Reinforcement to the North Shropshire Electricity Distribution Network: 132kV Electrical Circuit from Oswestry to Wem

Preliminary Environmental Information Report

November 2017

G		PROJECT TITLE		DOCUMENT TITLE	
		Reinforcement to the North Shropshire Electricity Distribution Network		Preliminary Environmental Information Report	
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CHAPTER 1 INTRODUCTION

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CHAPTER 1: INTRODUCTION

1.1 PURPOSE OF THE PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

Overview

1.1.1 This document is the Preliminary Environmental Information Report (the 'PEIR') for the reinforcement to the North Shropshire electricity distribution network. It provides an initial statement on the preliminary environmental information (PEI), together with descriptions of the likely significant environmental effects and mitigation measures envisaged. The PEIR is intended to give consultees, including members of the public, an understanding of the key issues and enable them to prepare well-informed responses to consultation. It should be noted that at this stage the information is preliminary. An iterative process of scheme development and environmental impact assessment is ongoing and will take into account responses to the ongoing consultation process.

1.1.2 The PEIR has been prepared by Gillespies LLP and a team of specialist environmental consultants on behalf of SP Manweb plc (SP Manweb). The project is being promoted by SP Manweb. Further information on the purpose and structure of the PEIR is provided in Advice Note Seven[1] published by the Planning Inspectorate (PINS).

1.1.3 The Proposed Development, which is the subject of this PEIR, comprises a new 132,000 kilovolt (kV) electrical circuit between Oswestry and Wem in North Shropshire, together with associated construction works (the Proposed Development). The Proposed Development comprises approximately 1.2km underground cable and 21km overhead electricity Trident line. The Proposed

[1] Advice Note Seven, Preliminary Environmental Information, Screening and Scoping. The Planning Inspectorate (March 2015)

Development also includes work to facilitate the new electrical circuit between Oswestry substation and Wem substation; work to ensure safe electrical clearance for the new electrical circuit i.e. some existing 11kV overhead lines will be put underground as part of the proposed development; and finally other required works, for example, temporary access roads, temporary works compounds, work sites, vegetation clearance or planting, works to the local highway and ancillary works.

1.1.4 The route of the Proposed Development and its components are shown on Figure 1.1 'Proposed Project Boundary Overview' at a scale of 1:55,000 and on Figure 1.2 'Proposed Project Boundary' at a scale of 1:10,000.

1.1.5 The Proposed Development forms the major part of the North Shropshire Reinforcement Project, other elements of the project include works to the existing substations at Oswestry and Wem, including installation of a new grid transformer in the Wem substation.

1.1.6 In developing the scheme, SP Manweb has carried out extensive informal consultation and continued to accept and consider comments up until the publication of this PEIR. This includes a Stage One Consultation which ran from June to September 2016.

1.1.7 The Stage Two consultation is the statutory consultation which will run from 23 November 2017 to 2 February 2018 and is supported by the preliminary environmental information contained in this PEIR.

The Applicant - SP Manweb

1.1.8 SP Manweb manages and operates the electricity network at 132kV and below in Cheshire, Merseyside, North Wales and Shropshire. SP Manweb is part of SP Energy Networks which also provides power to Central and Southern Scotland. SP Energy Networks is dedicated to delivering a safe and reliable electricity supply to:

- 1.5 million customers in Merseyside, Cheshire, North Wales and North Shropshire; and

- 2 million customers in Central and Southern Scotland.

1.1.9 SP Manweb holds the Electricity Distribution Licence (issued under the Electricity Act 1989 (the 1989 Act)[2]. Section 9 of the 1989 Act requires SP Manweb to develop and maintain an efficient, coordinated and economical system of electricity distribution. It also has an obligation under Schedule 9 of the same 1989 Act to have regard to preserving the natural and built heritage environment and to do what it can to mitigate any effects which proposals would have on these.

The Need for the Proposed Development

1.1.10 From its analysis of the existing electricity network and taking into account the proposed levels of growth being promoted by Shropshire Council, SP Manweb has identified a need to develop a new 132kV circuit to reinforce the electricity network in the North Shropshire area. This is supported by Shropshire Council who in 2015 also acknowledged the need to upgrade the electricity network.

1.1.11 The new 132kV electrical circuit would reinforce the existing 33kV electricity distribution network and provide capacity to support development on land allocated for new jobs and homes across North Shropshire, as identified by Shropshire Council in its Economic Growth Strategy 2017 – 2021[3], its Local Plan and adopted Shropshire Council Site Allocations and Management of Development (SAMDev) Plan[4].

1.1.12 Enhancing the electricity supply across North Shropshire has been identified by Shropshire Council as a local infrastructure priority to support these growth

[2] Electricity Act, HMSO, London. HM Government (1989)

[3] Shropshire Economic Growth Strategy 2017 – 2021. Shropshire Council (2017)

[4] Shropshire Council Site Allocations and Management of Development (SAMDev) Plan. Shropshire Council (2015)

plans. Work on construction of the infrastructure will safeguard a small number of existing jobs for a contractor and will indirectly support the growth of the market towns and the rural economy.

1.1.13 Following discussions with the Council, SP Manweb secured investment approvals for an £18m scheme to reinforce the network by installing a new 132kV electrical circuit from Oswestry substation to Wem primary substation (referred to as 'Wem substation'). This was identified as the preferred scheme after consideration had been given in 2015 by SP Manweb to a number of alternative network design options as explained in Chapter 2 'Alternatives and Design Development'. The initial technical review of these options is set out in the Strategic Options Report (May 2016)[5]. An updated Strategic Options Report (November 2017)[6] has been published to accompany this PEIR. SP Manweb refers to this new electrical circuit as the 'Proposed Development', which is the subject of this PEIR.

1.2 LEGISLATIVE CONTEXT

The Planning Act 2008

1.2.1 The Proposed Development is defined as a Nationally Significant Infrastructure Project (NSIP) by the Planning Act 2008[7]. As such SP Manweb is applying for powers to construct and operate the Proposed Development via a Development Consent Order (DCO). A DCO is the type of consent which must be sought for NSIPs. A DCO combines a variety of planning consents including, where appropriate, powers to compulsorily acquire land.

1.2.2 Following acceptance of an application, The Planning Inspectorate, through an appointed examining authority, undertakes an examination of the

5 Strategic Options Report. SP Manweb (May 2016)

6 Updated Strategic Options Report. SP Manweb (November 2017)

7 Planning Act. HMSO, London. HM Government (2008)

submitted documents and may hold public hearings to consider the material and issues brought forward by interested parties. PINS then reports its recommendations to the relevant Secretary of State (SoS). The SoS subsequently determines whether to grant a DCO for the NSIP.

1.2.3 Applications for DCOs are decided in accordance with National Policy Statements (NPSs), which after a process of public consultation and Parliamentary scrutiny have been formally 'designated' by Government. The two NPSs of relevance to this project are the Overarching National Policy Statement for Energy (EN-1)[8] and the National Policy Statement for Electricity Networks Infrastructure (EN-5)[9] (which must be read in conjunction with NPS EN-1).

