



AQUIND Limited

PEIR CHAPTER 21

Traffic and Transport

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21 INTRODUCTION

21.1 SCOPE OF THE ASSESSMENT

21.1.1 INTRODUCTION

21.1.1.1 This chapter provides preliminary information regarding the impacts associated with onshore Traffic and Transport as a result of the Proposed Development. Maritime transport is covered in Chapter 13 - Shipping, Navigation and Other Marine Users.

21.1.1.2 The proposed Development that forms the basis of this assessment is described in Chapter 3 - Description of the Proposed Development.

21.1.1.3 This chapter will cover the following:

- A review of relevant legislation and policy, both at the local and national level;
- A description of the methodology used for the assessment of the impacts to traffic, transport and non-motorised users during the construction and operational stages of the Proposed Development;
- The limitations of the assessment contained within this chapter;
- A description of the existing baseline in relation to traffic, transport and non-motorised users;
- A review of the Proposed Development from a transport and access perspective, including a description of embedded mitigation that forms part of the proposals;
- An assessment of the likely impacts on traffic, transport and non-motorised users during the construction and operational stages of the Proposed Development;
- An assessment of how the likely significant impacts can be mitigated and the residual impact of the Proposed Development after these have been considered; and
- The cumulative impacts of other identified developments in combination with the Proposed Development.

21.1.1.4 Each of these points has been assessed against the Onshore Cable Corridor, running from Eastney to Lovedean, and the proposed Converter Station at Lovedean.

21.1.2 STUDY AREA

21.1.2.1 The study area for this assessment is inclusive of the Converter Station, the Onshore Cable Corridor, and the proposed routing options for construction traffic. The description of the study area provided within this chapter should be viewed alongside Figure 21.1.

21.1.2.2 Where applicable the study area has been split into two sections: the Onshore Cable Corridor; and the proposed construction and operational access route for the Converter Station i.e. the Converter Station Area.

21.1.2.3 The assessment contained within this chapter relates to traffic, pedestrians, cyclists and public transport users. Where bridleways or byways are affected, consideration has also been given towards equestrian users. Whilst any junctions impacted by the proposed Cable Corridor do fall within the bounds of the study area, side roads or adjoining carriageways have not been assessed unless otherwise specified. All roads assessed within this chapter fall under the control of Hampshire County Council ('HCC'), Portsmouth City Council ('PCC') or Highways England.

21.1.2.4 The study area includes all highway links that may be impacted by the Converter Station or the Onshore Cable Corridor. These may therefore extend beyond the Onshore Cable Corridor extent or immediate vicinity of the Converter Station. A full description of the baseline condition of the study area is included in Section 21.5.

21.1.2.5 For ease of reference, plans showing the Onshore Cable Corridor and Converter Station have been split into 10 sections. These are shown in Figure 21.1, described in Chapter 3 - Description of the Proposed Development and are explained in more detail below.

Section 1 - Lovedean (Converter Station Area)

21.1.2.6 The Converter Station will be located adjacent to the existing Lovedean substation and accessed via Broadway Lane in the vicinity of the junction with Day Lane.

21.1.2.7 The impacts on traffic and transport associated with the Converter Station will be limited to the vicinity of the access junction, roads used to access it and Public Rights of Way affected by the proposals.

21.1.2.8 Construction traffic associated with either the Converter Station or the Onshore Cable Corridor within this section is intended to be routed to and from the strategic road network via Junction 2 of A3 (M). Full route details are described in Paragraph 21.4.12.5.

21.1.2.9 As links that form part of the construction traffic route do not form part of the Onshore Cable Corridor, they have been assessed on the basis of increased traffic due to construction traffic only. With the exception of the A3 (M), all of the highway links assessed within this section are under the control of HCC. The A3 (M) is the responsibility of Highways England.

21.1.2.10 The use of Broadway Lane will affect Footpath 28, which crosses the site. Consequently, this has also been included within the study area.

Section 2 Anmore

21.1.2.11 In this section, the study area generally relates to construction traffic associated with the Converter Station and the Onshore Cable Corridor. Cable installation will not be taking place in highway land and instead will be situated in agricultural fields.

21.1.2.12 For the purposes of this chapter, this section includes Anmore Road/Anmore Lane between the Soake Road and Broadway Lane. These sections of highway are the responsibility of HCC.

Section 3 Denmead/Kings Pond Meadows

21.1.2.13 This section currently has two options for the Onshore Cable Corridor and may still be impacted by non-HGV construction traffic accessing the Converter Station.

Option 3a) King Pond Meadows

21.1.2.14 The Onshore Cable Corridor would run from Anmore Road to the B2150 Hambledon Road through the fields between Denmead and Anmore, known as Kings Pond. It therefore includes the following routes used by construction traffic or impacted by the cable installation:

- Soake Road between Anmore Road/Anmore Lane and the B2150 Hambledon Road; and
- Anmore Road between the junctions with Soake Road and Edney's Lane.

21.1.2.15 All of the links assessed are the responsibility of HCC.

Option 3b) Anmore Road

21.1.2.16 The Onshore Cable Corridor would join Anmore Road from the north at the junction with Clifton Crescent. It would then proceed west along Anmore Road for approximately 50 m and then head south through the fields opposite Clifton Crescent, heading into Kings Pond Meadows. The same highway links as Option 3a will be impacted.

Option 3c) Highways

21.1.2.17 The study area for this section is inclusive of the following links, which may be impacted by the Cable Route or non-HGV construction traffic associated with the Converter Station:

- Anmore Road between the B2150 Hambledon Road and Soake Road;
- Martin Avenue;
- Mill Road; and
- The B2150 Hambledon Road between the junction with Anmore Road and the junction with Soake Road.

Section 4 - Hambledon Road to Burnham Road

21.1.2.18 The study area for this section of the Onshore Cable Corridor is inclusive of the links listed below. These will primarily be impacted by the cable installation process but may also attract some non-HGV construction traffic related to the Converter Station Area.

21.1.2.19 Within the HCC network this section includes the following links:

- B2150 Hambledon Road between the junction with Soake Road and the junction with A3 Maurepas Way;
- A3 Maurepas Way;
- Forest End cul-de-sac; and
- A3 London Road between the junction with the A3 Maurepas Way and a point approximately 20 m north of the junction with Christchurch Gardens.

21.1.2.20 Within the jurisdiction of PCC are the following links in this section:

- A3 London Road between a point approximately 20 m north of the junction with Christchurch Gardens and the B2177 Portsdown Hill Road;
- Boundary Way between the junction with the A3 London Road and the junction with the B2177 Portsdown Hill Road;
- B2177 Portsdown Hill Road, between the A3 London Road and a point approximately 180 m west of the junction with Crookhorn Lane; and
- Farlington Avenue between the junction with B2177 Portsdown Hill Road and the junction with Burnham Road.

Section 5 - Farlington

21.1.2.21 Links included in the study area for Section 5 will be impacted only by the installation process of the Onshore Cable Corridor. There are currently three options for the Onshore Cable Corridor in this section, with all highway links falling under the responsibility of PCC.

Option 5a) Farlington Avenue

21.1.2.22 The Onshore Cable Corridor for this option is inclusive of the following links:

- Farlington Avenue between Burnham Road and the junction with Havant Road;
- Havant Road/A2030 Havant Road between the junction with Farlington Avenue and the junction with Waterworks Road; and
- A2030 Eastern Road between the junction with Havant Road and a point approximately 280 m south, opposite the northern boundary of open space known as Zetland Field.

Option 5b) Farlington Water Works

21.1.2.23 The Onshore Cable Corridor for this option provides an alternative to avoid the southern section of Farlington Avenue, with the following links considered to gain access to the Farlington Water Works:

- Burnham Road between the junction with Farlington Avenue and the junction with Ainsdale Road;
- Ainsdale Road cul-de-sac;
- Blake Road cul-de-sac; and
- Eveleigh Road between the junctions with Farlington Avenue and Galt Road.

21.1.2.24 The diversion will re-join the A2030 Havant Road at the junction with Waterworks Road. It will then proceed south along the A2030 Eastern Road towards Zetland Field.

Option 5c) Portsdown Hill Road

21.1.2.25 The Onshore Cable Corridor would avoid Farlington Avenue in its entirety and continue along the B2177 Portsdown Hill Road until a point approximately 180 m west of the junction with Crookhorn Lane. It would then travel south through Farlington Water Works, along the open space that heads past Solent Infant school and Eveleigh Road, re-joining the A2030 Havant Road at the junction with Waterworks Road. It will then proceed south along the A2030 Eastern Road towards Zetland Field.

Section 6 - Zetland Field & Sainsbury's Car Park

21.1.2.26 The Onshore Cable Corridor in this section contains Zetland Field, the A2030 Eastern Road, Fitzherbert Road and the Sainsbury's Car park.

21.1.2.27 North of the Sainsbury's Car park, there are two options for the Onshore Cable Corridor, either along the highway (A2030 Eastern Road and Fitzherbert Road) or through public open space (Zetland Field).

21.1.2.28 In the Sainsbury's car park, the Onshore Cable Corridor will run parallel to the A2030 Eastern Road in the western most part of the car park.

Section 7 - Farlington Junction to Airport Service Road

21.1.2.29 South of the Sainsbury's supermarket, the Onshore Cable Corridor crosses under the West Coastway Railway Line. The Onshore Cable Corridor would cross under the railway line via trenchless methods, probably micro-tunnelling. The Onshore Cable Corridor then runs through Farlington Playing Fields. HDD will be used to cross under the A27 Havant Bypass and Langstone Harbour in order to reach Portsea Island.

21.1.2.30 Within Section 7 the Onshore Cable Corridor will be outside of the public highway until Kendall's Wharf. The highway links are therefore likely to be impacted by only construction traffic or a combination of construction traffic and the cable installation process. The links include the following:

- A2030 Eastern Road between the access junction to Farlington Playing Fields and the A27 Havant Bypass, as result of construction traffic impacts related to cable installation in Farlington Playing Fields; and
- A2030 Eastern Road between the junction with the A27 Havant Bypass and the junction with Airport Service Road (construction traffic and cable installation impacts).

Section 8 - Great Salterns Golf Course to Velder Avenue/Moorings Way

21.1.2.31 This section covers the southern section of the A2030 Eastern Road and the A2030 Velder Avenue, up to the junction with the A288 Milton Road, There are different end points depending upon the Onshore Cable Corridor option. Each option is summarised below.

Option 8a) A2030 Eastern Road/A2030 Velder Avenue

21.1.2.32 Option 8A runs along the A2030 Eastern Road and the A2030 Velder Avenue from the junction with Airport Service Road to the junction with the A288 Milton Road. These links would be impacted by the cable installation process and construction traffic related to all other options, including those within Section 9 and 10.

Option 8b) Minor Roads and Moorings Way

21.1.2.33 This alternative option uses the A2030 Eastern Road (utilising the verge wherever possible), before finding a route through a combination of some or all of the following roads:

- East Shore Way cul-de-sac;
- Shore Avenue cul-de-sac;
- Salterns Avenue;
- Eastern Avenue; and
- Moorings Way between the junction with the A2030 Velder Avenue and the junction with Sanderling Road.

Option 8c) Milton Common

21.1.2.34 Option 8c utilises the edges of Milton Common, between the A2030 Eastern Road and Moorings Way. These options include no additional highway links beyond those identified in Option 8a and 8b.

Section 9 - Velder Avenue/Moorings Way to Bransbury Road

21.1.2.35 Section 9 includes two distinct options that follow on from the potential end points of Section 8 described above. While Option 9b/c avoids the major highway routes, those links identified within Option 9a will form part of the overall study area as a result of impacts from construction traffic.

Option 9a) Highways Route

21.1.2.36 Option 9a continues from Option 8a and goes south along A288 Milton Road from the junction with A2030 Velder Avenue to Bransbury Road, where it continues eastwards until the junction with Henderson Road.

Option 9b) Allotments

21.1.2.37 From Options 8b or 8c, the Onshore Cable Corridor would head southwards, either through the University of Portsmouth Langstone Campus grounds and Longshore Way or via the Moorings Way to Furze Lane Bus Link and Furze Lane. From here there are the following options for each cable circuit:

- Along Locksway Road to the southern car park of the Thatched House public house; and
- Along Locksway Road before using Waterlock Gardens/Seaway Crescent and/or Meryl Road to access the allotments.

21.1.2.38 Upon leaving the open space south of the allotments, the Onshore Cable Corridor will either use the Yeo Court cul-de-sac or the access point at the Kingsley Road/Ironbridge Lane junction, to enter Bransbury Park.

Option 9c) Ironbridge Lane

21.1.2.39 As an alternative to 9b and following the southern end of Option 8b or 8c this option includes the following links that are different to 9b to access Bransbury Park:

- Ironbridge Lane;
- Redlands Grove; and
- Tideway Gardens.

