road safety during construction and decommissioning (medium-term, temporary) | Various traffic management measures to be implemented by Framework OEMP; access points to the Order limits | Negligible – Not Significant | None identified. | Negligible – Not Significant |

13.10 Cumulative Effects

- 13.10.1 This section assesses the potential effects of the Scheme in combination with the potential effects of other proposed and committed plans and projects including other developments (referred to as 'cumulative developments') within the surrounding area.
- 13.10.2 The cumulative developments (some of which are not consented) to be considered in combination with the Scheme have been agreed in consultation with City of Doncaster Council and are listed in **ES Volume I Chapter 15: Cumulative Effects and Interactions [EN010152/APP/6.1]** and presented in **ES Volume II Figure 15-3: Location of Short List Schemes [EN010152/APP/6.2]**. The assessment has been made with reference to the methodology and guidance set out in **ES Volume I Chapter 5: Environmental Impact Assessment Methodology [EN010152/APP/6.1]**.
- 13.10.3 This cumulative effect assessment identified, for each receptor, the areas where the predicted effects of the Scheme could interact with effects arising from other plans and/or projects on the same receptor based on a spatial and/or temporal basis.
- 13.10.4 As noted earlier in the chapter, the future traffic baselines predicted for the 2028 assessment period have also been already calculated using TEMPro growth factors, which include a forecast of local development growth and attempts to capture growth attributed to these other developments. Theoretically, the cumulative developments have therefore already been captured in the future baseline. This section considers each cumulative development individually to sense check this, and whether it is necessary to consider each in addition to the Scheme. This is likely to therefore overestimate the cumulative effects.
- 13.10.5 The cumulative developments are listed below in ~~Table 13-29~~[Table 13-29](#), along with a description of whether each needs to be included within the cumulative assessment of traffic and transport as set out within this chapter.

Table 13-29: Significant Cumulative Effects – Transport and Access (Construction Phase)