1.2.4 The SoS will consider and take into account a wide range of issues when determining the DCO application for the Proposed Development submitted by SP Manweb, including the guidance outlined in NPS EN-1 and NPS EN-5.

Need for Environmental Impact Assessment (EIA)

1.2.5 As well as requiring an application for DCO consent, the Proposed Development falls within Schedule 2 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) (the 'EIA Regulations'). These require an Environmental Impact Assessment (EIA) to be carried out if a project is likely to have significant effects on the environment.

1.2.6 SP Manweb consider that an EIA is required for the Proposed Development due to its scale and potential for significant environmental effects. In the

[8] Department for Energy and Climate Change (July 2011), Overarching Energy National Policy Statement (EN-1)

[9] Department for Energy and Climate Change (July 2011), National Policy Statement for Electricity Energy Infrastructure (EN-5)

Scoping Request, March 2017, SP Manweb notified PINS and the SoS under regulation 6(1) (b) of the EIA Regulations that it proposes to provide an Environmental Statement (ES) in respect of the Proposed Development. The ES submitted with the application will describe the findings of the EIA.

1.2.7 The EIA is being carried out in line with the 2009 EIA Regulations, guidance set out in NPS EN-1 and NPS EN-5, and in accordance with current applicable good practice and guidance. An explanation as to why the EIA is not being submitted under the 2017 EIA regulations is provided in Chapter 6 'Planning Policy'.

1.2.8 An EIA Scoping Request was submitted by SP Manweb to PINS in March 2017 asking for formal written opinion (the 'scoping opinion') on the information to be included in the ES. PINS reviewed and consulted on the Scoping Report and issued a Scoping Opinion on behalf of the SoS on 25 April 2017. The comments and recommendations received from the SoS in the Scoping Opinion have been incorporated into this PEIR.

1.2.9 The EIA process is set out in Diagram 1.1 below:

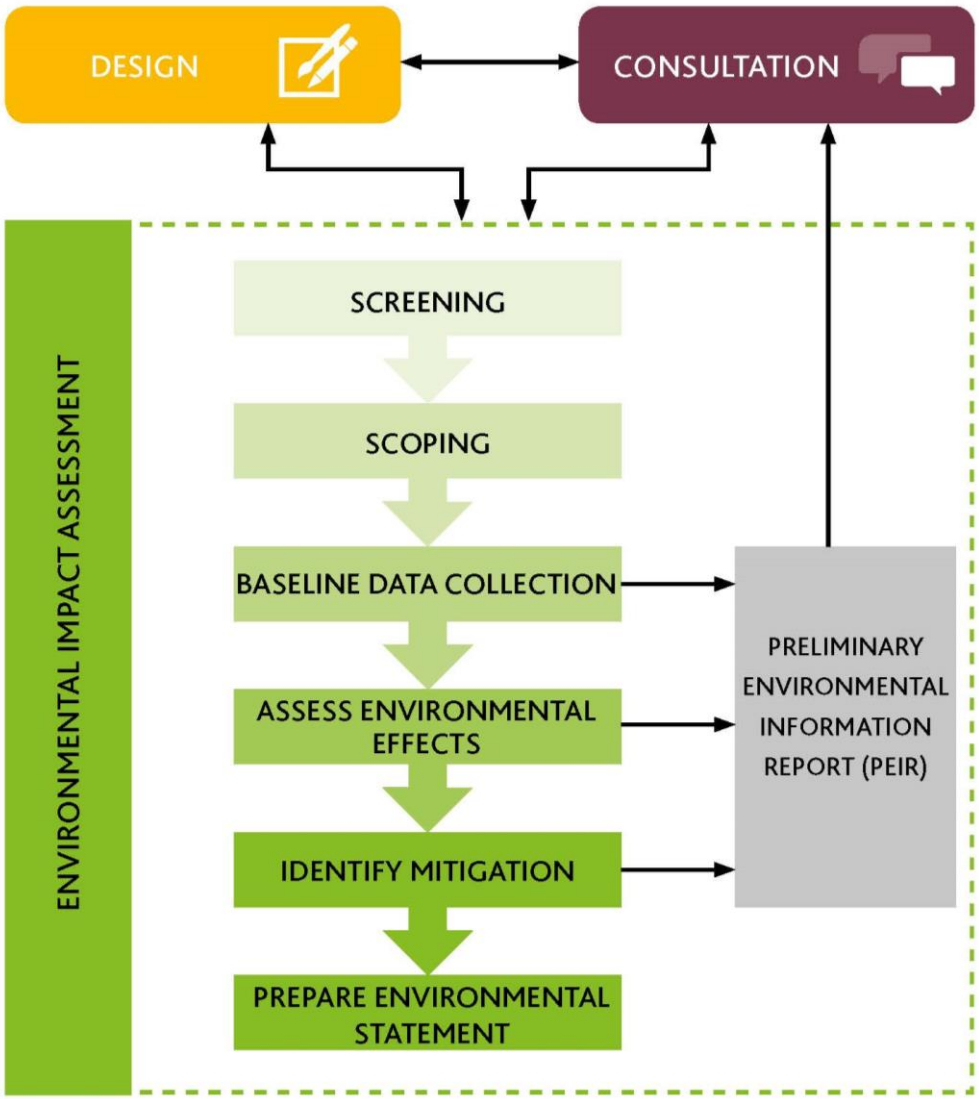

Diagram 1.1: EIA Process

Purpose of this PEIR

1.2.10 The purpose of this PEIR is to provide consultees, including the local community, with the information compiled by SP Manweb to date about the predicted environmental impacts of the Proposed Development and the proposed mitigation measures. It is intended to inform the pre-application consultation of the Proposed Development. The report:

- Describes the Proposed Development, including temporary construction details and timescales and alternatives considered;
- Describes the environmental data collection and survey work undertaken to date;
- Describes the existing environment, based on the information collected;
- Provides an assessment of the likely significant environmental effects of the Proposed Development; and
- Describes the range of mitigation measures being employed to avoid, reduce or offset environmental impacts during the design process.

1.2.11 This report constitutes the formal PEIR for the Proposed Development required by Regulation 10 of the EIA Regulations.

1.2.12 The PEIR will be made available to the prescribed consultees, local authorities, and landowners and to members of the public and the wider community. This will enable the consultees, including the local community, to understand the main environmental effects and implications of the Proposed Development so as to inform their responses to consultation.

1.2.13 Following the end of the consultation, SP Manweb will take account of all of the comments received, complete any further EIA work to be done and finalise the ES which will form part of the application for the DCO.

1.3 PRE-APPLICATION STATUTORY CONSULTATION

1.3.1 Pre-application consultation is an important requirement for applications for DCOs. It provides an opportunity for interested parties to comment on the proposals whilst they are at a formative stage, and for potential issues to be taken into account and, where necessary, addressed before the application is submitted for examination.