Section 10 (Eastney) Landfall

21.1.2.40 Section 10 represents the southernmost section of the Onshore Cable Corridor. The study area for this section comprises the following links:

- Henderson Road between the junction with Bransbury Road and the junction with Fort Cumberland Road; and
- Fort Cumberland Road between the junction with Henderson Road and the junction with Fraser Range access road.

21.2 LEGISLATION, POLICY AND GUIDANCE

21.2.1.1 This assessment has taken into account the current legislation, policy and guidance relevant to transport. These are listed below.

21.2.2 LEGISLATION

Traffic Management Act 2004

- Under this act it is the duty of local traffic authorities to secure the expeditious flow of traffic both on their own network and that of other authorities. Additionally, local traffic authorities can: dictate times when the works are carried out in cases where street works are likely to cause or are causing significant traffic disruption; and restrict future works for a specified period following significant road or street works.

21.2.3

PLANNING POLICY

National Policy

National Policy Statement

- Published in July 2011 by the Department of Energy and Climate Change, The National Policy Statement for Energy (EN-1), sets out the overarching National Policy for major energy infrastructure within England and Wales to meet future demand, deliver on obligations to reduce greenhouse gas emissions and ensure a secure energy supply through a diverse range of energy sources.
- Section 5.13 details the transport aspects in relation to the delivery of new energy infrastructure. Mitigation should principally focus on demand management measures and a comprehensive Transport Assessment should be produced. Where road transport is involved, HGV movements should be fed along appropriate routes, and numbers should be controlled with appropriate provision on site to ensure that there is no overspill onto the public highway. Finally, the applicant should work in coordination with local authorities and where appropriate, the police force.

National Planning Policy Framework, 2018

- Published in July 2018, the NPPF seeks to reduce the complexity and improve the accessibility of the planning system, whilst protecting the environment and encouraging growth in a sustainable manner.
- The NPPF does not contain specific policies for Nationally Significant Infrastructure Projects. Instead these are determined in accordance with the Planning Act 2008, relevant national policy statements for major infrastructure (detailed above) and other appropriate matters. However, the NPPF does provide a guiding framework of the Government's planning policies for England and how these should be applied. As such, it needs to be considered accordingly.
- In the consideration of development proposals, any assessment should ensure that: sustainable transport options have been fully explored; access is safe and suitable for all users; and that any significant implications for capacity, congestion or safety can be cost effectively mitigated to an acceptable degree.
- A refusal for development on highway grounds should only be given if it has been determined that there would be an unacceptable impact on road safety or severe residual impacts on the wider road network.
- Developments generating a significant quantity of movements should be required to produce a Travel Plan, with the application supported by a Transport Assessment or Transport Statement.

Local Policy

The Portsmouth Plan, Portsmouth’s Core Strategy, Portsmouth City Council, 2012

- This document sets out a vision and 24 objectives for Portsmouth up to 2027, identifying broad locations for development, protection and change; and detailing the guiding policies for planning applications in the city.
- Policy PCS17: “Transport” states that the council will work collaboratively with partners to deliver a sustainable and integrated transport network, that reduces the need to travel.
- It is recognised that because there are only three roads linking Portsea Island with the mainland (the M275, the A3 and the A2030), the local road network is vulnerable to significant congestion, especially when abnormal incidents arise alongside routine peak time delays.
- Additionally, seven challenges across the sub-region are identified, two of which are pertinent to the Proposed Development. These are as follows:
 - Managing the existing transport network to ensure that journey time reliability is maintained and improved; and
 - Mitigating the adverse impacts of transport activity on people, communities and habitats.

The Portsmouth Local Transport Plan 3, Portsmouth City Council, 2011

- The pertinent points from this document are largely similar to those outlined in the Portsmouth Plan, as discussed above. Overall, the two documents can be viewed as commensurate with the latter feeding into the former.

Hampshire Local Transport Plan 2011 (reviewed 2013), Hampshire County Council

- This sets out a vision of how Hampshire’s Transport Network will be developed over the next 20 years. Emphasis is on maximising efficiency of the existing network, and maintenance/management, rather than capital projects which centre on enlarging it.
- There are 14 policy objectives, structured under five themes. The five themes are as follows:
 - **Supporting the economy through resilient highways** – making the best of the existing network given current funding constraints and developing a ‘whole-life cycle approach to maintenance;
 - **Management of traffic** – using measures such as Intelligent Transport Systems to enable users to better plan their journeys and improve journey time reliability/utilisation;

- It should be noted that East Hampshire District Council is currently reviewing its adopted Local Plan and is preparing a new Draft Local Plan due for publication in February 2019.

East Hampshire District Council Local Plan (Part 1), Joint Core Strategy, 2014.

- This document sets out the adopted policy framework for shaping development up to 2028.

East Hampshire District Council Local Plan (Part 2), Housing and Employment Allocations, 2016

- This outlines the parcels of land that have been allocated for development.
- Of relevance to the Proposed Development, is parcel CF1 Land at Down Farm, Green Lane. This is situated north-east of the settlement of Clanfield, bordering Chalton Lane and the A3. It comprises 207 new residential dwellings. Most of these have been built and the development is now known as St James Place. Indicative timescales in the Local Plan stipulate a completion year of 2020.

The Winchester District Local Plan Part 1, Joint Core Strategy, 2013

- This outlines the strategy for delivering 12,500 new dwellings and 20 hectares of employment land across the district.
- Policy DS1 sets out the core principles. In relation to the Proposed Development, the nearest strategic allocation is that associated with the West of Waterlooville MDA. Primarily the principles largely reiterate those expressed in the Havant Local Plan, although there is the additional principle of applying a town centres first approach that reflects the size of the community and attracts footfall accordingly.

The Winchester District Local Plan Part 2: Development Management and Site Allocations, 2016

- This sets out the allocations of land to help deliver the strategy in Part 1 of the Local Plan.

21.2.4 GUIDANCE

21.2.4.1 The assessment undertaken in this chapter is based upon the following relevant guidance documents:

- Guidelines for Environmental Assessments of Road Traffic (Institute of Environmental Assessment, 1993);
- Design Manual for Roads and Bridges Volume 11 Section 3 Part 8: Pedestrians, Cyclists, Equestrians and Community Effects (Department for Transport ('DfT'), 1993);
- Design Manual for Roads and Bridges Volume 11 Section 3 Part 9: Vehicle Travellers (DfT, 1993); and

- The assessment of traffic and transport within this chapter has been produced in accordance with the Planning Practice Guidance ('PPG') (DCLG, March 2014) entitled 'Travel Plans, Transport Assessments and Statements in Decision Taking'.

21.3 SCOPING OPINION AND CONSULTATION

21.3.1 SCOPING OPINION

- 21.3.1.1 As detailed within Chapter 1 Introduction, a Scoping Opinion was received by the Applicant from PINS (on behalf of the SoS) on 7 December 2018 including formal responses from statutory consultees and the Marine Management Organisation. The responses from PINS in relation to transport, and how those requirements should be addressed by the Applicant, are set out in Table 21.1.
- 21.3.1.2 Appendix 5.3 provides a complete set of responses in the PEIR to the contents of the Scoping Opinion.

Table 21.1 – Scoping Opinion Response

Consultee	Scoping Opinion Ref	Summary of Comment Received	How this has been addressed by the Applicant
PINS	4.19.1	The likely low number of staff employed at Proposed Converter Station when operational means that this can be scoped out of the ES.	Agreed – no further action required.
	4.19.2	Further dialogue with the relevant highway authorities is required to confirm the scope of the transport assessment. This should be detailed in the ES. Where the scope differs from what has been requested, justification should be provided.	Further consultation will be undertaken.
	4.19.3	Impacts to the Strategic Road Network should be assessed including any interaction with existing SRN assets.	This has been assessed in Section 21.5 of this chapter.
	4.19.4	Supporting Figures of appropriate size and scale should be provided.	Appropriate Figures will be provided.
Portsmouth City Council (comments received 07/12/18)	Section 6	The traffic and transport assessment for the bounds of PCC focus only on construction stage impacts. The LHA considers that significant impacts will be experienced by all road users.	See Sections 21.4 and 21.6
		A detailed Construction Traffic Management Plan ('CTMP') will be required for each stage of the proposed works to mitigate disruption and delay.	A Draft CTMP will be completed with the Transport Assessment

		<p>The location of any compounds required for each stage of works should be identified along with travel options for staff, encouraging sustainable transport modes</p>	<p>Details of construction methodology are included in Chapter 3 Description of the Proposed Development with an assessment of routes included within Section 21.6 of this chapter.</p>
		<p>The assessment should establish the number of staff/operatives that will be working on site at any time, and how they will travel to and from the site. Opportunities to encourage sustainable travel of staff/operatives, or reduce the number of vehicles on the highway associated with the works should be explored.</p>	<p>Details of construction methodology are included in Chapter 3 Description of the Proposed Development with an assessment of routes included within Section 1.6 of this chapter.</p>
<p>Colas on behalf of Portsmouth City Council (comments received 07/12/18)</p>	<p>Section 6</p>	<p>There is a need for coordination and restrictions of construction works during major events.</p>	<p>Construction programme will consider such events and restrictions</p>

21.3.2 CONSULTATION

21.3.2.1 Consultation is a key part of the DCO application process. Further consultation will continue to be undertaken after this PEIR has been made available.

21.3.2.2 A summary of the consultation undertaken in relation to the traffic and transport related aspects of the Proposed Development to date is detailed in Table 21.2.

Table 21.2 – Consultation Response

Consultee	Date and Method of Consultation	Discussion	Summary of Outcome of Discussions
Hampshire County Council	Written response 26 March 2018	Further information required regarding cable laying proposals, carriageway widths and appropriateness of routes.	Details of construction methodology are included in Chapter 3 - Description of the Proposed Development with an assessment of routes included within Section 21.6 of this chapter.
		Consideration should be given to the committed development in the area, ensuring baseline conditions are accurate.	TEMPRO traffic growth for the Portsmouth and Hampshire area has been applied to all traffic flow assessments. TEMPRO takes account of planned development and economic/population growth within the area.
		A Transport Assessment or Transport Statement will be required.	This will be undertaken to support the DCO submission.
Hampshire County Council	15 May 2018 (meeting)	General project overview, traffic management and street work requirements of Cable Corridor and ground investigation works (now completed).	Need for detailed traffic management plans for the Onshore Cable Corridor and Transport Assessment. Also need to demonstrate reasoning for utilising the road network rather than private land.
Portsmouth City Council	21 May 2018	General project overview, traffic	Need for detailed traffic management plans for the

	(meeting)	management and street work requirements of Cable Corridor and ground investigation works.	Onshore Cable Corridor and Transport Assessment. Construction works will also need to avoid major events within the city where possible.
Highways England	22 May 2018 (meeting)	General project overview, traffic management and street work requirements of Cable Corridor and ground investigation works.	Consideration required of how the construction management stage can be managed and mitigated, if required. An abnormal load route assessment would be required.
Hampshire County Council	25 October 2018 (meeting)	Focus on traffic management requirements of Cable Corridor options within the HCC network	A Transport Assessment and traffic management strategy will be needed to support the application
Portsmouth City Council	07 November 2018 (meeting)	General update on project programme and consenting route with focus on traffic management requirements of Cable Corridor options within the HCC network	Preferable options avoid Milton Road, Velder Avenue, Eastern Road for Onshore Cable Corridor. Further assessments of abnormal loads required – Eastern Road bridge has a 40T weight limit.

21.4 METHODS OF ASSESSMENT

21.4.1 ASSESSMENT METHODOLOGY

21.4.1.1 The assessment methodology used in this PEIR is based on guidance outlined both within the IEMA document entitled “Guidelines for the Environmental Assessment of Road Traffic” (‘GEART’) and Part 8/9 of the Design Manual for Roads and Bridges: Volume 11.

21.4.1.2 The GEART states that the following impacts should be considered when assessing the environmental impact of road traffic:

- Noise;
- Vibration;
- Severance;

- Traffic delay;
- Pedestrian and cyclist amenity;
- Fear and Intimidation;
- Accidents and safety;
- Hazardous and dangerous/abnormal loads; and
- Dust and dirt.

21.4.1.3 For the purpose of this assessment, the impacts of noise and vibration and dust and dirt, have been excluded as they are sufficiently addressed elsewhere in the PEIR (Chapter 23 - Noise and Vibration and Chapter 22 - Air Quality, respectively). In addition to the suggested topics covered by GEART, this chapter also includes an assessment of the impacts on public transport.

21.4.1.4 GEART guidance suggests that to conduct a robust assessment, the “worst environmental impact that might reasonably be expected” needs to be considered.