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|--|--|
| 21/02567/FULM | Installation of a 49.9 MW solar farm and battery storage facility with associated infrastructure on a 133.52 ha site. | Land At Warren Farm High Street Dunsville Doncaster DN7 4BX. Located along the A18 between Hatfield and Edenthorpe. | The construction routing as proposed within the cumulative development's CTMP indicates there will be no interaction within the Fenwick Solar Farm Study Area, with only the potential for interaction on the M18 mainline at Junction 4 for access to the site before utilising the local highway network to travel towards the site. In terms of access away from the development, the construction routing shows that HGVs will use the A18 to travel toward the M18 Junction 5 before utilising the mainline. The proposed HGV routing associated with the Scheme indicates that vehicles will travel via the M62 to the north of Fenwick, south down the A19 before |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|-------------------------------|---|---|--|
| | | | <p>heading east along Moss Road at Askern.</p> <p>In addition, this development is only proposed to generate a maximum of 18 daily two-way (9 in/9 out) HGV trips and up to a further 5 LGV visits a day (5 in/5 out), during the construction period of approximately 30 weeks, although no specific date is included within the information.</p> <p>As such based on the information provided above, no significant cumulative effects are expected.</p> |
| 22/01537/LBC and 22/01536/FUL | Demolition of Grade II listed 'Lily Hall' and erection of one replacement residential farmworker's dwelling and associated works. | <p>Riddings Farm Lawn Lane Fenwick Doncaster DN6 0 HB.</p> <p>Located off the eastern side of Lawn Lane to the north of the Order limits.</p> | The development at Lily Hall is associated with the demolition of an existing dwelling and the subsequent erection of a dwelling in the same location. As noted in the planning documents in terms of the highway |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|---|---|
| | | | response there is no requirement for a CTMP for the minor works of constructing one new dwelling in a semi-rural location. Given the scale of development and that no CTMP is required, the works are considered to only generate negligible amounts of daily traffic, and such is unlikely to cause a significant cumulative effect. It is further noted that the planning permission stipulates that the works at Lily Hall must be begun no later than November 2026 and therefore are unlikely to overlap with the Scheme's construction phase starting no earlier than 2028. |
| 23/01746/FULM | Installation of a 180 MW battery energy facility and association works on a 3.70 ha site. | Land At Fordstead Lane Almholme Doncaster DN5 0 LN. | For this development, the proposed access for HGVs and workers is via Fordstead Lane, before |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|------------------------------------|--|---|
| | | Located to the south of the Order limits near the village of Almholme. | <p>accessing the site to the east of Almholme.</p> <p>Based on the trip generation information presented in the Transport Statement produced in December 2023 by Local Transport Projects, during the construction phase of 18 months, the development is proposed to generate a maximum of 21 HGVs (10 in, 11 out) a day, based on an average 10 hour working day, which equates to around 2 HGVs per hour. In terms of workers accessing the site, there is predicted to be a maximum of 15 staff (worse case generation of 30 two-way trips).</p> <p>The construction traffic routing plan produced as part of the transport statement shows that HGVs will access the</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|------------------------------------|----------|--|
| | | | <p>local highway network via Junction 37 of the A1 to the west of Bentley before travelling along the A19 and then onto Fordstead Lane. Based on this there is predicted to be no interaction between the Battery Energy Storage and the Scheme in terms of HGVs as the Fenwick HGV trips will travel via the M62 to the north, and south down the A19 before heading east along Moss Road. As such there is zero interaction in terms of HGV traffic.</p> <p>Based on the proposed HGV vehicle routing, the trip generation within the transport statement, alongside that there are predicted to be no development trips (either workers or HGVs) associated with the Scheme passing along</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|--|---|
| | | | Forstead Lane West (through ATC 15), no significant cumulative effects are expected. |
| 19/03034/FULM | Excavation of approximately 4 million tonnes of by-product material comprising mostly silica sand and also soda lime glass and iron oxides (also known as burgy) from previous glass manufacturing and the reinstatement of the flood plain, creating new habitats. | <p>Land at Marsh Lane Barnby Dun Doncaster DN3 1 ET.</p> <p>Located to the south of the Order limits near the village of Almholme.</p> | <p>The proposed access for HGVs and workers is via Fordstead Lane, before accessing the development site to the east of Almholme.</p> <p>Based on the trip generation information presented in the Transport Statement produced in November 2019 by SWECO, the site will operate Monday to Friday between 08:00 and 17:00 generating 10 movements per hour (five arrivals and five departures). However, based on the response by the highway officer they would limit the trips to a maximum of 40 HGV movements per day (20 in and 20 out).</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|------------------------------------|----------|---|
| | | | <p>The construction traffic routing plan produced as part of the transport statement shows that HGVs will access the local highway network via Junction 36 of the A1 to the west of Doncaster before travelling along the A630, A638 and then onto Fordstead Lane via the A19 in Bentley.</p> <p>Based on this there is predicted to be no interaction between the excavation operations and the Scheme in terms of HGVs as the Fenwick Solar Farm HGV trips will travel via the M62 to the north, and south down the A19 before heading east along Moss Road.</p> <p>Based on the proposed HGV vehicle routing and the trip generation within the transport statement, there are predicted to be</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|---|---|
| | | | no development trips (either workers or HGVs) associated with the Scheme passing along Forstead Lane West (through ATC 15). Therefore, no significant cumulative effects are expected. |
| 20/01774/TIPA | The construction of an energy recovery facility involving the thermal treatment of residual waste and associated infrastructure including engineering, access, landscape, ground and landscaping works. | Land northwest of Sandall Stones Road Kirk Sandall Doncaster DN3 1 QR. Located within Kirk Sandall to the southeast of the Order limits. | The development is located within Kirk Sandall to the south of the Order limits. The Scheme will not result in a change to required staff numbers or the number of HGV movements compared to the consented development. The extant permission allows for up to 78 HGV trips (156 two-way) per 12-hour operating period. Moreover, in terms of light vehicle trips a maximum of 22 staff members will |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|------------------------------------|----------|---|
| | | | <p>be on site at any time and this will be during the day.</p> <p>Based on the HGV distribution presented within the traffic flow diagrams that accompany the transport assessment, HGVs will utilise the A630, the A18 and Barnby Dun Road. Based on this there will be no interaction between the HGV distribution associated with the Scheme and this application.</p> <p>Based on the proposed HGV vehicle routing, it is therefore expected that no vehicle movements associated with the energy recovery facility will pass through the Fenwick Study Area, as such no significant cumulative effects are expected.</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|---|---|
| 23/01082/SCRE | Request for a screening opinion in relation to a joint solar farm and energy storage development on approximately 61.7ha located off The Balk, Almholme, Doncaster. | <p>Land Off The Balk Almholme Doncaster DN5 0 LL.</p> <p>Located to the south of the Order limits near the village of Shaftholme along Shaftholme Lane.</p> | <p>As this is only a screening opinion, the traffic and transport details related to construction and operation are not yet included, however, it is stated a Transport Assessment and CTMP would be included within the planning application. However, given the location, there is likely not to be interaction in terms of HGVs given that as part of the Scheme HGVs will utilise a separate route and as such there will be no crossover on the local highway network.</p> <p>As noted in the screening opinion, given the nature of the Scheme as a solar farm and BESS facility, no permanent employees would be required at the site and there would be no regular operational traffic. As such it is</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|--|---|---|
| | | | unlikely any significant cumulative effects will be expected. |
| 22/02088/FULM | The installation of a 2.5 MW solar PV array, 0.9 MW green hydrogen plant and associated landscaping. | <p>Croft Farm Askern Road Carcroft Doncaster DN6 8 DE.</p> <p>Located to the southwest of the Order limits within Adwick le Street near Carcroft.</p> | <p>The access point for the installation of the solar development at Croft farm is located approximately 3.1 km to the south of the main access point associated with the Scheme. As such there is the potential for a cumulative impact around this area in terms of workers arriving to the site.</p> <p>Although there is the potential for some overlap (only in terms of workers trips) the development construction vehicle numbers are expected to be very low, with 5 vans on site per day during installation with sporadic HGV trips within the 3-4 month construction programme.</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|--|---|
| | | | Based on this information there are unlikely to be any significant cumulative effects given the location, length of construction and the predicted trip generation. |
| 08/01077/OUTA | Outline application for 220 dwellings, as well as Class A1 use, Class A3 use, Class A4 use, Class B1(c) use, Class B2 use and setting out of Public Open Space. | Land at and to the south of Askern Saw Mill. | The site is located approximately 2.9 km from the Order limits. As this is an outline planning application, the construction management plan does not include any specific transport or traffic details in terms of the number of trips that will be generated. Therefore, the cumulative effects cannot be determined. |
| 23/02634/FULM | Installation of ground mounted photovoltaic farm with associated infrastructure, engineering works, access, and landscaping. | Land To The South Of Barnsley Road, To The East And West Of Marr Grange Lane, Marr | The site is located 8.8 km from the Order limits and the construction phases will have an average of 5 HGV movements per day. The operational phase will have two HGV movements per day on |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|---|--|--|
| | | | <p>two occasions each month.</p> <p>Given the distance of the site to the Scheme and the low number of trips being generated, there are unlikely to be any significant effects.</p> |
| NSIP Eggborough CCGT | The construction and operation of a new CCGT generating station with a capacity of up to 2,500 megawatts, new gas pipeline to the NTS and other associated development. | Near Eggborough village, Selby District, North Yorkshire | <p>The site is 6.5 km from the Order limit. The ES Chapter 14: Traffic and Transport sets out a worst-case traffic generation at the peak month of construction. This is anticipated to be 515 construction worker vehicles and 40 HGV movements per day. For the gas pipeline construction, this would amount to 90 construction worker vehicles and up to 40 HGV movements per day.</p> <p>However, in terms of timescales, the construction phase was</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|--------------------------------------|--|---|---|
| | | | set to occur between 2019 and 2022, with the operational phase thereafter. The development was granted approval in 2018. Therefore, any traffic generation will have been captured in the base flows collected for the Scheme. |
| NSIP Helios Renewable Energy Project | The installation of ground mounted solar arrays, energy storage and associated development comprising grid connection infrastructure and other infrastructure integral to the construction, operation, and maintenance of the development. | Land to the southwest of the village of Camblesforth and to the north of the village of Hirst Court | <p>The site is located 10 km from the Order limits, and it is anticipated that construction vehicles will access the Helios site via the M62 J36, A614, A645, A1041 Bawtry Road and then by one of the two site entrances off the A1041.</p> <p>For the construction phase, there will be a maximum average of 52 HGV movements per day (26 arrivals and 26 departures). Further, the worst-case Cars/LGV</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|------------------------------------|----------|--|
| | | | <p>movements could be up to 210 arrivals and departures during a peak day during the construction phase.</p> <p>During the operational phase, there are expected to be around five visits to the site per month throughout the lifespan.</p> <p>Given the distance of the site from the Scheme and the route that will be taken, the traffic movements are not expected to interact with those associated with the Scheme.</p> |