1.3.2 Consultees are encouraged to respond to the information contained in this PEIR and other reports. A questionnaire will be provided at the events and on the project website at: https://www.spenergynetworks.co.uk/pages/reinforcement_to_north_shropshire_electricity_distribution_network.aspx. This will ask for feedback in relation to Proposed Development.

1.3.3 The responses received will be considered, and if appropriate acted upon, by SP Manweb when preparing the final design of the Proposed Development and prior to preparing the final ES. A Consultation Report will be produced to accompany the DCO Application. This will detail the outcome of the statutory consultation process and how this has informed the final proposal.

1.4 PRE-APPLICATION NON-STATUTORY CONSULTATION

1.4.1 This statutory pre-application consultation follows previous non-statutory consultations undertaken by SP Manweb. Between May 2016 and September 2017 SP Manweb undertook non statutory pre-application consultation on the initial proposals and the various route options, as detailed below and in Chapter 4 'Consultation'.

1.4.2 Further information on the options considered during these consultations is provided in Chapter 2 'Alternatives and Design Evolution', of this PEIR.

1.4.3 SP Manweb has produced a series of reports and consultation documents. These provide a detailed account of the initial route corridors and then the narrower line route options, technical assessments, consultation feedback and design work, which has been undertaken since the start of the project in 2015 (see Table 1.1). The aim of this work was to help identify the best technical and environmental solution for the level of reinforcement required.

1.4.4 Throughout preparation of the various reports, SP Manweb has continued to liaise with prescribed consultees and other interested parties, including landowners, to help inform and guide the proposals.

Table 1.1 Published Documents Relating to the Routeing and Consultation Process for the Proposed Development	
Need	Strategic Options Report (May 2016)
Stage One Consultation	Route Corridor Options Report (June 2016)
	Line Route Report (June 2016)
	Project Update 1 Newsletter (Summer 2016)
Post Stage One Routeing and Consultation	Updated Line Route Report (November 2016)
	Stage One Consultation Feedback Report (November 2016)
	Project Update 2 Newsletter (November 2016)
	Scoping Report (9 March 2017)
	Project Update 3 Newsletter (May 2017)
	Updated Line Route Report 2 (November 2017)
	Updated Strategic Options Report (November 2017)

1.4.5 All the reports and newsletters are available for download at:

http://www.spenergynetworks.co.uk/pages/nsr_useful_documents.asp and can be read in conjunction with the Scoping Report and Opinion which are available for download at:

https://infrastructure.planninginspectorate.gov.uk/projects/west-midlands/reinforcement-to-north-shropshire-electricity-distribution-network/?ipcsection=docs.

1.5 STRUCTURE AND CONTENTS OF THIS PEIR

1.5.1 A significant amount of survey work has been completed to date to inform the Environmental Impact Assessment (EIA), including ecological surveys,

landscape and visual surveys, and cultural heritage surveys. It is important to emphasise that not all of the detailed survey or assessment work required to complete the EIA and prepare an ES has been completed. This PEIR therefore presents the environmental information available at a point in time (November 20017), and SP Manweb's current understanding of the likely significant environmental effects of the Proposed Development. It provides details of the work undertaken to date in sufficient detail to inform consultation responses. Much of the work presented in the PEIR will form the basis of the ES.

1.5.2 The structure of the PEIR is outlined in Table 1.2. Each topic chapter will provide a summary of the key information for that topic and if a potentially significant effect has been identified it will be detailed within the main chapter, as well as the final Chapter 13 'Summary'. Where applicable, each chapter will be accompanied by illustrative figures. Each of Chapters 7 to 11 is also accompanied by appendices which provide a detailed methodology for the chapter, describe the environmental baseline and provide greater detail on the assessments undertaken and receptors considered.

1.5.3 In addition, a non-technical summary (NTS) provides a concise summary of the main findings reported in the PEIR.

1.5.4 A summary of any potential significant effects for each topic covered in the PEIR is provided in Chapter 13 'Summary'. More detailed descriptions of any identified significant effects are provided within the individual topic chapters, which are supported by technical appendices containing additional information and assessments.

Table 1.2: The structure of the PEIR

Chapter No.	Title
N/A	Non-Technical Summary

Chapter 1	Introduction
Chapter 2	Alternatives and Design Evolution
Chapter 3	The Proposed Development
Chapter 4	Consultation
Chapter 5	PEIR Approach and General Methodology
Chapter 6	Planning Policy
Chapter 7	Landscape and Visual
Chapter 8	Ecology
Chapter 9	Historic Environment
Chapter 10	Flood Risk, Water Quality and Resources
Chapter 11	Socio-Economic
Chapter 12	Land Use and Agriculture
Chapter 13	Summary and Conclusions
Figures	N/A
Appendices	N/A

1.5.5 Other documents to be considered in conjunction with the PEIR are:

- Updated Strategic Options Report;
- Updated Line Route Report;
- Set of 1:2500 Works Plans; and
- Statement of Community Consultation (SOCC)

1.6 NEXT STEPS

1.6.1 This PEIR is part of a suite of documents which have been made available for the statutory consultation on the Proposed Development. As described in Chapter 4 'Consultation', SP Manweb will carefully consider responses to consultation received from the public and stakeholders in continuing to assess the merits of the scheme and where appropriate to improve and refine the scheme proposals. The information presented in this PEIR will be developed further through the EIA process, and the findings of the EIA will be presented in the ES. The ES will accompany the DCO Application which SP Manweb intends to submit to PINS in summer 2018. This application will seek the consent of the SoS for the Environment to build and operate the Proposed Development under the Planning Act 2008.

1.6.2 If the application is accepted for examination, SP Manweb will carry out further publicity, and interested parties will be able to register their interest in the application which will enable them to participate in the examination and be kept informed of opportunities to present their views. PINS will examine the application on behalf of the SoS. Interested parties will be able to submit written comments on the proposals and participate in the public open floor, issue specific and compulsory acquisition hearings.

1.6.3 The examination must be completed within 6 months of the application being submitted. Following the examination, the Planning Inspectorate will make a recommendation to the SoS for who will then have three months to make a decision.

CHAPTER 2 ALTERNATIVES AND DESIGN EVOLUTION

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CHAPTER 2: ALTERNATIVES AND DESIGN EVOLUTION

2.1 INTRODUCTION

2.1.1 This chapter provides an outline of the main alternatives to the Proposed Development that have been considered by SP Manweb in developing the scheme prior to this consultation stage. It provides an outline of the main reasons for the selection of the Proposed Development and explains how environmental and other factors have influenced the decisions taken in respect of the Proposed Development. Consideration is given to the requirements of the EIA Regulations and the relevant policy guidance contained in NPS EN-1 and NPS EN-5.