21.4.1.5 It is also suggested within the GEART that when assessing the environmental impacts of traffic, two broad “rules-of-thumb” be used to focus the extent of the assessment. The rules are as follows:

- “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
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.”

21.4.1.6 The exception to the rules listed above are links near sensitive receptors. In sensitive areas, GEART advises that an increase in traffic of 10% or greater, or a considerable change in vehicle mix, would warrant the inclusion of a link in the assessment.

21.4.1.7 However, given the Proposed Development is not anticipated to generate significant levels of traffic (as discussed in Chapter 3 Description of the Proposed Development and Paragraph 21.4.12.27) to provide a robust assessment of environmental impacts the scope has also been extended to include all links that are categorised as having a ‘high’ sensitivity rating. The sensitivity of links included within the study area is provided in Appendix 21.1.

21.4.1.8 Within the GEART, the magnitude and significance of each of the types of environmental impacts needs to be quantified. The determinant factors vary for each of the impact types. The key factors which are to be considered for each of the impact types are outlined in Table 21.3.

Table 21.3 – Key Factors Determining Level of Impact

Impact	Key Factors
Severance	Traffic flow and composition; Traffic speeds; The availability of crossing facilities; and The number of movements that are likely to cross the impacted route.
Traffic delay	Driver delay can be measured at individual junctions by industry standard software (Junctions 9/LinSig).
Pedestrian and cyclist amenity	Increases in traffic volume/speed, or the composition of traffic; Footway/Cycleway width and separation from traffic; and The overall relationship between pedestrians/cyclists and traffic.
Fear and intimidation	Increases in traffic volume/speed, or the composition of traffic; Footway/Cycleway width and separation from traffic; and Movement of hazardous/abnormal loads.
Accidents and safety	Increases in traffic volume/speed, or the composition of traffic; and Local factors that may elevate or lessen the likelihood of accidents.

21.4.1.9

Considering the key factors outlined above, the following methodology is proposed to assess each of the environmental impacts in question.

21.4.2

DATA COLLECTION

21.4.2.1

For the purposes of this study a series of Automatic Traffic Count ('ATC') surveys were completed during June 2018 to establish baseline traffic flows on the road network surrounding the Converter Station Area and on links that are within the Onshore Cable Corridor. The location of these surveys is shown on Figure 21.2. ATC surveys were completed over a 24hr, seven-day period and recorded vehicle composition, speed and traffic flow in each direction. For the purposes of this chapter, two-way traffic flows have been calculated for the following time periods:

- AM Peak (08:00-09:00);
- PM Peak (17:00-18:00); and
- 24-Hour seven-day average.

- 21.4.2.2 In addition, highway boundary data has been obtained from HCC and PCC to confirm the extent of land classified as public highway and assist with defining the impacts associated with the Onshore Cable Corridor width along the route.
- 21.4.2.3 Personal Injury Accident ('PIA') data has also been collected from Hampshire Constabulary for all links within the study area for the most recently available five-year period (01/02/2013 to 31/01/2018). This will help to inform the accident analysis section of this study and identify if there are any cluster sites within the vicinity of the Converter Station or the Onshore Cable Corridor.
- 21.4.2.4 Ordnance Survey, GIS and aerial mapping has been used for the assessment of highway links within the study area, along with publicly available information on PRow, walking and cycling routes and public transport. In combination with this data, numerous site visits were undertaken between May and October 2018 to fully assess the study area.

21.4.3 SENSITIVE RECEPTORS

- 21.4.3.1 The sensitivity of individual links can be defined by the types of trip generators in the vicinity and the type of road users. Schools and hospitals are typical sensitive receptors, as are shopping destinations, major employment sites and community facilities where pedestrian and cyclist numbers may be high.
- 21.4.3.2 Sensitivity can be categorised accordingly:
- **Low** – Minor number of sensitive receptors and /or link can accommodate changes in traffic volumes;
 - **Medium** – Small clusters of sensitive receptors and limited separation from the highway; and
 - **High** – Large clusters of sensitive receptors, with areas known to attract high footfall and limited separation from the highway.
- 21.4.3.3 A breakdown of links by sensitivity is provided in Appendix 21.1.

21.4.4 SEVERANCE

- 21.4.4.1 DMRB (Volume 11, Section 3, Part 8) defines severance as:
- "...the separation of residents from facilities and services they use within their community caused by new or improved roads or by changes in traffic flows."*
- 21.4.4.2 Several factors are considered in determining the existing level of pedestrian severance. These include road width, traffic flow and composition, traffic speeds and the availability of pedestrian crossing facilities, all of which may be impacted by the cable installation or associated construction traffic. In accordance with the GEART guidance, the following quantitative measurement of severance is proposed for use within this assessment:
- Traffic flow increase of under 30% - Negligible impact on severance;

- Traffic flow increase of between 30% and 60% - Small impact on severance;
- Traffic flow increase of between 60% and 90% - Medium impact on severance; and
- Traffic flow increase of over 90% - Large impact on severance.

21.4.4.3 In accordance with guidance and where appropriate, relevant local factors will be considered when assessing severance. For example the presence of crossing facilities, type of road and volume/speed of traffic. The proposed traffic management strategy along each section of the cable route will also be taken into account during the mitigation stage, given its impact on traffic volume, crossing opportunities and links to community facilities.

21.4.4.4 Furthermore, in this assessment “Small” impacts are defined as allowing users to maintain existing journey patterns, with some minor disruptions. “Medium” impacts are defined as being likely to dissuade more vulnerable user groups from making certain journeys. Lastly, “Large” impacts are defined as being likely to deter users from making journeys to such an extent that they are willing to reorganise their journey patterns.

21.4.5 TRAFFIC DELAY

21.4.5.1 For the ES, traffic delay associated with the installation of the Onshore Cable Corridor will be assessed using LinSig Version 3 traffic signal software. This will assess the impacts of temporary traffic signals required as part of the traffic management strategy.

21.4.5.2 However, for the purposes of the PEIR this assessment has been completed on a qualitative basis and not via traffic modelling software. This is because of the current uncertainty regarding traffic management proposals through junctions. It is anticipated that the detail of traffic management proposals will be dealt with via a DCO Requirement, and thus will be confirmed prior to the start of construction. Additionally, in the vast majority of cases, the traffic management corridor will only be present on one entry or exit at a time, which makes accurate modelling of the situation very difficult.

21.4.6 PEDESTRIAN AND CYCLIST AMENITY

21.4.6.1 Pedestrian and cyclist amenity is defined within the GEART and DMRB as the ‘relative pleasantness of a journey.’ It is also noted within the GEART that whilst pedestrian amenity does include aspects of fear and intimidation, it should be distinctly separate from the fear and intimidation assessment. A separate assessment is required as impacts on pedestrian amenity have a more holistic view, considering factors like noise and air pollution.

21.4.6.2 The GEART guidance suggests that the following quantitative measure of pedestrian amenity be used when assessing the impact of developments:

- Traffic flow (or HGV component of traffic flow) decrease of 50% or more - positive impact on pedestrian and cyclist amenity;
- Traffic flow (or HGV component of traffic flow) change of between -50% and +100% - negligible impact on pedestrian and cyclist amenity; and
- Traffic flow (or HGV component of traffic flow) increase of more than 100% - negative impact on pedestrian and cyclist amenity.

21.4.6.3 However, considering that the estimated traffic flow increases from the proposed development are less than 20% (with the exception of Moorings Way to Furze Lane Bus Link), the GEART thresholds would have indicated that there would have been a negligible impact on pedestrian and cyclist amenity. This would have underestimated the impact to pedestrians and cyclists, particularly with regards to the:

- Potential to sever desire lines and/or increase journey times through additional crossings; and
- Government policy that is placing a greater focus and priority towards non-motorised users ('NMUs').

21.4.6.4 Therefore, a more descriptive approach, in line with DMRB guidance, was employed to provide a more robust assessment. This took account of the specific contextual factors for each link and used professional judgement to give an overall assessment of the change of amenity to existing pedestrian/cycle routes, and PRoW.

21.4.6.5 It should be noted that the level of amenity is based on the nature of the link and traffic flow; for example, pedestrian amenity along a quiet rural lane without footways could be rated as average, whereas along a residential road this would be classed as poor or very poor.

21.4.6.6 The impacts to pedestrian and cycle amenity were identified using the following criteria:

- A **Major adverse** impact would constitute a full closure of a route to pedestrians/cyclists and a circuitous detour;
- A **Major to Moderate adverse** impact would involve a closure of a shared-use path or footway and a diversion onto the other side of the carriageway, resulting in a severance of desire lines and additional crossings of the road than currently required;
- A **Moderate adverse** impact would occur whether there was an increase in traffic on roads where there are no current provisions for NMUs or where NMUs are required to use temporary crossing facilities, located away from existing provisions; and
- **Minor or Negligible** adverse impacts were defined as instances where there was a limited impact.

21.4.6.7 Those impacts which have a “Major”, “Major to Moderate” or “Moderate” impact, are considered as significant. This decision was considered to provide a robust assessment.

21.4.7 FEAR AND INTIMIDATION

21.4.7.1 As previously noted, assessment of the impact of fear and intimidation is similar to that of pedestrian and cyclist amenity. However, the GEART guidance suggests that fear and intimidation assessments consider additional factors such as perceived protection from traffic.

21.4.7.2 The quantitative thresholds for fear and intimidation assessments set out in the GEART are reproduced below in Table 21.3 and will form the basis of this assessment.

Table 21.3 – Fear and Intimidation Thresholds

Impact	Average Traffic Flow (18 hour) (vehicle per hour)	Total HGV Flow (18 hour)	Average Speed (18 hour) (mph)
Large	More than 1800	More than 3000	More than 20
Medium	Between 1200 and 1800	Between 2000 and 3000	Between 15 and 20
Small	Between 600 and 1200	Between 1000 and 2000	Between 10 and 15
Negligible	Less than 600	Less than 1000	Less than 10

Source: Guidelines for Environmental Assessment of Road Traffic (1993, p37)

21.4.7.3 Again, in accordance with guidance, where appropriate, relevant local factors will be considered in the assessment of this impact.

21.4.7.4 In the assessment of Fear and Intimidation, Traffic Flow, HGV Flow and Average Speed are compared between the Baseline and Peak Construction Year. Using the matrix above in Table 21.3, the flow and speed figures for the two scenarios are used to identify the impact.

21.4.7.5 It should be noted that the worst impact is reported. For example, if ‘Average Traffic Flow’ was 1820 but ‘Total HGV Flow’ was 2500 and ‘Average Speed’ was between 15 and 20, the impact would have been determined as ‘Large’.

21.4.7.6 Those impacts that were considered significant, were those instances where the impact was ‘Large’ or where the impact worsened in the Peak Construction Year compared to the Base Year.

21.4.8 ACCIDENTS AND SAFETY

21.4.9 AN ANALYSIS OF PIA DATA FOR THE PAST FIVE YEARS WILL BE CONDUCTED ON ROADS THAT FORM PART OF THE STUDY AREA. THIS ANALYSIS WILL IDENTITY CLUSTERS OF ACCIDENTS WITHIN THE STUDY AREA AND INCLUDE AN ASSESSMENT OF THE IMPACT OF THE PROPOSED DEVELOPMENT ON EXISTING ACCIDENT RATES.

21.4.10 HAZARDOUS AND DANGEROUS/ABNORMAL LOADS

21.4.10.1 It is anticipated that the Proposed Development will not generate any hazardous or dangerous loads during Construction or Operational Stages. Therefore an assessment to be completed as part of the Transport Assessment, will focus on access by abnormal loads during the construction phases.

21.4.10.2 The UK Government's definition of an Abnormal Load is 'a vehicle that has either:

- a weight of more than 44,000 kilograms;
- an axle load of more than 10,000 kilograms for a single non-driving axle and 11,500 kilograms for a single driving axle;
- a width of more than 2.9 metres; and/or
- a rigid length of more than 18.65 metres'.

21.4.10.3 The assessment will consist of swept path analysis and primarily assess if vehicles can safely access the Converter Station Area from the strategic and local road network. The assessment will also consider access to Jointing Bays for HGVs delivering cable drums and other construction equipment.

21.4.10.4 It is likely that some abnormal loads will be required to deliver plant and heavy items such as cable drums to site. Measures to deal with these vehicles will be included in the Construction Traffic Management Plan and will include appropriate escorts as required. However, the majority of HGV construction traffic will not be of the size to constitute abnormal loads.

21.4.11 PUBLIC TRANSPORT

21.4.11.1 An audit of the existing public transport network will be undertaken to assess the impacts associated with the Converter Station and the Onshore Cable Corridor. Diversions or disruption caused by the Proposed Development will also be assessed, particularly along the Onshore Cable Corridor.