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|------------------------------|---|--|---|
| NSIP Tween Bridge Solar Farm | The construction, operation, management and decommissioning of a ground mounted solar photovoltaic (PV) electricity generating facility exceeding 50 megawatt (MW) output capacity, together with associated works including substation, energy storage and green infrastructure. | Land either side of the M180, High Level Banks (the A18) and the Stainforth and Keadby Canal | <p>The traffic and transport details related to construction and operation of this scheme are not yet included, however, it is stated a Transport Assessment and CTMP would be included within the DCO application.</p> <p>However, given the location (10 km from the Order limits), there is not likely to be interaction in terms of HGVs given that as part of the Scheme HGVs will utilise a separate route and as such there will be no crossover on the local highway network.</p> |

23/00537/FULM

Reclamation through construction and operation of Energy Hub incorporating Battery Energy Storage, Substation and associated Infrastructure, including earthworks to existing material and to provide development platform.

Thorpe Marsh Ash
Fields Marsh Lane
Barnby Dun Doncaster
DN3 1ET

Over a 36-month period, there will be a total of 8,360 two-way HGV movements. This equates to 36 two-way HGV movements per day (18 in and 18 out). A condition has been applied whereby HGV movements cannot exceed 40 two-way per day. The Transport Statement also states that there will be a 'small amount' of LGV movements.