2.1.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended), state at Schedule 4, Part 1 (18) that the ES needs to provide:

> *'An outline of the main alternatives studied by the Applicant and an indication of the main reasons for the Applicant's choice, taking into account the environmental effects.'*

2.1.3 Under the EIA Regulations there is no requirement to assess all potential alternatives, only a requirement to provide a review of those main alternatives that have been considered.

2.1.4 Diagram 2.1 (below) summarises the process that was followed in developing the scheme.

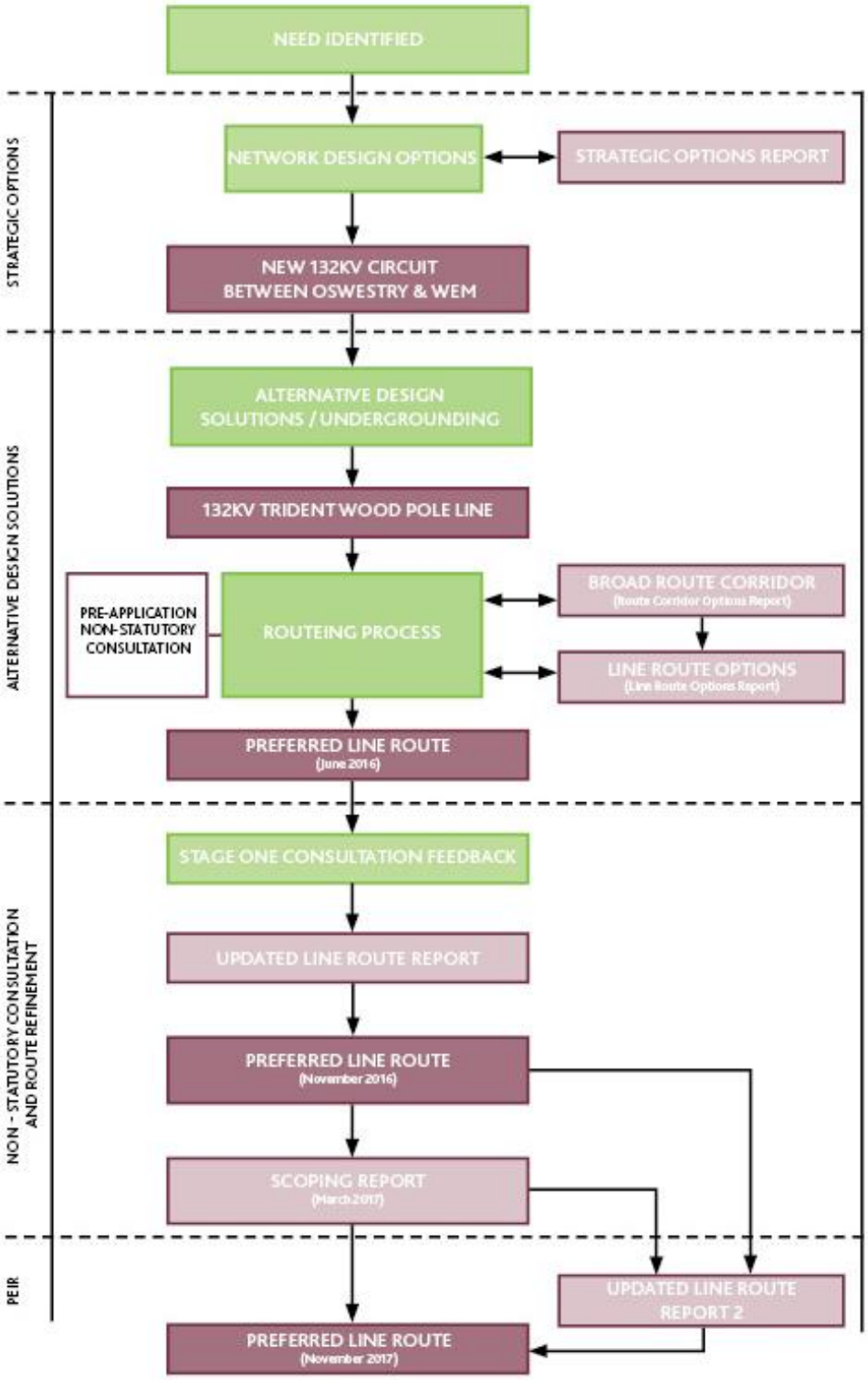

Diagram 2.1 – Design process for the Proposed Development

2.2 NETWORK DESIGN OPTIONS

2.2.1 The initial work carried out to identify the preferred design for reinforcing the network is presented in the Strategic Options Report[10] published in May 2016. An updated version of this report has been prepared to accompany the submission of this PEIR. This document considers the technical requirements of the network and presents some economic and high level environmental considerations. These include the location and extent of a number of designated nature conservation, landscape and heritage sites (see Appendix A – North Shropshire Environmental Constraints in the Strategic Options Report (May 2016)).

2.2.2 SP Manweb explains in the Strategic Options Report (May 2016) that consideration was given to various technical alternatives, starting with whether the network could be upgraded by installing equipment designed to manage customer need requirements within existing substations. This option was discounted because, although it would have limited environmental impacts, SP Manweb did not consider it would meet the varying customer demands with any certainty. It would therefore be contrary to SP Manweb's statutory obligations. Another technical option was to increase the rating of existing lower voltage 33kV circuits to provide additional supply. Although likely to result in minimal environmental impacts, this was similarly discounted on technical grounds as it wouldn't deliver sufficient supply for the predicted demand. A third alternative was to increase the number of 33kV circuits between the substations in Oswestry, Marchwiel, Whitchurch and Wem. This was discounted as it would require multiple new circuits, which would increase costs and likely environmental impacts.

2.2.3 The Strategic Options Report then explains that consideration was given to various options involving a new 132kV network. These included installing

[10] Strategic Options Report, SP Energy Networks (May 2016)

new overhead lines between substations at either Legacy near Wrexham, Marchwiel, Crewe or Shrewsbury, and Whitchurch. These alternatives were discounted due to the length of new circuit required and the consequent costs and likely environmental impacts. A new circuit between Marchwiel and Whitchurch would result in a shorter length of new overhead line, but would potentially result in significant environmental impacts from crossing or passing close to important nature conservation sites.

2.2.4 Finally, the alternative of taking a supply from the nearby 400kV circuit operated by National Grid plc was considered, but discounted due to the significant cost increases and likely environmental impacts, as a new 400kV/132kV transformer substation would be required in addition to a new 132kV overhead line.

2.2.5 The conclusion of the options appraisal was therefore that the preferred design solution for upgrading the electricity supply in North Shropshire was to install a new 132kV circuit between Oswestry and Wem substations. This route was deemed the most cost effective and technically efficient option. This would require the installation of a new 132kV transformer at Wem substation, but overall was still considered the best technical, environmental and cost option.