21.4.12 CONSTRUCTION ASSUMPTIONS

- 21.4.12.1 In accordance with GEART guidance, the assessment of the onshore elements of the Proposed Development will be based upon the anticipated peak construction period, where construction traffic will be generated by the construction of the Converter Station and installation of a number of sections of the Onshore Cable Corridor, including Landfall. At this stage it is anticipated that this peak construction period will occur in the first six months of the programme, assumed to be during 2021 for the purposes of this assessment.
- 21.4.12.2 It should be noted that this peak construction period is a worst-case assessment and average construction traffic movements throughout the remainder of the construction programme will be much lower.
- 21.4.12.3 To provide an estimate of baseline traffic flows for the construction year of 2021, TEMPRO Version 6.2 has been used. This provides a percentage traffic growth rate between 2018 and 2021, which has been applied to the traffic survey data discussed in Section 21.4.2.1. For Hampshire County Council and Portsmouth City Council areas, this growth rate has been estimated at approximately 5%.

Converter Station Construction Traffic Assumptions

- 21.4.12.4 For the Converter Station, the peak in construction will occur during enabling works which is anticipated to occur in approximately 2021, the piling of the foundations and building of the structure of the main buildings comprising the Converter Station. During this time, it is anticipated there will be the following construction traffic movements to/from the Converter Station Area:
- 45 HGV two-way construction traffic movements per day (90 in total);
 - 55 non-HGV two-way construction traffic movements per day (110 in total); and
 - 150 staff working on-site at the Converter Station.
- 21.4.12.5 At this stage, it is assumed that all construction traffic movements will take place between 07:00 and 19:00 Monday to Friday, spread evenly throughout the day but with HGVs avoiding the peak hours of 08:00-09:00 and 17:00-18:00 as would be prescribed by the proposed CTMP. All construction traffic movements will travel to and from the site from the A3(M) via the following route, as shown in Figure 21.3:
- B2149 Dell Piece West between Junction 2, A3 (M) and A3 Portsmouth Road;
 - A3 Portsmouth Road between the junction with B2149 Dell Piece West/Catherington Lane and the junction with Lovedean Lane;
 - Lovedean Lane between the junction with A3 Portsmouth Road and the junction with Day Lane;
 - Day Lane; and
 - Broadway Lane between the junction with Day Lane and Lovedean substation.

- 21.4.12.6 Construction Workers will arrive from 07:00 and with the latest departures being at 19:00. Construction worker shift patterns will be spread throughout this period but start/finish times will avoid the peak hours on the surrounding highway network (e.g. 07:00-15:00).
- 21.4.12.7 Given the rural location of the Converter Station, and limited public transport facilities, it is assumed that all will arrive by car with a vehicle occupancy of 1.2, which is the standard rate for commuting trips according to the National Travel Survey 2017. Origin and destinations of workers has been estimated using Census 2011 data (Location of residence and place of work), with trips assigned to appropriate routes using mapping software.
- 21.4.12.8 The assumption that all workers arrive by private car, is a robust assessment of potential trip generation associated with the construction of the Converter Station.

Cable Corridor Construction Traffic Assumptions

- 21.4.12.9 The installation of the Onshore Cable Corridor will also generate construction traffic movements which will impact upon the study area and may interact with construction traffic movements associated with the Converter Station. It is assumed that installation of the cable ducts for the Onshore Cable Corridor will be completed in 100 m sections between Landfall and the Converter Station. Due to the length of the route, it is possible that a number of sections will be constructed at the same time.
- 21.4.12.10 From a construction traffic point of view each 100 m installation section will generate the following construction traffic movements per circuit:
- 4 two-way HGV movements (8 in total) per day outside of peak hours of 08:00-09:00 and 17:00-18:00;
 - 2 two-way LGV movements carrying personnel/equipment to site (4 in total) per day; and
 - There will be 6-8 construction workers per cable gang, who will travel to site via the LGVs listed above from the nearest site compound.
- 21.4.12.11 Whilst the location of construction site compounds have yet to be confirmed, it has been assumed that there will be two compounds. These are as follows:
- At the Converter Station, near Lovedean; and
 - The Industrial Estate bordering the A2030 Eastern Road and Anchorage Road on the north-eastern corner of Portsea Island.
- 21.4.12.12 It has been assumed that all construction traffic movements originate from the nearest construction compound and that construction workers are routed to these locations using Census 2011 data.
- 21.4.12.13 For the purposes of the assessment, it has been assumed that there would be 7 cable duct installation sections taking place at peak construction (3 per construction compound plus 1 additional for Landfall).

21.4.12.14 It has also been assumed that construction traffic associated with each compound applies to all links within the relevant sections associated with that site compound. This takes account of the potential for all cable installation sections to be on links at the furthest point from each compound, even if this is unlikely to occur. This means there will be an overestimation of construction traffic trips on links furthest from the compound.

Cable Corridor Traffic Management Assumptions

21.4.12.15 In addition to construction traffic, the cable installation process will also generate the need for temporary traffic management where sections of cable ducts for each of the two circuits are being installed on the public highway. The Transport Assessment which will accompany the ES will provide a draft Traffic Management Strategy for the Onshore Cable Corridor installation process. A provisional strategy based on the assessments completed to-date, is summarised in Appendix 21.1 and shown on Figures 21.4a to 21.4f.

21.4.12.16 The traffic management requirements for the Onshore Cable Corridor are defined by the construction methodology defined in Chapter 4 EIA Methodology and guidelines contained with the Traffic Signs Manual Chapter 8 – Traffic Safety Measures and Signs for Road Works and Temporary Solutions – Part 1: Design (DfT, 2009). In summary, it is assumed that for each circuit:

- The cable duct installation will take place in 100 m sections and at a rate of 18-30 m per day per circuit, therefore taking approximately five working days to complete each section.
- The Onshore Cable Corridor will include two circuits, with cable duct installation taking place at separate times for all parallel sections of circuit except where road closures are required;
- The construction corridor width will generally be 4-6m wide on-carriageway, although this can be reduced to 3m at local pinch points if required;
- Construction on footway will require 2m on footway/verge and 3m on-carriageway to allow for access by construction vehicles; and
- Entirely off-carriageway works, including vehicle access, can only be accommodated where a minimum of 16m is available to provide for a haul road and storage of materials.

21.4.12.17 Based on the assumption that one cable trench is installed at a time, traffic management requirements can be summarised as follows in order of impact:

- Footway works with no impact on the carriageway;
- Footway works requiring single-lane closure of carriageway;
- On-carriageway works requiring single-lane closure of carriageway;
- On-carriageway works requiring single-lane closure and temporary shuttle working with traffic signals; and

- On-carriageway works requiring full closure for vehicle access.

21.4.12.18 The duration of traffic management has been calculated according to the assumption made in Section 21.4.12.16 that each cable duct will be installed at a rate of 18 – 30 m in 100 m sections. For the purposes of simplicity, and to provide a minimum indicative timescale for each cable duct, as specified in Appendix 21.1, estimates are based on a completion rate of 20 m per day.

21.4.12.19 It should be noted that the duration of lanes closures/road closures are only indicative at this stage and refer to the total period of disruption along a link, subject to construction progress and local factors on-site. Therefore the exact traffic management requirements may change but will be limited to 100 m sections on each link. All traffic management will comply with the requirements set out in Chapter 8 of the Traffic Signs Manual.

21.4.12.20 Road closures refer to a closure of the road for motorised vehicles only. Access for non-motorised users (unless otherwise specified) will be retained at all times, in accordance with Government policy objectives to provide greater priority towards cyclists and pedestrians. On residential cul-de-sacs access to motorised vehicles will be available outside of working hours and as with the overall traffic management, the length of the road closure will be limited to 100 m at any one time.

Jointing Bay Assumptions

21.4.12.21 Jointing Bays will be positioned off-highway (for example in highway verges, fields or car parks etc.), where possible, to limit the need for road closures and will be positioned at approximately 1,000 m intervals along the Onshore Cable Corridor. There are several potential Jointing Bay locations for the various Onshore Cable Corridor options. These are assessed as part of this Chapter.

21.4.12.22 Each Jointing Bay excavation will be approximately 15 m by 3 m, but additional space will be required for construction, cable installation, jointing and reinstatement. Taking account of the dimensions included within Chapter 3 - Description of the Proposed Development, it has been assumed for the purposes of this chapter that the construction zone for a Jointing Bay is 40 m by 6 m.

21.4.12.23 HGVs will deliver new cable drums and take-away empty drums for each Jointing Bay outside of peak hours, taking account of the assumed working day of 08:00-18:00. The drum design will depend on the cable contractor's cable design, traffic management considerations and cost optimisation, but are likely to have a mass of up to 50T gross.

21.4.12.24 Cable winches will pull the cable through the duct system, directly from the delivery vehicle or from a stand. The area around the winch will be fenced off and designated as part of the construction zone. Traffic management requirements for each Jointing Bay will follow the same requirements as the Cable Corridor, unless otherwise specified.

21.4.12.25 Typically, it takes 20 working days to complete one Jointing Bay location. This timescale includes the excavation, set-up, cable pulling, jointing, bonding connections, testing and reinstatement.

21.4.12.26 Appendix 21.1 summarises on a link basis the effects of proposed Jointing Bay location(s) along the Onshore Cable Route.

Operation

21.4.12.27 Given the nature of the Proposed Development as HVDC underground cables and Converter Station, it is not anticipated that the Proposed Development will impact upon the current function of the highway network once operational. Some minor traffic increases may be experienced near the Converter Station; however, this is unlikely to extend beyond occasional servicing.

Decommissioning

21.4.12.28 The design life of the Proposed Development is presumed to be approximately 40 years. The impact of decommissioning works is assumed to be similar to that for the construction of the Converter Station, with no anticipated impact in respect of the Onshore Cable Corridor as a result of the cables being left in situ.

21.4.12.29 Taking account of future growth in baseline traffic, it is anticipated that traffic associated with the decommissioning process will account for a smaller proportion of total traffic than at present, thus resulting in a similar or smaller impact than predicted in this chapter for construction.

Significance Criteria

21.4.12.30 The overall significance will be assessed using the matrix show in Table 21.4 below. This uses sensitivity of the receptor and magnitude of change to determine significance. For example, a link that has a “High” sensitivity and a “Large” magnitude of change, will have a “Major” significance.

Table 21.4 – Significance of Effects Matrix

		Value/Sensitivity			
		High	Medium	Low	Negligible
Magnitude/Scale of Change	Large	Major	Major to Moderate	Minor to Moderate	Negligible
	Medium	Major to Moderate	Moderate	Minor	Negligible
	Small	Moderate	Minor to Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

21.4.12.31 In terms of the Matrix show in Table 21.4 , those impacts which have a “Major”, “Major to Moderate” or “Moderate” effect, are considered as significant. This is considered to provide a robust assessment.

21.4.13 ASSUMPTIONS AND LIMITATIONS

Assumptions

21.4.13.1 In assessing the impacts of the Proposed Development, it has been assumed that the following embedded mitigation is included during construction of the Converter Station and installation of the Onshore Cable Corridor:

- A CTMP will be developed for each of the Converter Station and Onshore Cable Corridor elements of construction. This will prescribe traffic routings and prohibit movements of HGVs outside of certain time periods;
- Site access to the Converter Station will be fully supervised throughout the construction period, with arrivals and departures of vehicles managed to avoid congestion on the local network;
- All construction traffic and employee movements associated with the installation of the cable will be via one of the identified site compounds. This will allow movements to/from each site to be managed and avoid additional traffic/parking demand being generated above the essential movements;
- HGV movements related to the Onshore Cable Corridor will only take place outside of peak hours;
- Traffic management associated with the Onshore Cable Corridor will require temporary relocation of pedestrian crossing points and bus stops where these are impacted by construction works; and
- The design life of the Proposed Development is presumed to be approximately 40 years. The impact of decommissioning works is assumed to be similar to that for the construction of the Converter Station, with no anticipated impact in respect of the Onshore Cable Corridor as a result of the cables being left in situ.

General Statement of Limitations

21.4.13.2 This chapter provides preliminary information as it relates to the Proposed Development to-date, the data currently available and that gathered at this point of the assessment process. Due to the stage of the assessment process, traffic data has not been collected for all links identified as requiring assessment.

21.4.13.3 The information contained herein is intended to inform consultation responses at this stage. A more detailed assessment of potential significant impacts resulting from the Proposed Development will be undertaken at subsequent stages to inform the ES.

21.4.13.4 Gaps in information, identified at this PEIR stage, will be considered and addressed along with specific mitigation measures, as part of the assessments for the production of the ES.