The HGV routing indicates that the following ATCs associated with the Scheme will be travelled along: ATC 2, 3, 4, 7, 8, and 15.

However, given the relatively low numbers of vehicles throughout the day, no significant cumulative effects are expected.

| Cumulative Development ID | Cumulative Development Description | Location | Summary of Cumulative Effect |
|---------------------------|------------------------------------|--|---|
| 23/01241/FULM | Installation of underground cable. | High Street (A18) To Thorpe Bank, Via Armthorpe Lane, Station Road, Fordstead Lane | According to the planning statement, limited HGV and construction movements will be required as part of the works. It is expected the works would give rise to only a handful of additional movements associated with the delivery of additional temporary fencing, traffic management and cable for the works. |

13.10.6 ~~Table 13-29~~ **Table 13-29** above provides a review of the likelihood of cumulative effects from a range of additional developments within the vicinity. This has considered transport implications based on information submitted with planning applications. Where this has not been available, a qualitative review of potential implications has been considered based on on-site scale and location, and professional experience. Based on this review, it is considered that there are unlikely to be significant effects arising from cumulative development, due to limited overlap of other scheme areas with the Study Area and/or limited levels of traffic being generated by cumulative developments.

13.10.7 It also noted that many of the developments are still pending consideration and those sites that have had a determination (before 2023) are unlikely to be built and as such will not be included in any 2023 baseline traffic assessment.

13.10.8 As such, at this time the TEMPro growth factor that has been applied to the 2023 flows to growth to 2028 is considered a robust methodology for assessing the future development flows within the area.

13.10.9 A summary of the effects is outlined below in Table 13-30.

Table 13-30: Summary of Cumulative Effects

| Scheme ID | Peak Daily Number of Cars and LGV Vehicles | Peak Daily Number of HGV Vehicles | ATCs Affected | Significant? |
|-------------------------------|---|--|----------------------|------------------------|
| 21/02567/FULM | None in area | None in area | None | No (ATCs not affected) |
| 22/01537/LBC and 22/01536/FUL | Negligible | Negligible | None | No (ATCs not affected) |
| 23/01746/FULM | 15 | 11 | Link 15 | No (low traffic flows) |
| 19/03034/FULM | 0 | 20 | Link 15 | No (low traffic flows) |
| 20/01774/TIPA | None in area | None in area | None | No (ATCs not affected) |
| 23/01082/SCRE | None in area | None in area | None | No (ATCs not affected) |
| 22/02088/FULM | 5 | Sporadic | None | No (low traffic flows) |
| 08/01077/OUTA | Unspecified | Unspecified | Unspecified | No (no data available) |
| 23/02634/FULM | 0 | 5 | None | No (ATCs not affected) |

| Scheme ID | Peak Daily Number of Cars and LGV Vehicles | Peak Daily Number of HGV Vehicles | ATCs Affected | Significant? |
|--------------------------------------|--|-----------------------------------|-----------------------------|------------------------------|
| NSIP Eggborough CCGT | None during the same timeframe | None during the same timeframe | None | No (timeframes do not align) |
| NSIP Helios Renewable Energy Project | None in the area | None in the area | None | No (ATCs not affected) |
| NSIP Tween Bridge Solar Farm | Unspecific | Unspecific | None | No (ATCs not affected) |
| 23/00537/FULM | Negligible | 18 | Links 2, 3, 4, 7, 8, and 15 | No (low traffic flows) |
| 23/01241/FULM | Negligible | Negligible | Unspecified | No (low traffic flows) |

13.11 Summary and Conclusions

13.11.1 This chapter of the ES presents the findings of an assessment of the likely significant effects of Transport and Access as a result of the Scheme.

13.11.2 The assessment of effects concludes that following implementation of the embedded mitigation, impacts would be not significant, except at the following links which are predicted to experience significant effects during construction (and decommissioning) of the Scheme:

- Link 9: Moss Road – Askern Village;
- Link 10: Moss Road – East of Askern;
- Link 11: Fenwick Common Lane
- Link 12: Trumfleet Lane – South of Moss
- Link 13: Marsh Road; and
- Link 14: Thorpe Bank.

13.11.3 The actual increase in traffic levels at these links due to the Scheme is small. However, as these routes currently experience low baseline traffic numbers, these represent high percentage increases and result in significant effects being assessed.

13.11.4 **ES Volume III Appendix 13-4: Transport Assessment [EN010152/APP/6.3] and Framework CTMP [EN010152/APP/7.17]** have been developed as part of the DCO Application, providing further details on the proposals to reduce any potentially significant likely effects identified in this chapter.

13.12 References

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