2.3 ALTERNATIVE DESIGN SOLUTIONS

2.3.1 Having identified that the preferred connection solution would be a new 132kV circuit between Oswestry and Wem, the Strategic Options Report also considered the main alternative design solutions for the new circuit:

- Steel lattice tower (L7 design) approximately 26m high;
- Heavy duty wood pole (with underslung earth wire) approximately 15m high;
- Trident wood pole (no earth wire) approximately 12m high; and
- 132kV underground cable.

2.3.2 These options are discussed in turn below.

Choice of Overhead Line Support Structure

2.3.3 The use of steel towers as a support structure was discounted. This is partly because of their height as steel towers are less likely to be screened by trees and other vegetation. In addition, they typically require large concrete foundations and have to take a relatively straight route with little flexibility in terms of routeing around obstacles. By contrast wood poles are less visually intrusive, less likely to be visible on the skyline, and are of a similar scale to mature trees therefore providing a better fit with the domestic scale farmland of North Shropshire. The flexibility of a wood pole line also means that it can be sensitively routed to take advantage of the backgrounding effects[11] of the undulating landform.

2.3.4 Having discounted the use of steel towers, SP Manweb then considered two wood pole designs. These are the heavy duty wood pole (HDWP) design and the Trident design. The HWDP is a larger double wood pole structure with heavier metalwork than the lighter Trident design. It is typically used where wind velocities and potential ice loading are higher and where there is a need for an integral earth structure. In the case of this project, the earthing requirements and predicted wind and ice loading were such that the smaller and lighter Trident design could be used, which is already installed in Shropshire, Mid Wales and Cheshire. Trident wood poles are lighter, shorter and provide greater flexibility when establishing a route which is easily accommodated within the existing landscape.

2.3.5 The images below shows the three different types of overhead line structure considered (the images show indicative heights, actual heights can vary depending on design requirements). Trident wood poles are a combination of

[11] When vertical structures are seen against a background of landform or vegetation, they are typically less visible than when they are silhouetted against the sky.

single pole structures for straight runs and double wood pole structures where a change in direction in required.

Steel pylons – approx. 26m

Heavy duty double wood poles – approx. 15m

Single wood pole Trident – approx. 12m

Undergrounding

2.3.6 SP Manweb's starting point when looking at providing a new circuit is its duties under the Electricity Act 1989:

- Section 9 – to develop and maintain an efficient, co-ordinated and economical system of electricity distribution: and
- Schedule 9 – (a) to have regard to the desirability of preserving natural beauty, conserving flora and fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest, and (b) to do what it reasonably can to mitigate any effect which proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

2.3.7 Whilst a new circuit can be achieved by overhead line or underground cable, undergrounding the entire length of the route would not provide an economic

and cost effective solution (thus contrary to section 9 of the Electricity Act 1989). Furthermore SP Manweb consider that in this location an overhead Trident line could be installed without comprising its duties under schedule 9 of the Electricity Act 1989.

2.3.8 In addition SP Manweb refers to policy guidance in both NPS EN-1 and NPS EN-5. These state that the consideration of undergrounding should be based on the following:

- *'Is there a 'particularly sensitive location' along the route of the 132kV overhead line where the effects of the line in that locality would give rise to 'serious concerns';*
- *If the answer is in the affirmative, then this is an 'exceptional circumstance', where undergrounding the line would bring 'very significant benefits' which would 'clearly outweigh any extra economic, social and environmental impacts and the technical difficulties are insurmountable'*.

2.3.9 SP Manweb's assessment to date concludes that the proposed overhead line would not give rise to any major adverse landscape and visual effects (and thus serious concerns, being a test in NPS EN-5) and would not produce any major adverse effects on any cultural heritage assets (and thus substantial harm, being a test in NPS EN-1). The route of the overhead line has been designed to avoid any particularly sensitive locations and minimise any impacts on the environment. There is therefore no justification for undergrounding the entire line. Where undergrounding has been proposed this has been done for technical reasons.

2.4 THE ROUTEING PROCESS

2.4.1 The process of line route selection comprised a series of technical and environmental reviews and assessments, together with stakeholder consultation, as illustrated in Diagram 2.1 above. Considerable investigatory work has been undertaken consider the location of communities, heritage

features and other sensitive features. During this time SP Manweb undertook extensive pre-application consultation with statutory stakeholders, the public and affected landowners. SP Manweb's consultation process is described in detail in the relevant published documents and summarised in Chapter 4 'Consultation' of this PEIR.

2.4.2 Since submission of the Scoping Report in March 2017, SP Manweb has continued to refine the route of the overhead line, culminating in the Preferred Line Route (the route of the overhead Trident line) which forms the main part of the Proposed Development, which is the subject of this PEIR. This process is explained in the Updated Line Route Report 2 (November 2017), which accompanies the PEIR.

Identification and Appraisal of Broad Route Corridors

2.4.1 The work carried out in relation to the alternative broad route corridor options considered, is set out in the Route Corridor Options Report (June 2016)[12], which was prepared by environmental consultants MWH. Chapter 3 of that report refers to how the routeing process applied the Holford Rules[13]. Rule 1

[12] Route Corridor Options Report, SP Energy Networks (June 2016)

[13] In 1959, Lord Holford, then advisor to the Central Electricity Generating Board (CEGB), developed a series of planning guidelines in relation to amenity issues, which have subsequently become known as the 'Holford Rules'. The National Grid Company (NGC) subsequently revised these rules in the 1990s, and although never formally published as official guidance, they are often referred to in planning publications such as, 'Planning Overhead Routes' (RJB Carruthers, 1987) and 'Visual Amenity Aspects of High Voltage Transmission' (GA Goulty, 1989). The Holford Rules form the basis for the decision making process of siting overhead transmission lines, and minimising the potential landscape impact of such infrastructure. They are particularly helpful in identifying route options, as most landscape visual impact assessment guidelines relate to other forms of infrastructure. In contrast, the Holford Rules relate specifically to transmission lines, and although slightly amended in the 1990s, the core premise of each rule remains intact since originally proposed in 1959. Although they have been developed for transmission lines (steel towers), SP Energy Networks consider that the basic principles are applicable to the routeing of wood pole overhead lines.

of the Holford Rules advises that the areas of 'highest amenity value' should be avoided wherever possible, without specifying what this term means. SP Manweb adopts the commonly accepted approach that this includes the following national and internationally regarded protected sites ('primary constraints'):

- Special Area of Conservation, Special Protection Area and Ramsar Site;
- National Park, Area of Outstanding Natural Beauty, National Nature Reserve and Site of Special Scientific Interest;
- Scheduled Monument, Listed Building Grade I, II and II*, Conservation Area, World Heritage Site; and
- Registered Park and Garden.

2.4.2 The Route Corridor Options Report (June 2016) also explains that, alongside the avoidance of areas of highest amenity value, technical and economic considerations were also taken into account. Technical considerations included ease of construction or 'buildability', altitude, slope angle, flood risk, and crossing of particular features such as bridges, railway lines, roads and existing overhead lines. Airfields were also noted. Consideration was also given to land interests such as farming and mineral extraction. Economic considerations included the need to build the most direct line possible in order to minimise costs.