Specific Limitations

- 21.4.13.5 A notable limitation of this assessment is the availability of baseline traffic flows. Whilst traffic surveys were undertaken on the majority of assessed links, some links used estimated traffic flow values. Where used, estimated traffic flows have been calculated from survey data on nearby links with similar characteristics. The only exceptions to this methodology are:
- The Moorings Way to Furze Lane Bus Link, for which the relevant bus timetable was referenced to calculate the number of buses travelling on this link.
- 21.4.13.6 Within the assessment, it is specified when traffic flows have been estimated. Whilst acting as a reasonable representation of baseline conditions, the accuracy of estimated traffic flows is not guaranteed. Therefore, this should be considered when reviewing this assessment.
- 21.4.13.7 The traffic surveys were undertaken in June 2018, which is classified within DfT guidance document “TAG UNIT M1.2 Data Sources and Surveys” (2014) as a neutral month. Undertaking the surveys during a neutral month ensures the traffic data obtained is representative of typical traffic movements, and should act as a reasonable basis for comparison. Furthermore, a review of network conditions during the survey period has been undertaken which identified no major closures that would have affected recorded traffic flows.
- 21.4.13.8 This assessment is based on estimations with respect to the construction traffic to be generated by the Proposed Development. The estimations used in this assessment have been calculated where peak construction activities take place at the Converter Station and Onshore Cable Corridor at the same time. This will provide a robust understanding of the potential impacts of the Proposed Development. The specific number and type of vehicles used and the construction programme is likely to be dictated by third party contractors and thus may be subject to a level of variation.
- 21.4.13.9 Likewise, whilst the dimensions of the Onshore Cable Corridor is founded in sound engineering judgement, the individual methodologies employed by third party contractors is also subject to a degree of variation. However, all development will be located within the specified Onshore Cable Corridor.

21.5 BASELINE ENVIRONMENT

- 21.5.1.1 In addition to the description of the baseline environment below, factors such as strategic links/junctions, major pedestrian and cycle routes and key public transport routes are shown in Figures 21.5a to 21.5d.

21.5.2 ONSHORE CABLE CORRIDOR AND LOCAL HIGHWAY NETWORK

Section 1 - Lovedean

- 21.5.2.1 Broadway Lane and Day Lane are unclassified rural single carriageway roads located to the east of Lovedean substation. Both are subject to the national speed limit with widths of less than 6 m. No public transport facilities, footways or cycle facilities are provided along any of these links.
- 21.5.2.2 Two PRoW join Broadway Lane the vicinity of the proposed site access. These are Footpath 4 which joins Broadway Lane at Broadway Cottages and Footpath 28 which crosses Broadway Lane approximately 500 m south of Day Lane. Footpath 5 and 6 also join into Broadway Lane approximately 400 m and 600 m north of the existing substation access junction. These both form part of the Monarch Way PRoW route, with Footpath 5 also linking into the Day Lane/Lovedean Lane junction.
- 21.5.2.3 Lovedean Lane north of Day Lane is a rural single carriageway road north of Lovedean providing access to Catherington and Clanfield and onwards to the A3(M). The posted speed limit varies between 60 mph, and 40 mph reducing as the road enters Catherington. No footways or public transport facilities are provided.
- 21.5.2.4 South of Day Lane, Lovedean Lane is primarily urban providing access to residential properties, terminating at the A3 Portsmouth Road. It is subject to a 30 mph speed limit and street lighting is provided. Continuous footways are provided on either side of the carriageway from a point approximately 460 m south of Day Lane.
- 21.5.2.5 The A3 Portsmouth Road is a wide single carriageway road providing access to residential properties and has a 30 mph speed limit and street lighting. A shared-used path is provided along the western side of the carriageway, whilst a footway is provided on the eastern side of the road. There is a northbound bus lane, providing a route for services 37x and The Star 8.
- 21.5.2.6 The B2149 Dell Piece West is a single carriageway providing access to the A3 (M). It is subject to a 40 mph speed limit and provides access to a Morrisons supermarket and an adjacent industrial estate. One footway is provided on the northern side of the carriageway.

Section 2 - Anmore

- 21.5.2.7 Edney's Lane is a rural unclassified single carriageway road to the south-west of Lovedean substation. This link is subject to a 60 mph speed limit and has an approximate carriageway width of 2.5-3.5 m. No footways nor any public transport facilities are provided on these links.

21.5.2.8 Anmore Lane and Anmore Road are 30 mph rural/residential links which have an approximate carriageway width of 7 m. A footway is provided adjacent to the southern side of the carriageway for the Anmore Road section, and no pedestrian facilities are provided on the Anmore Lane section. No public transport provisions are in place on either of these links.

Section 3 - Denmead/Kings Pond Meadows

21.5.2.9 Martin Avenue and Mill Road are both residential unclassified single carriageway roads in the village of Denmead. Both links are subject to a speed limit of 30 mph and have at least one footway but no public transport facilities. Due to their residential nature, on-street parking occurs intermittently on both links.

21.5.2.10 The B2150 Hambledon Road is a single carriageway road. The link is subject to a 30 mph speed limit. Between Martin Avenue and Forest Road, continuous footways are provided on both sides of the carriageway alongside some discontinuous advisory cycle lanes. Between Forest Road and Soake Road, a shared-use path is provided on the northern side of the carriageway.

21.5.2.11 Three bus stops are provided along this link. These stops serve routes 636, 654, D1 and D2.

Section 4 - B2150 Hambledon Road to Burnham Road

21.5.2.12 The B2150 Hambledon Road is a single carriageway road with a 30 mph speed limit between Soake Road and Milton Road, with a mix of footways/shared-use paths provided on alternative sides of the carriageway linked by signal controlled crossings. Seven bus stops are present along this link, four of which are provided with a layby. These stops serve routes 636, 654, D1 and D2.

21.5.2.13 Between Milton Road and the A3 London Road, the B2150 Hambledon Road and the A3 Maurepas Way, are dual-carriageway links with a 40 mph speed limit, providing access into Wellington Park Retail Park and an ASDA Supermarket. The A3 Maurepas Way also provides access to Waterlooville Fire Station. A shared-use path is provided adjacent to the southern side of the carriageway and a footway is provided next to the northern side of the carriageway between the ASDA car park and the roundabout with the A3 London Road. Three bus stops are provided along these links, each with a layby. These are served by routes 39, 636, 654, D1, D2 and The Star 7.

21.5.2.14 Footpath 11 joins the A3 Maurepas Way approximately 105m north of the junction with London Road.

- 21.5.2.15 The A3 London Road is a single carriageway road subject to a 30 mph speed limit, with a mixed provision of footways/shared use paths provided on both sides of the carriageway linked by pedestrian crossings. Bus lanes are provided in both directions along the majority of the link. Cyclists are also permitted to use these. There are numerous bus stops, of which the majority are provided with a layby. All the stops are served by bus route The Star 8. South of Ladybridge Road, stops are also served by National Express route 621.
- 21.5.2.16 Five PRoW join this link: Bridleway 15 200 m south of the A3 Maurepas Way; Bridleway 17 at the junction with Milk Lane (part of this is now a shared-use path into the development at Yew Gardens); Footpath 18 at Poppy Fields; Footpath 19 opposite The Woodman Pub; and Footpath 20 circa 35m south of the junction with Park Road.
- 21.5.2.17 At the junction with the B2177 Portsdown Hill Road and the A3 London Road, Boundary Way, the Western Slip Road and the Eastern Slip Road, are single carriageway roads, subject to a 30 mph speed limit with continuous footways provided on both sides of the carriageway. On the latter a single bus stop is provided on the southern side of the carriageway for routes 7A, 20, SD4, SD5, The Star 7 and The Star 7C. Footpath 24 of the PCC network also joins the link, connecting to Drayton Lane.
- 21.5.2.18 The B2177 Portsdown Hill Road is a single carriageway road, subject to a 40 mph speed limit, with continuous footways provided on both sides of the carriageway. Three bus stops are provided along this link serving routes 7A, 20, SD4, SD5, The Star 7 and The Star 7C.
- 21.5.2.19 Farlington Avenue is a residential unclassified single carriageway road and is subject to a 20 mph speed limit with continuous footways provided on both sides of the carriageway. A southbound intermittent cycle lane is also provided. Footpath 6 of the PCC network joins the link near to Birkdale Avenue. Additionally, north of the junction with Birkdale Avenue, there is a traffic chicane that narrows the road to one traffic lane. Priority is given to northbound traffic.

Section 5 - Farlington

- 21.5.2.20 The southern part of Farlington Avenue is similar to the northern half, although narrower in width and subject to traffic calming (speed cushions and speed humps). There are also several residential driveways joining the link.
- 21.5.2.21 Eveleigh road is a residential unclassified single carriageway road, subject to a 20 mph speed limit. It has an approximate carriageway width of 12.0 m. Continuous footways are provided on both sides of the carriageway. It should be noted that Solent Infant School is located on this link and as such there is corresponding on-street parking during school arrival and departure periods.

21.5.2.22 The A2030 Havant Road is a dual carriageway with two signal controlled junctions in close proximity between Farlington Avenue and the A2030 Eastern Road. The link is subject to a 30 mph speed limit, with two lanes in each direction and continuous footways on both sides of the carriageway. Bus stops in place intermittently on this link, serving routes 21, 22 and 23. Footpath 7 of the PCC network joins this link, connecting with Copsey Close.

21.5.2.23 The A2030 Eastern Road between Havant Road and Fitzherbert Road is a dual carriageway with two lanes in each direction. The link is subject to a 40 mph speed limit and shared-use paths are provided on both sides of the carriageway. These form part of National Cycle Network ('NCN') Route 222. Bus stops are in place intermittently on this link, serving routes 21 and 621.

21.5.2.24 Footpaths 30 and 31 of the PCC network join this link, providing connections to Copsey Close/Nutbourne Road and Copsey Grove respectively.

Section 6 - Zetland Field and Sainsbury's Car Park

21.5.2.25 Fitzherbert Road is a two lane dual carriageway between the signal controlled junctions with the A2030 Eastern Road and the access road into the Sainsbury's car park. It is subject to a 30 mph speed limit with footways on both sides of the carriageway. Within the Sainsbury's site the entry road also provides access to B&M Home Store and a Sainsbury's Petrol Filling Station.

Section 7 - Farlington to Airport Service Road

21.5.2.26 Along Section 7, The A2030 Eastern Road continues with a similar provision to that in Section 6, albeit with a 50 mph speed limit south of the bridge onto Portsea Island. A shared-use path is provided on the eastern side of the carriageway which forms a part of NCN Route 222. Note that as well as two signal controlled junctions, access is also provided to Kendall's Wharf, Baffins Milton Rovers FC, Tudor Sailing Club and Langstone Harbour Sports Ground to the west.

Section 8 - Great Salterns Golf Course to Velder Avenue/Moorings Way

21.5.2.27 The A2030 Eastern Road continues as a dual carriageway until approximately 330 m south of Tangier Road where it becomes a single carriageway with two lanes northbound and one lane southbound until the signal controlled junction with Moorings Way. South of this location there are two lanes in both directions.

21.5.2.28 The speed limit is 40 mph until just north of Stride Avenue where it reduces to 30 mph. A shared-use path is provided on the eastern side of the carriageway until the junction with Moorings Way, where it switches to the opposite side of the carriageway. This forms part of NCN Route 222. On the southern part of the A2030 Eastern Road, bus stops are in place intermittently, serving route 13.

21.5.2.29 Moorings Way is a single carriageway residential road which is subject to a 20 mph speed limit. This link has an approximate carriageway width of 7-8 m. A footway is provided on the southern side of the carriageway and the link forms an on-road section of NCN Route 222. Six bus stops are provided, serving route 13.

Section 9 - Velder Avenue/Milton Road or Milton Common to Bransbury Road

21.5.2.30 The A288 Milton Road is a classified A Road which is subject to a 30 mph speed limit. This link has an approximate carriageway width of 10-11 m with footways in place on both sides of the carriageway. The A288 Milton Road has commercial properties on both sides of the carriageway between the A2030 Velder Avenue and Meon Road. On-street parking is provided adjacent to Milton Park. Several bus stops are in place, serving routes 1, 2, 17 and SD7. PRow Footpaths 99 and 46 gain access from this link, providing connections with Locksway Road and Perth Road respectively.

21.5.2.31 The A288 Eastney Road has largely similar features to the A288 Milton Road.

21.5.2.32 Bransbury Road is a single carriageway residential road subject to a 30 mph speed limit, with footways on both sides of the carriageway. On-street parking is present on both sides of the road for most of the link. Bus stops are in place intermittently on these links, serving routes 15 and 16.

21.5.2.33 The Moorings Way to Furze Lane Bus Link is a bus only, single carriageway route with through access controlled by traffic signals and a rising bollard midway along the link. The bus link is subject to a 20 mph speed limit and the carriageway is approximately 5-6 m wide. A footway is in place on the western side of the carriageway. The link serves bus route 13 and forms an on-road section of NCN Route 222.