2.4.3 These environmental and technical constraints are shown in Figures 4.2 to 4.6 of the Route Corridor Options Report (June 2016). Before identifying possible route corridors, SP Manweb also identified some local features that it noted might be considered of locally high value such as The Montgomery Canal. These are shown in Figure 6.1 of the Route Corridor Options Report (June 2016).

2.4.4 Based on the above, the following four route corridors were identified on the basis of their suitability for accommodating a Trident wood pole line:

- Option 1: the 'Orange Route' (approximately 23.1km);
- Option 2: the 'Red Route' (approximately 20.8km);
- Option 3: the 'Blue Route' (approximately 21.8km); and
- Option 4: the 'Purple Route' (approximately 22.3km).

2.4.5 These are shown in Figure 4.10 of the Route Corridor Options Report (June 2016).

2.4.6 The four route broad corridors were assessed against the environmental constraints referred to above. Early in the assessment process it was noted that the Orange and Purple Route Corridors were both longer and less direct than the other two options. They were also likely to present fewer opportunities for the identification of alternative line routes than the other two options. This is because they were closer to the areas of highest environmental value and to the local sites that SP Manweb was seeking to avoid. Furthermore, the presence of these constraints meant that the orange and purple broad route corridor would be narrowed to such a degree that it would compromise the subsequent process of line routeing in terms of taking into account other environmental and technical considerations as well as landowner interests. For these reasons, SP Manweb concluded that there was no benefit in progressing these two options.

2.4.7 The next stage in the routeing process was to comparatively assess the Red and Blue Route Corridors. For this assessment the two broad route corridors were both split into three sections and assessed against environmental and technical constraints section by section. The assessment is presented in paragraphs 5.21 to 5.81 and concluded in paragraphs 5.82 to 5.91 of the Route Corridor Options Report (June 2016). It was noted that in terms of minimising likely significant environmental effects, whilst Section 1 of the Red Route (R1) was preferred at the western end, the Blue Route was preferred overall.

2.4.8 As there was little to distinguish between R1 and B1 in the Route Corridor Options Report, SP Manweb decided to take forward the first section of the Red Route (R1) and the first section of the Blue Route (B1) (as well as the remainder of the Blue Route) for further analysis, assessment and review in the next (identification of line route options) stage of the work.

Identification and Appraisal of Line Route Options

2.4.9 In spring 2016, SP Manweb engaged Gillespies LLP, an experienced environmental consultancy in overhead line routeing and assessment, to lead in the identification and comparison of line route options approximately 100m wide within the Red and Blue Route Corridors. Gillespies was supported by an experienced project team, including ecologists (Avian Ecology), heritage consultants (Network Archaeology), a consulting hydrologist (Bob Sargent); socio-economic professionals (Filkin & Co), agricultural land use consultants (Laurence Gould Partnership), and transport and traffic consultants (The Transportation Consultancy).

2.4.10 The environmental team worked alongside Line Design Technology (LDT), a line design engineering firm based in Wrexham. LDT designed the similar Trident overhead line between Legacy to Wrexham, which was completed in 2015 and is now fully operational. This scheme was shortlisted in November 2016 for a national award in the utilities sector by Utilities Week for most efficient project delivery.

2.4.11 The Line Route Report[14] (June 2016) outlines the broad approach to identifying line route options. It describes how the Gillespies' team followed a similar approach to MWH for the identification of route corridor options by first reviewing the range of environmental constraint data in the Route Corridor Options Report (June 2016) and then identifying any additional more

[14] Line Route Report, SP Energy Networks (June 2016)

detailed environmental and technical data (' secondary constraints') required to inform the line routeing stage. This included information on woodlands, long distance footpaths and other public rights of way, as well as updated information on local wildlife sites. The environmental criteria which were considered are listed in Table 2.1 of the Line Route Report (June 2016).

2.4.12 One of the aims of the routeing process was to identify routes which would provide the best 'fit' within the landscape by:

- Following the grain of the landscape, running with valleys and alongside woodland edges and field boundaries;
- Using landform, woodland and trees as a backdrop or screening element;
- Minimising the number of crossings of linear features;
- Avoiding the creation of wirescapes;
- Avoiding residential areas wherever possible; and
- Following the most direct route wherever possible to limit the potential for environmental impacts.

2.4.13 The report goes on to explain that, from this exercise, a number of line route options, approximately 100m wide, were identified in the Red (R1) and Blue Route Corridors. Following an initial appraisal, some of these line route options were discounted. The remaining line route options were then appraised against a number of established line routeing criteria, in order to identify a preferred line route to be taken forward to preliminary consultations with local communities, landowners, tenants and statutory consultees. This process involved an element of weighting in terms of the criteria used in the assessment, with an emphasis on landscape, visual and heritage considerations.

2.4.14 In parallel to this work, there was input from LDT and SP Manweb's land agents who had begun initial discussions with landowners and produced

some preliminary designs. The work streams were then combined and a Preferred Line Route (June 2016) identified together with a number of options. This included a section of underground cable running from the Oswestry substation under the A5. These are shown in Figures 3.5 and 6.1 of the Line Route Report (June 2016).

2.4.15 In terms of the broad route corridors, this review led to the first section of the Blue Route (B1) being discounted in favour of a refined section of the Red Route (R1) running slightly further south than R1 (referred to as Option 1A) south of Whittington and a new line route option slightly closer to the village of Cockshutt.

Stage One Consultation on 100m Wide Line Route Options

2.4.16 SP Manweb recognised that the Preferred Line Route (June 2016) and associated options would benefit from wider consultation to both seek peoples' views on the likely environmental effects and to help avoid or minimise these wherever possible. As explained further in Chapter 4 'Consultation', a consultation zone was therefore drawn up, based broadly on a 2km distance from the outer edge of the Red and Blue Route Corridors.

2.4.17 The Preferred Line Route (June 2016) was published in the Project Update 1 Newsletter that was sent to approximately 3,800 local homes and business addresses in the original consultation area during the summer of 2016. Publication of this newsletter was the start of the non-statutory Stage One Consultation which ran from June to September 2016 (see Chapter 4 'Consultation').

2.4.18 In addition to the Preferred Line Route (June 2016), the Stage One Consultation also presented the line route options that had been considered and discounted. The consultation also asked for feedback on the likely environmental effects, as noted in the Feedback Questionnaire.

Work Undertaken Following the Stage One Consultation

November 2016 – Publication of Feedback to Stage One Consultation

2.4.19 In November 2016 SP Manweb published the following documents setting out its response to the Stage One Consultation undertaken between June to September 2016:

- Stage One Consultation Feedback Report;
- Project Update 2 Newsletter; and
- Updated Line Route Report.