21.5.2.34 South of the bus link, both Furze Way, Locksway Road and Longshore Way, are single carriageway residential roads subject to 20 mph speed limits. The approximate carriageway width of these links varies between 6-8 m. Footways are provided on either side of the carriageway. Additionally, Furze Lane and Locksway Road form part of NCN Route 222.

21.5.2.35 Ironbridge Lane and Kingsley Road are both single carriageway residential roads which are subject to 20 mph speed limits. Both links are two-way with on-street parking where space permits, and include footways on both sides of the carriageway.

21.5.2.36 Tideway Gardens is a residential unclassified road subject to a 20 mph speed limit. Continuous footways are provided on both sides of the carriageway.

21.5.2.37 Redlands Grove and Yeo Court are residential cul-de-sacs subject to a 20 mph speed limit.

Section - 10 Landfall

- 21.5.2.38 Both Henderson Road and Fort Cumberland Road are single carriageway residential links which are subject to 30 mph speed limits. Both links have an approximate carriageway width of 7-8 m with adjoining footways on both sides of the carriageway. Bus stops are in place intermittently on these links, serving routes 15 and 16. PRow Footpath 101 gains access from Fort Cumberland Road, providing a connection with Halliday Crescent. At the junction with Fort Cumberland Road/Ferry Road, there is a Day Care Centre and two retail premises.

Baseline Traffic Flows

- 21.5.2.39 The baseline traffic flows for the links reviewed in this assessment are contained within Appendix 21.1. This table also outlines the sources of the traffic flow data . These data sources are discussed further in Paragraph 21.4.2.1.
- 21.5.2.40 This traffic data has been used to inform the baseline environmental conditions, and assess the impact on traffic delay from construction in Section 21.6 of this Chapter.

21.5.3 SENSITIVE RECEPTORS

- 21.5.3.1 Further to the review of baseline conditions and traffic flows, it is necessary to identify the sensitive receptors within the study area.
- 21.5.3.2 Sensitive receptors have been identified for each link across the 10 Sections of the Onshore Cable Corridor. Appendix 21.1 details the type of sensitive receptors and the corresponding sensitivity level that has been designated. Figure 21.6. provides a graphical representation of the sensitivity of each link.
- 21.5.3.3 Of the 57 assessed links, 22 are considered to have a 'High' Sensitivity whilst the remaining 35 are deemed to have a 'Medium' or 'Low' Sensitivity.
- 21.5.3.4 Links with a 'High' Sensitivity were typically key strategic links on the local road network and those near educational or retail premises. Principally these included: the B2149 Dell Piece Way; the B2150 Hambledon Road, the A3 Maurepas Way, the A2030 Eastern Road, and the A288 Milton Road.
- 21.5.3.5 As part of the construction process for the Onshore Cable Corridor, it may be possible to mitigate the impact on these links through the use: of alternative routes, off-carriageway works and/or night or weekend works.

21.5.4 ACCIDENTS AND SAFETY

- 21.5.4.1 PIA data has been obtained from Hampshire Constabulary for the most recent five-year period (01/02/2013 to 31/01/2018) in relation to the Onshore Cable Corridor and the construction traffic routes associated with the Converter Station. A summary of the PIA data is provided below and shown in Figure 21.7.
- 21.5.4.2 In total, 375 PIA were recorded across the entire study area, which resulted in:
- 4 fatal accidents;

- 72 accidents that resulted in serious injury; and
- 299 accidents that caused slight injury.

21.5.4.3 Of the four fatal accidents:

- One occurred along the A2030 Eastern Road at the junction with Airport Service Road;
- Another transpired at the A3 London Road/B2177 Portsdown Hill Road junction;
- The third happened at the junction with the A2030 Eastern Road and Kirpal Road; and
- The fourth occurred at the A2030 Eastern Road/Burrfields Road junction.

21.5.4.4 In terms of the serious injury accidents, three core clusters were identified in the analysis:

- A3 Maurepas Way/B2150 Hambledon Road roundabout;
- A3 London Road/B2177 Portsdown Hill Road junction; and
- A27 Havant Bypass/A2030 Eastern Road Grade Separated Junction.

21.5.4.5 In the overwhelming number of instances, the cause of a PIA was user error. Principally this emanated from a failure to look properly, a failure to judge the other person's path or speed, a poor or illegal manoeuvre, speeding and contravening a traffic signal or road marking.

21.5.4.6 In a number of isolated cases, seasonal conditions, such as the low winter sun dazzling drivers and a slippery road surface brought on by ice/snow, were cited as causes. None of the PIAs that were reported stemmed from a poor or defective road layout.

21.5.4.7 Overall it is unlikely that the construction traffic related to the Proposed Development will have a significant effect on road safety. This is because of the temporary nature of the construction works and the fact that existing traffic volumes are generally high at identified cluster sites. Therefore, the increase in traffic flows at these cluster sites as a result of the Proposed Development are not considered to be significant from a road safety perspective.

21.5.5 FUTURE BASELINE

21.5.5.1 The future baseline traffic flows have been estimated using traffic growth estimates from TEMPRO as described in Paragraph 21.4.12.3. Using this data, the future baseline provides an estimate of traffic conditions in 2021 without the Proposed Development. This therefore allows for an assessment of environmental receptors in the future year scenario and a basis for comparing impacts of the Proposed Development.

21.6 PREDICTED IMPACTS

- 21.6.1.1 This section provides a preliminary assessment of the impacts of the Proposed Development on traffic and transport, in respect of both the Converter Station and the Onshore Cable Route, including Landfall. The assessment uses the data and methodology described in Section 21.4 of this chapter.
- 21.6.1.2 As discussed in Paragraph 21.4.12.27, an assessment of predicted impacts has only been completed for the Construction Stage of the Proposed Development. This is because the Operational Stage is estimated to generate negligible impacts on the study area.
- 21.6.1.3 It should be noted that in the assessment, the traffic and transport impacts of both the Converter Station and the Onshore Cable Corridor overlap. This is because it is anticipated that some parts of the Onshore Cable Corridor installation will take place at the same time as peak construction of the Converter Station; meaning that the associated construction traffic generated by each, will occur during the same period. Such an approach, is considered to provide a robust assessment.
- 21.6.1.4 A summary of traffic flows and absolute/proportional increases in traffic flows for every link within the study area is included in Appendix 21.1. These traffic flows are for the peak construction year which is anticipated to be 2021.
- 21.6.1.5 What is shown is that the most significant increases in traffic are experienced on the links forming the access route to/from the Converter Station. Prominent examples include Broadway Lane and Day Lane. The reason for this is because the existing traffic flows on these links are relatively low owing to their mainly rural nature and their lower road classification. Consequently, the construction traffic generated, accounts for a larger proportional change in traffic flows.
- 21.6.1.6 In terms of strategic links within the administrative boundary of HCC, (such as the B2150 Dell Piece Way, the A3 Maurepas Way and the A3 London Road) the proportional increase in traffic flow are negligible.
- 21.6.1.7 With regards to the links that form part of the PCC highway network, it is predicted that along Farlington Avenue, the number of HGVs will increase by just under 10% although, overall traffic is estimated to rise by just over 2%. Along the A2030 Eastern Road, A2030 Velder Avenue and the A288 Milton Road, the increases in traffic from the construction stage are negligible due to the high volumes of traffic that presently use these roads. Conversely, Moorings Way and the Moorings Way to Furze Lane Bus Link, are expected to experience notable increases in traffic as a result of their current low traffic volumes and lack of through access.

21.6.2 LINKS TAKEN FORWARD FOR FURTHER ASSESSMENT

21.6.2.1

Based on the analysis shown in Appendix 21.1, the following links met the GEART threshold for Traffic Flow increase and hence have been taken forward for further analysis:

- Link 1.2 – Broadway Lane – between Day Lane and Anmore Lane;
- Link 1.3 – Day Lane – between Broadway Lane and Lovedean Lane;
- Link 1.4 – Lovedean Lane – between Day Lane and the A3 Portsmouth Road;
- Link 3.2 – Martin Avenue – between the B2150 Hambledon Road and Anmore Lane;
- Link 8.5 – Moorings Way – entire road up to Sanderling Road; and
- Link 9.3 – Moorings Way to Furze Lane Bus Link.

21.6.2.2

Additionally, to provide a more robust assessment, those links which were categorised as having a ‘High’ sensitivity are also included for further assessment. These are as follows:

- Link 1.8 – B2149 Dell Piece West – between A3 (M) Junction 2 and the A3 Portsmouth Road;
- Link 3.3 – B2150 Hambledon Road – between Anmore Road and Forest Road;
- Link 4.2 – B2150 Hambledon Road – between Milton Road and the A3 Maurepas Way;
- Link 4.3 – A3 Maurepas Way – between the B2150 Hambledon Road and the A3 London Road;
- Link 5.1 – Farlington Avenue – between Burnham Road and Havant Road;
- Link 5.2 – Havant Road/A2030 Havant Road – between Farlington Avenue and Waterworks Road;
- Link 5.6 – Eveleigh Road – between Farlington Avenue and Galt Road;
- Link 6.2 – A2030 Eastern Road – between Fitzherbert Road and the access junction to Farlington Playing Fields;
- Link 6.3 – Fitzherbert Road – between the A2030 Eastern Road and the Sainsbury’s/B&M Access Road;
- Link 7.2 – A2030 Eastern Road – between the A27 Havant Bypass and Anchorage Road;
- Link 7.3 – A2030 Eastern Road – between Anchorage Road and Airport Service Road;
- Link 8.1 – A2030 Eastern Road – between Airport Service Road and Burrfields Road;
- Link 8.2 – A2030 Eastern Road – between Burrfields Road and Tangier Road;
- Link 8.3 – A2030 Eastern Road – between Tangier Road and the A2030 Velder Avenue;

- Link 8.4 – A2030 Velder Avenue – between the A2030 Eastern Road and the A288 Milton Road; and
- Link 9.1 – A288 Milton Road/A288 Eastney Road – between the A2030 Velder Avenue and Bransbury Road.

21.6.2.3 Another four links have been taken forward for assessment since they currently do not have any traffic survey data but constitute through routes for local access (not-cul-de-sacs). This additional data will be provided in the ES, although it may increase the number of links which require further assessment. Therefore, for the purposes of providing a robust assessment in this chapter, the following links have also been included for assessment:

- Link 1.1 – Broadway Lane – north of the existing substation access junction;
- Link 3.6 – Soake Road – between the B2150 Hambledon Road and Anmore Road;
- Link 9.5 – Locksway Road/Longshore Way – between Ironbridge Lane and the southern boundary of the sports pitches; and
- Link 9.10 – Kingsley Road – between Ironbridge Lane and Yeo Court.

21.6.2.4 It should be noted that the cul-de-sacs discussed in the Baseline Environment have not been included for further assessment because they do not constitute High Sensitivity links and are not through routes. As such, the predicted impacts and residual impacts are likely to be negligible. It is anticipated that access implications during construction will be mitigated through gated access arrangements as stipulated by the traffic management requirements.

21.6.2.5 Furthermore, another three links that do not meet the criteria above, but do include Jointing Bays that affect the highway in some form, have been taken forward for further assessment. These are as follows:

- Link 4.1 – B2150 Hambledon Road – between Soake Road and Milton Road;
- Link 4.5 – A3 London Road – between the A3 Maurepas Way and Ladybridge Road; and
- Link 4.6 – A3 London Road – between Ladybridge Road and the B2177 Portsdown Hill Road.

21.6.2.6 All of the links that have been taken forward for further assessment are summarised in Appendix 21.2 and illustrated in Figure 21.8.

21.6.2.7 Links 1.1, 1.2, 1.3, 1.4 and 1.8 are assessed with regards to the installation of the Converter Station. The remaining links are assessed as part of the Onshore Cable Corridor. Finally, it should be noted that in the traffic delay assessment, all links forming part of the Onshore Cable Corridor are included except cul-de-sacs, to provide a robust assessment of the impact of the Proposed Development on main routes along the Onshore Cable Corridor.

21.6.3 CONVERTER STATION

Construction

Severance

21.6.3.1 The links assessed within Section 1 close to the Converter Station include:

- Link 1.1 – Broadway Lane – north of the existing substation access junction;
- Link 1.2 – Broadway Lane – between Day Lane and Anmore Lane;
- Link 1.3 – Day Lane – between Broadway Lane and Lovedean Lane;
- Link 1.4 – Lovedean Lane – between Day Lane and the A3 Portsmouth Road;
and
- Link 1.8 – B2149 Dell Piece West – between A3 (M) Junction 2 and the A3 Portsmouth Road.

21.6.3.2 Table 21.5 below provides an assessment of severance based on the assessment methodology contained in Section 21.4 and traffic flow increases from construction in Appendix 21.1.

Table 21.5 – Severance Assessment at Converter Station

Link	Description	Assessment	Link Sensitivity	Magnitude of Change	Significance of Effect
1.1	Broadway Lane north of the existing substation access junction	Assumed increase of between 15-20% on quiet rural lanes. However low demand to access services and facilities.	Low	Medium	Minor adverse
1.2	Broadway Lane between Day Lane and Anmore Lane	Overall traffic flow increase of approximately 19% on quiet rural lanes. However low demand to access services and facilities.	Low	Medium	Minor adverse
1.3	Day Lane between Broadway Lane and Lovedean Lane		Low	Medium	Minor adverse
1.4	Lovedean Lane between Day Lane and the A3 Portsmouth Road	Overall traffic flow increase of 25%. Generally, Lovedean Lane has adequate crossing facilities that should minimise impact.	Medium	Negligible	Negligible adverse
1.8	B2149 Dell Piece West between A3 (M) Junction 2 and the A3 Portsmouth Road	Overall traffic increase of approximately 6%. Signal controlled crossing facilities at the junction with the A3 Portsmouth Road should minimise impact.	High	Negligible	Negligible adverse

21.6.3.3 As shown in Table 21.5 above, the Construction Stage is anticipated to have a **Negligible to Minor Adverse** effect on severance along links within Section 1.

Traffic Delay

21.6.3.4 Construction traffic associated with the Converter Station will be spread throughout the day, with a peak demand equating to one vehicle every 3-4 minutes. This is unlikely to result in a significant delay to traffic on the surrounding road network. Construction worker trips will also take place outside of the peak hours, at times when traffic flows on the network surrounding the Converter Station Area are low. It is not proposed for the Onshore Cable Corridor to be installed in any roads within Section 1, with it instead being installed in agricultural fields to the south of the proposed Converter Station.

21.6.3.5 It is therefore estimated that the effects during the construction phases will have a **Negligible to Minor Adverse** effect on traffic delay for Section 1.

Pedestrian and Cycle Amenity

21.6.3.6 The impact of the construction of the Converter Station on pedestrian and cycle amenity is likely to be limited to an increase in traffic on routes travelled by construction traffic. This is likely to have a limited temporary impact upon the environmental factors which influence pedestrian and cycle amenity. Table 21.6 below, provides a summary of predicted impact for links identified within Section 1 for further assessment.

Table 21.6 – Pedestrian and Cycle Amenity at Converter Station

Link	Road Name	Impact Description	Link Sensitivity	Magnitude of Impact	Significance of Effect
1.1	Broadway Lane – between Day Lane and junction with three unnamed roads in Ludmore	Users of Footpath 28, 5 and 6 may be impacted by increase in construction traffic at or between Broadway Lane access points. HGV increase approximately 80% over existing conditions.	Low	Small	Minor adverse
1.2	Broadway Lane – between Day Lane and Anmore Lane		Low	Small	Minor adverse
1.3	Day Lane	Users of Footpath 5 may be impacted by increase in construction traffic. HGV increase approximately 80% over existing conditions.	Low	Small	Minor adverse
1.4	Lovedean Lane – between Day Lane and the A3 Portsmouth Road	Limited impact due to good provision of pedestrian facilities. HGV increase of approximately 25%.	Medium	Negligible	Negligible adverse
1.8	B2149 Dell Piece West - between A3 (M) Junction 2, and the A3 Portsmouth Road	No impact upon provisions, limited impact upon environmental factors.	High	Negligible	Negligible adverse

21.6.3.7 Table 21.6 shows that the Construction Stage will have a **Negligible to Minor Adverse** effect on pedestrian and cycle amenity within Section 1. This is a result of limited use by pedestrians and cyclists and the spread of construction traffic throughout the day.

Fear and Intimidation

21.6.3.8 Further to the impacts upon pedestrians and cyclists caused by changes in amenity, the GEART guidance states that fear and intimidation should be considered. Impacts on fear and intimidation take into account changes to traffic and HGV flows, as well as changes to speed, and where relevant, additional local factors. A summary of the impacts on pedestrian and cyclist fear and intimidation is included below in Table 21.7.

Table 21.7 – Fear and Intimidation at Converter Station

Link	Road Name	Base (18hr weekday 0600 – 0000)			Construction (18hr weekday 0600 – 0000)		
		Average Traffic Flow (Vehicle/Hour)	HGV Flow (Total 18 Hour)	Fear and Intimidation Effect	Average Traffic Flow (Vehicle/Hour)	HGV Flow (Total 18 Hour)	Fear and Intimidation Effect
1.1	Broadway Lane – between Day Lane and junction with three unnamed roads in Ludmore	Data unavailable at time of writing					
1.2	Broadway Lane – between Day Lane and Anmore Lane	115	155	Negligible adverse	121	164	Negligible adverse
1.3	Day Lane	115	155	Negligible adverse	121	164	Negligible adverse
1.4	Lovedean Lane – between Day Lane and the A3 Portsmouth Road	405	512	Negligible adverse	428	542	Negligible adverse
1.8	B2149 Dell Piece West - between A3 (M) Junction 2, and the A3 Portsmouth Road	1192	1531	Large adverse	1261	1620	Large adverse

21.6.3.9 As can be seen in Table 21.7, the construction traffic does not change the fear and intimidation level on any of the assessed links. For most of the links affected by the construction of the Converter Station, there is a **Negligible Adverse** effect on fear and intimidation. The large fear and intimidation rating on Link 1.8 is largely a function of existing traffic flows and the fact that it is major distributor road leading to the Strategic Road Network.

Accidents and Safety

21.6.3.10 Overall it is unlikely that the construction traffic related to the Proposed Development will have a significant effect on road safety. This is because of the temporary nature of the construction works and the fact that existing traffic volumes are generally high at identified cluster sites. Therefore, it is considered that the construction of the Converter Station will have a **Negligible Adverse** effect on road safety.

Public Transport

21.6.3.11 As there are no public transport provisions near the Converter Station, in either Section 1 or 2, it is anticipated there will be **no adverse** effect on public transport.

Operation

21.6.3.12 As discussed in Paragraph 21.4.12.27, it is not anticipated that the Proposed Development will impact upon the current function of the highway network once operational. Some minor traffic increases may be experienced near the Converter Station; however, this is unlikely to extend beyond occasional servicing. Therefore, no further assessment of the operational impact has been undertaken as part of this chapter.

21.6.4 ONSHORE CABLE ROUTE

Construction

Severance

21.6.4.1 Appendix 21.2, provides an assessment of severance for the Onshore Cable Route installation. In viewing these, it should be noted that the installation of the Onshore Cable Route will take place in 100 m sections at a rate of 18-30 m per day. Therefore, while assessments have been completed on a link basis, it is unlikely that impacts on severance will extend significantly beyond the immediate construction zone area.

21.6.4.2 Appendix 21.2 shows that for 21 of the 23 assessed links, the construction of the CableCorridor is predicted to have only a **negligible or minor increase** in levels of severance. This is because the cable installation will only generate a small number of construction traffic movements in comparison with existing traffic volumes, and that the impact area will be limited to 100 m sections.

21.6.4.3 The exceptions to this are Link 3.2 (Martin Avenue) and Link 9.3 (Mooring Way to Furze Lane Bus Link) where the respective significance of effects are a **Major Adverse** effect and a **Major to Moderate Adverse** effect. These ratings are reflective of the fact that a road closure will be required and the relatively low traffic flows on each of the two links.

Traffic Delay

21.6.4.4 Appendix 21.2 provides an assessment of traffic delay for all links that form through roads and are part of the Onshore Cable Corridor within Sections 2-10.

21.6.4.5 Taking account of the predicted traffic delays resulting from traffic management measures associated with the cable installation process shown in Appendix 21.2, it can be summarised that installation of the Onshore Cable Route will have a:

- **Major Adverse** effect on 11 links;
- **Major to Moderate Adverse** effect on 10 links;
- **Moderate Adverse** effect on 4 links;
- **Minor to Moderate Adverse** effect on 7 links; and
- **Minor Adverse** effect on 9 links.

21.6.4.6 Of these, the first 25 are significant because they involve an effect which is either a Major, Major to Moderate or Moderate.

21.6.4.7 In terms of those links with a **Major Adverse** effect, over half are situated along the A2030 Eastern Road/A2030 Velder Road/A288 Milton Road/A288 Eastney Road corridor. As this is a key strategic route into Portsmouth for accessing the south-eastern side of Portsea Island and Portsmouth City F.C. home games, any on-carriageway works are likely to cause considerable delays. This can be mitigated through night or weekend works outside of the football season, and maximising the opportunity to pursue off-carriageway works where possible.

21.6.4.8 Four of the links with a **Major Adverse** effect involve a road closure to motorised vehicles (3.2 Martin Avenue, 5.1 Farlington Avenue, 5.6 Eveleigh Road and 5.7 Portsdown Hill Road). On links 3.2 and 5.6, the closures affect minor residential roads close to schools so the cumulative impact is likely to be less. Nevertheless, a closure should be undertaken outside of school term times to minimise any disruption.

21.6.4.9 Farlington Avenue has several traffic calming features and a 7.5 tonne maximum weight restriction, which suggests that the Local Authority is actively trying to discourage use of this route by through traffic. In terms of mitigation, again a closure should be scheduled to avoid clashing with school term times particularly given the proximity of schools to Farlington Avenue. Additionally, consideration should be given to the potential for “rat-running” to occur on alternative routes such as Portsdown Avenue/Moortown Avenue and Rectory Avenue/Woodfield Avenue/Beverly Grove. Mitigation measures should include signed diversion route to discourage use of inappropriate routes.

- 21.6.4.10 A lane closure on Link 6.3 (Fitzherbert Road) will cause considerable disruption as the road is a major access point into a neighbouring retail park and industrial estate. Again, night or weekend works should be pursued; scheduled to avoid key shopping periods such as Black Friday, Christmas and the Easter Weekend.
- 21.6.4.11 With regards to those links with a **Major to Moderate Adverse** effect, the majority of these are cases where works would increase congestion during peak periods and create additional delay for motorised vehicles
- 21.6.4.12 Road closures on Link 3.1 (Anmore Road) and Link 3.3 (Mill Road) pose disruption for local access by residents rather than through access. Gated access will be provided to affected properties outside of working hours, alongside a signed diversion route.
- 21.6.4.13 Lane closures on Link 3.4 and 3.5 (B2150 Hambledon Road) would be disruptive to traffic because it is the key link between Denmead and Waterlooville and there are a lack of suitable alternatives that do not involve a long diversion or the use of narrow unclassified rural roads. Where possible, night or weekend works should be pursued alongside opportunities to conduct off-carriageway works.
- 21.6.4.14 On Link 4.2 (B2150 Hambledon Road), a lane closure could be mitigated by temporarily restricting right turn movements at the junction at the junction with Wellington Retail Park. This would provide additional green time to traffic on Hambledon Road to mitigate the reduced capacity at the traffic signals. Displaced traffic can use the roundabouts at either end of the link.
- 21.6.4.15 Along Link 4.3 (A3 Maurepas Way), lane closures should take place on the offside lanes to retain access to the adjacent Fire Station and ASDA supermarket.
- 21.6.4.16 Given the proximity to residential dwellings, Link 5.2 (Havant Road) is unlikely to be suitable for night working. Therefore, any lane closures / road closure should be scheduled during school holidays or weekends when traffic volumes are typically lower.
- 21.6.4.17 Any lane closure on the A2030 Eastern Road is likely to be disruptive due to its strategic importance. Consequently, mitigation for Link 6.2 will be similar to that discussed above in Paragraph 21.6.4.7 for other sections of the A2030 corridor.
- 21.6.4.18 Link 8.5 (Moorings Way) is another case where work should coincide with school holidays to avoid conflicting with school users on this route.
- 21.6.4.19 A temporary closure of the Moorings Way to Furze Lane Bus Link only affects buses, cyclists and pedestrians, as general traffic is prohibited. As such mitigation for this link is discussed in the relevant sections below.

21.6.4.20 Finally, in terms of those links with a **Moderate Adverse** effect, the majority of these involve some localised peak time disruption from shuttle working. Along the A3 London Road corridor, temporary bus lane closures can be mitigated by giving priority to merging buses.

Pedestrian and Cycle amenity

21.6.4.21 The impact of construction on pedestrian and cycle amenity has been assessed based on the traffic management assumptions included Section 21.4 for links meeting the thresholds for assessment. The impacts are shown in Appendix 21.2.

21.6.4.22 To summarise, of the 24 assessed links:

- Seven links had a **Major to Moderate Adverse** effect;
- Two links had a **Moderate Adverse** effect;
- Two links had a **Minor to Moderate Adverse** effect;
- Two links had a **Minor Adverse** effect; and
- 11 links had a **Negligible Adverse** effect on pedestrian and cycle amenity.

21.6.4.23 With regards to those links where there is a **Major to Moderate Adverse** effect, all of these involve a closure of one of the shared-use paths or footways and a diversion onto the other side of the carriageway on key corridors including the B2150 Hambledon Road, A3 Maurepas Way, Havant Road, and the A2030 Eastern Road/Velder Avenue. Principally the impact will be a severance of desire lines and an increase in journey times for non-motorised users. This can be mitigated to a certain degree through temporary signal controlled crossing facilities.

21.6.4.24 The exception, is Link 9.3 (Moorings Way to Furze Lane Bus Link), where the full road closure is likely to most adversely affect pedestrians who live in the immediate vicinity. Where possible night or weekend works should be explored as part of a mitigation strategy. In coordination with the University of Portsmouth, it may be possible to provide a temporary alternative route for NMUs through the Langstone Campus.

21.6.4.25 In terms, of those with a **Moderate Adverse** effect, these either involve a limited impact on walking and cycling provisions with some minor deviations. The construction traffic management plan will include specific routeing guidance for employee construction traffic that directs vehicles onto other more appropriate roads to minimise any impact on cyclists and pedestrians.

21.6.4.26 Overall, for the purposes of facilitating construction, incursion onto facilities for pedestrians and cyclists will be used as a last resort. In cases where this does happen a suitable temporary diversion route, including crossing facilities, will be provided. Where appropriate, embedded mitigation to minimise these impacts will be included as part of the relevant traffic management documents, such as the CTMP.

Fear and Intimidation

21.6.4.27 Table 21.18 in Appendix 21.2 outlines the assessment of the Fear and Intimidation effects for the Onshore Cable Corridor.

21.6.4.28 As shown in Appendix 21.2, on most links, construction traffic does not change the level of fear and intimidation. There are only two links on which the fear and intimidation level changed. These are as follows:

- The B2150 Hambledon Road between Milton Road and the A3 Maurepas Way which changed from '**Medium**' to '**Large**'; and
- The A3 Maurepas Way between the B2150 Hambledon Road and the A3 London Road, which changed from '**Small**' to '**Medium**'.

Accidents and Safety

21.6.4.29 Overall it is unlikely that the construction traffic related to the Proposed Development will have a significant impact on road safety due to the temporary nature of the construction, all of which will be subject to traffic management as prescribed by Chapter 8 of the Traffic Signs Manual. Therefore, it is considered that construction of the Onshore Cable Corridor will have a **Minor Adverse** effect on road safety.

Public Transport

21.6.4.30 Appendix 21.2 shows an assessment of the public transport impact for the Onshore Cable Corridor. This assessment was completed according to route sections rather than individual links because:

- For most of the links, public transport provision was very similar, meaning a link based analysis would have added little value; and
- A link assessment would have failed to reflect the fact that public transport is provided along key route corridors and any impacts on individual links are likely to have wider impacts on a particular service or route.

21.6.4.31 This assessment has found that there is a **Negligible Adverse** effect on **most of the sections** along the Onshore Cable Corridor.

21.6.4.32 The utilisation of bus lanes for construction on the A3 London Road, mean there is likely to be a **Minor Adverse** effect on public transport in Section 4 of the Onshore Cable Corridor. The full closure of the Moorings Way to Furze Lane Bus Link, and the subsequent diversion of bus route 13, means that there is likely to be a **Major Adverse** effect upon public transport provision in Section 9.

21.6.4.33 Mitigation of the impact on bus route 13 will need to be discussed and agreed with First Group. However, this mitigation will need to ensure that the bus service is retained and that the route follows closely with the existing service to ensure that the proposals do not negatively impact on patronage levels or timetables. An example of such mitigation could be temporarily splitting bus service 13 into two separate routes on the northern and southern sides of Furze Lane or running a diverted service between Moorings Way and Locksway Road.

21.6.4.34 As discussed in Paragraph 21.4.12.27, it is not anticipated that the Proposed Development will impact upon the current function of the highway network once operational. Some minor traffic increases may be experienced near the Converter Station; however, this is unlikely to extend beyond occasional servicing. Therefore, no further assessment of the operational impact has been undertaken as part of this chapter.

21.6.5 CUMULATIVE IMPACT ASSESSMENT

21.6.5.1 From a traffic and transport point of view, all Construction Stage assessments use baseline traffic flows, with a growth factor applied from TEMPRO that takes account of committed development, economic growth and population forecasts within the local area. It is therefore considered that the assessments completed include all relevant development and no further cumulative impact assessments are required.

21.7 PROPOSED MITIGATION AND RESIDUAL EFFECTS

21.7.1.1 The Proposed Development will include several key mitigation measures, throughout all construction phases.

21.7.1.2 The following additional mitigation measures are proposed to limit the residual effects of the development and are applicable to both the construction of the Converter Station and the Onshore Cable Route:

- **Construction Traffic Management Plans ('CTMP'):** the CTMP will comprise mitigation measures to minimise the adverse impacts to existing road users from construction. The document will be a standalone live document that will be updated at regular intervals as the project progresses, in accordance with the local highway authority and project requirements. An indicative example of a CTMP from a similar scheme is the one associated with the IFA2 Interconnector project in Fareham (published on 25 September 2017, application reference P/16/0557/DP/A). Overall the CTMP will deal with things such as:
 - Traffic routing with a focussing on minimising HGV movements where practicable;
 - Vehicle access and egress including actions to deal with dust and mud;
 - Working hours;
 - Signage;

21.7.2 CONVERTER STATION

- 21.7.2.1 The Predicted Impact Assessment has identified that for the assessed links there was either a Negligible Adverse or Minor Adverse impact on Severance, Traffic Delay, Pedestrian and Cycle Amenity, and Fear and Intimidation. These effects are deemed not to be significant. With mitigation, there is likely to be a **Negligible Adverse** residual effect.
- 21.7.2.2 The one exception was for Fear and Intimidation on Link 1.8 (B2149 Dell Piece West) where a **Large Adverse** residual effect was found across the base and during construction. This was reflective of the existing road conditions and hence additional mitigation is not required.
- 21.7.2.3 Finally, given the lack of, public transport provisions, **no adverse** residual effects were found.

21.7.3 ONSHORE CABLE ROUTE

- 21.7.3.1 The Predicted Impact Assessment showed that there were several links that had a significant impact on Severance, Traffic Delay, Pedestrian and Cycle Amenity and/or Fear and Intimidation. As discussed previously, only those effects that have either a Major, Major to Moderate or Moderate Adverse impact, are deemed significant.
- 21.7.3.2 The mitigation of these predicted impacts alongside the residual effects is discussed in Table 21.8 below and in Appendix 21.2.
- 21.7.3.3 It should be noted that residual impacts are the likely outcome taking into account the proposed mitigation. The significant residual effects will be managed through embedded mitigation such as the CTMP and the CTMS to provide a working environment that is safe and minimises disruption as much as practically feasible.
- Severance**
- 21.7.3.4 The Predicted Impact Assessment demonstrated that there were two links where there was a significant adverse impact on severance. Table 21.8 below, illustrates that once proposed mitigation is taken into account, there will be a **Significant Adverse** residual effect on only one link.

Table 21.8 – Severance Mitigation

Link	Description	Effect before Mitigation	Proposed Mitigation	Residual Effects
3.2	Martin Avenue	Major Adverse	Temporary Crossing Facilities	Moderate to Minor Adverse
9.3	Moorings Way to Furze Lane Bus Link	Major to Moderate Adverse	Limited options for mitigation. Potential for signed diversion or night works.	Major to Moderate Adverse

Traffic Delay

21.7.3.5 The Predicted Impact Assessment found that there were 25 links that had a significant effect on Traffic Delay. Appendix 21.2 demonstrates that once proposed mitigation is taken into account, there will be a **Significant Adverse** residual effect on traffic delay across 17 links. Of these:

- Eight links have a **Major Adverse** residual effect;
- Four links have a **Major to Moderate Adverse** residual effect; and
- Five links have a **Moderate Adverse** residual effect.

Pedestrian and Cycle Amenity

21.7.3.6 Altogether, there were nine links in the Predicted Impact Assessment which had a significant effect. The mitigation of these and the residual impacts are outlined in Appendix 21.2. Taking into account the proposed mitigation, there will be seven links where there will be a **Significant Adverse** residual effect. Of these:

- Six links have a **Major to Moderate Adverse** residual effect; and
- One link has a **Moderate Adverse** residual effect.

Fear and Intimidation

21.7.3.7 With regards to Fear and Intimidation, those links where there was a 'Large' effect or where the effect worsened, were deemed significant. In total there were five links which had a significant effect. These are outlined in Appendix 21.2, alongside the proposed mitigation and the residual impacts. Of these:

- Four links have a **Large** residual effect; and
- One link has a **Medium** residual effect.

21.7.3.8 Evidently all five links retain a Significant Adverse Residual Impact. This is a function of the nature of the roads, as all five links are busy dual carriageways. As discussed in Section 21.4.7.2 and Table 21.3, fear and intimidation is a product of observed traffic flows. This means that the ability to mitigate fear and intimidation is limited.

Public Transport

- 21.7.3.9 Finally, in terms of Public Transport, the only link where is a significant adverse effect is the Moorings Way to Furze Lane Bus Link. The Predicted Impact Assessment demonstrated that a road closure would have a Major Adverse effect on public transport.
- 21.7.3.10 This could be mitigated by diverting or splitting bus service 13 into two separate services, both of which will be subject to discussions and agreement with First Group.
- 21.7.3.11 Such mitigation would retain accessibility, whilst minimising delays to journeys for bus passengers.
- 21.7.3.12 Nevertheless, it is recognised that there would still be some increased journey times and inconvenience for bus passengers. Consequently, the outcome of the mitigation is that there would be a **Major to Moderate Adverse** residual effect.

21.8 SUMMARY AND CONCLUSIONS

- 21.8.1.1 This chapter has assessed the preliminary traffic and transport impacts of the Proposed Development. This assessment has been undertaken only for the construction phases of the Converter Station and Onshore Cable Route, given that the Operational Stage will generate a negligible volume of traffic for maintenance purposes only.
- 21.8.1.2 The baseline directly surrounding the Converter Station consists of mainly quiet rural lanes, with low volumes of traffic and little use by non-motorised users. As a result of these existing conditions, the peak construction stage is anticipated to generate a noticeable increase in traffic volumes along these links, although when considered across a typical day it is unlikely to generate a significant adverse impact to all users.
- 21.8.1.3 Beyond the immediate vicinity of the Converter Station the HGV construction traffic will use Lovedean Lane, the A3 Portsmouth Road and the B2150 Dell Piece Way West to access the A3 (M). These routes will generally experience only a minor impact from the construction stage, because of the existing levels of traffic and suitable provision for non-motorised users.
- 21.8.1.4 The Onshore Cable Corridor passes through a range of different road types, from quiet rural lanes around Denmead, to the A3 London Road and the A2030 Eastern Road, (which form major highway links within the Hampshire County Council and Portsmouth City Council networks), and other residential roads/cul-de-sacs.
- 21.8.1.5 Due to the construction methodology and the need to provide suitable provisions for non-motorised users, it is anticipated that the cable installation will generally have a minor to negligible impact on these users across the route.

21.8.1.6 However, the cable installation is predicted to result in a significant adverse temporary impact on traffic delay along major links such as the A2030 Eastern Road and some sections of the A3 London Road. To a degree, this is unavoidable given the nature of these links and high volumes of baseline traffic. Nevertheless, the construction traffic management plan and the scheduling of works, will help avoid the busiest periods on the network and mitigate these impacts. The use of alternative routes that avoid sections of key links will also be considered further.

21.9 ASSESSMENTS AND SURVEYS STILL TO BE UNDERTAKEN

21.9.1.1 Prior to completion of the ES, further traffic surveys will be completed at key links where traffic flows have not been available for inclusion in this chapter. This will allow for a complete assessment of all links that form part of the study area. Additionally there will be further analysis of traffic delay and accidents and safety.

21.9.1.2 Further traffic surveys will need to be undertaken at the following links:

- Link 1.1 Broadway Lane – North of the existing substation access junction;
- Link 3.6 Soake Road – between the B2150 Hambledon Road and Anmore Road;
- Link 5.2 Havant Road/A2030 Havant Road – between Farlington Avenue and Galt Road;
- Link 5.6 Eveleigh Road – between Farlington Avenue and Galt Road;
- Link 6.3 Fitzherbert Road – between A2030 Eastern Road and Sainsbury's/B&M Access Road;
- Link 9.4 Furze Lane – between Bus Link and Locksway Road;
- Link 9.5 Locksway Road – between Ironbridge Lane and Thatched House Public House;
- Link 9.8 Ironbridge Lane – between Locksway Road and Kingsley Road; and
- Link 9.10 Kingsley Road – between Ironbridge Lane and Yeo Court.

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