2.4.20 The process for considering consultation comments is explained in the Stage One Consultation Feedback Report (the 'Feedback Report'). This report also lists the responses received from the Stage One Consultation and refers to where changes to the Preferred Line Route should be considered in order to reflect comments received.

2.4.21 Responses to the Stage One Consultation included comments from the following organisations:

- Shropshire Council and nine out of the ten local parish councils potentially affected;
- Natural England, Environment Agency, Shropshire Wildlife Trust, the Woodland Trust, and the RSPB;
- Historic England; and
- Severn Trent Water and the Canal and River Trust.

2.4.22 In addition to comments from statutory bodies, all comments from local people, and landowners were considered.

2.4.23 The feedback and ongoing assessment work being undertaken by SP Manweb resulted in an updated route for the new line, which was referred to as the Proposed Line Route (November 2016). This is shown as a fold out plan in the Project Update 2 Newsletter (November 2016).

2.4.24 As explained in the Updated Line Route Report (November 2016), as a result of this feedback, a more southerly route was adopted, further from the village of Cockshutt where concerns about proximity to the line had been raised by local people. This new route was considered to have no greater impacts on any single property in the area than the Preferred Line Route (June 2016).

2.4.25 Similarly, in response to residents' concerns in Noneley, the line was routed further to the south to reduce likely visual impacts on peoples' views and on the setting of Noneley Hall.

2.4.26 Near Lower Hordley, a more direct northerly route was proposed which avoided impacts on agricultural operations further south.

March 2017 – Publication of Scoping Report

2.4.27 Following the publication of the Proposed Line Route (November 2016), SP Manweb continued to receive comments from stakeholders and landowners. This resulted in some minor amendments to the route both in terms of its alignment and in terms of small areas being excluded from the 100m wide corridor because they contained environmental features such as ponds or tree groups.

2.4.28 In addition to these minor changes, two sections of the Proposed Line Route were re-appraised. As a result, within each of those sections two further options were identified within the Scoping Report. These were at Lower Hordley and Noneley:

- Lower Hordley – as a result of the likely effect on agricultural operations, two options were presented in the Scoping Report - Lower Hordley South (the Preferred Line Route (June 2016)) and Lower Hordley (a route further to the north, which is broadly similar to the Proposed Line Route shown in the Updated Line Route Report (November 2016)).

- Noneley – Section 4 of the Proposed Line Route (November 2016) was also subject to further detailed environmental assessment in terms of likely landscape, visual, historic environment and ecological effects. This was in response to SP Manweb's reconsidering the Proposed Line Route (November 2016) in this area following feedback from Shropshire Council and the local community. Additional work was undertaken and detailed discussions held with Shropshire Council's heritage, ecology and landscape representatives. As a result two alternative options were presented in the Scoping Report. These are identified as Noneley South and Noneley North. Noneley South follows the Preferred Line Route (June 2016) south of Noneley, whilst Noneley North broadly follows the route of an existing 33kV overhead line, to the north of the village.

2.4.29 Both of these options and the minor amendments to the Proposed Line Route are shown are shown in Figure 1.1 of the Scoping Report, which was submitted to the Planning Inspectorate (PINS) in March 2017.

May 2017 – Publication of Project Update 3 Newsletter

2.4.30 In May 2017 SP Manweb published the Project Update 3 Newsletter explaining the latest position on the Proposed Line Route and particularly the two options at Hordley and Noneley, which had been introduced in the Scoping Report. It also introduced a new option in the area around the Woodhouse Estate, which arose from ongoing discussions with local people including landowners. All options were considered within the environmental survey work.

2.4.31 The fold out plan included in the newsletter refers to these as 'Route Options' set within a 100m wide route corridor for Lower Hordley and Noneley and as a 'New Route Option', again within a 100m wide corridor, for Woodhouse.

2.4.32 Following publication of the Project Update 3 Newsletter (May 2017), SP Manweb continued throughout the summer of 2017 to undertake further

environmental work including environmental surveys and assessments of the likely landscape and visual impacts, and impacts on ecology and historic assets. It also continued discussions with local people and landowners in relation to the three options.

2.4.33 The company met with local residents and landowners from the Noneley area in mid-May 2017 and then again with landowners affected more by the northerly route option in early July 2017. SP Manweb also attended a local Loppington Parish Council meeting on the Noneley option in mid-July 2017 where a number of local people and landowners were present. With respect to the proposals at Woodhouse, the company met with representatives of the Woodhouse Estate.

2.4.34 All responses received following those meetings were considered as explained in the Updated Line Route Report 2 (November 2017) which accompanies this PEIR.

2.4.35 The result of the feedback and the further environmental assessment work culminated in the Preferred Line Route (November 2017) which is shown in Figures 1.1 and 1.2 'Proposed Project Boundary'.

2.5 SUMMARY

2.5.1 This chapter explains how SP Manweb has taken steps over a period of more than two years to consider alternatives, first at an initial broad route corridor stage and then in terms of narrower, 100m wide line routes, and ultimately to the Preferred Line Route (November 2017), which lies within a 25m wide Construction and Operation Corridor. Throughout the development of the route SP Manweb sought information on the likely environmental effects from a range of statutory and local stakeholders. It then ensured that each option was considered against the same environmental criteria.

2.5.2 SP Manweb has continued to listen and take account of feedback from statutory stakeholders, local people and landowners as the project has developed. Refinements to the line route have been made culminating in the

Preferred Line Route15 (November 2017). A description of the Preferred Line Route and the related components which together comprise the Proposed Development is presented in the following chapter.

[15] Note that because the line route will not be finalised until submission of the Environmental Statement it is referred to in the PEIR as the Preferred Line Route.

CHAPTER 3 THE PROPOSED DEVELOPMENT

CONTENTS

CHAPTER 3: THE PROPOSED DEVELOPMENT

3.1 INTRODUCTION

3.1.1 This Chapter describes the Proposed Development and is based on the Preferred Line Route shown in Figures 1.1 and 1.2 'Proposed Project Boundary'. An illustrative description of the boundaries and terminology used is provided below in Diagram 3.1:

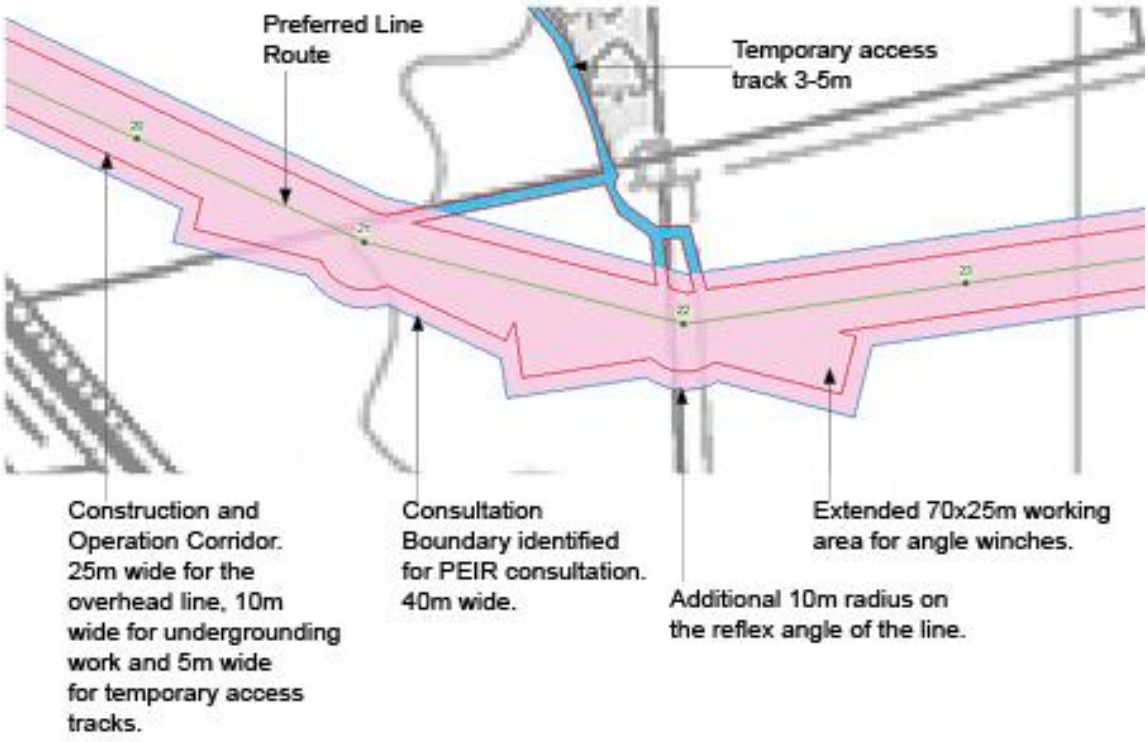

Diagram 3.1: Illustrative section of the Preferred Line Route and terminology

Construction and Operation Corridor

3.1.2 The focus of the PEIR, around which information has been gathered and assessed, is a Construction and Operation Corridor (also known as the 'Draft Order Limits' for which DCO consent will be sought). This is an 'envelope' within which the works would be constructed and operated. It contains the permanent installation of the new 132kV circuit along the Preferred Line

Route (the overhead Trident wood pole line), sections of undergrounding (both the proposed 132kV circuit and existing sections of lower voltage line), and temporary construction works and construction accesses, including along existing farm tracks. The width of the corridor varies but is on average 25m wide for the overhead line section and 10m wide for the underground cable section.

3.1.3 For consultation purposes, the Construction and Operation Corridor is set within a 40m wide Consultation Boundary. This is to ensure there is additional land included to accommodate possible amendments that might be made by SP Manweb where it considers feedback received on the consultation warrants changing the proposals. The Consultation Boundary is shown in Figures 1.1 and 1.2 'Proposed Project Boundary', and as an illustration in Diagram 3.1 above (the area shaded pink).

3.1.4 Narrow elongated sections of Construction and Operation Corridor extend out from the main envelope. These follow the temporary construction accesses along existing farm tracks from public roads. No new access tracks, temporary or permanent, would be built for the Proposed Development. Each construction access would be between 3m and 5m wide and use existing field gates or openings. Eleven 'lay-down' areas, where poles and other equipment are temporarily stored, have been identified along the route. These are located either adjacent or close to construction accesses.

3.1.5 The development of the Construction and Operation Corridor has had the benefit of input from line design engineers who, working alongside the environmental team, have been able to balance the need between the technical requirements of a Trident overhead line and avoiding environmental constraints; whilst considering issues raised via local community and landowner consultation. This has resulted in the current design, which respects the competing interests between landowners, technical requirements and environmental considerations. Feedback received during

the statutory consultation period will be fully consider with regard to the final route of the line.

3.1.6 The remainder of this chapter provides an overview of the following:

- Wider setting of the Proposed Development;
- A description of the Preferred Line Route for the new 132kV circuit;
- Engineering design details;
- Construction elements;
- Operation;
- Mitigation;
- Decommissioning; and
- Programming.

3.2 WIDER SETTING OF THE PROPOSED DEVELOPMENT

3.2.1 The Proposed Development is situated within the administrative county area of Shropshire. It passes through a scenic, farmed landscape of arable fields and pasture, with occasional villages, scattered residential properties and woodland.

3.2.2 Shropshire's geology is diverse and includes a large amount of mineral wealth, with active quarrying of aggregates, sand and gravel. There are some large areas where mineral deposits are safeguarded from future development. The Proposed Development crosses part of the Shropshire Plain, which covers much of North Shropshire. The plain is a basin of Permian and Triassic New Red Sandstone, overlain by a small area of Jurassic Sandstone near Wem.

3.2.3 The topography of the area through which the Proposed Development passes is typical of the Shropshire Plain, being low lying and relatively flat or gently undulating. There are some areas of higher ground (between 90 – 105m

AOD) in the north-west, close to Oswestry, and in the central areas of the study area, close to Stanwardine in the Wood.

3.2.4 In terms of ground conditions, parts of the area fall within the floodplain of the Rivers Perry and Roden.

3.3 DESCRIPTION OF THE PREFERRED LINE ROUTE FOR THE NEW 132KV CIRCUIT

3.3.1 The proposed electrical circuit would exit Oswestry substation, which is located on the north-eastern edge of Oswestry, as an underground cable. This is to avoid physical constraints and potential visual impacts arising from a new overhead line close to two existing 132kV overhead lines. It also avoids a planned extension to an existing employment area to the north-east of the town. The preferred route for the cable runs parallel to the western edge of the A5 for a distance of approximately 1km before turning east, passing under the A5 and to the south of Round Wood where it transfers to an overhead line at pole no.1. The preferred route for the overhead line then runs east for approximately 21km to Wem substation.

3.3.2 SP Manweb is also proposing to underground five short sections of existing 11kV and 33kV overhead lines along the route to maintain safety clearances with the new 132kV overhead line. The location of this undergrounding work is referred to in the following text and shown in Figure 1.2 'Proposed Project Boundary'.

3.3.3 All the undergrounding work would normally be considered permitted development (under the Town and Country Planning (General Permitted Development) (England) Order 2015). For consultation purposes however, SP Manweb have elected to include the undergrounding work within the Proposed Development.

3.3.4 The modifications required to Oswestry and Wem substations, including installing a 60 megavolt amperes (MVA) grid transformer in the Wem substation are similarly permitted development.

Description of the Preferred Line Route (November 2017)

3.3.5 The following section can be read alongside Figure 1.2 'Proposed Project Boundary' if further context/details are required for information such as locations of pole numbers and temporary access tracks.

3.3.6 The Preferred Line Route (November 2017) for the new overhead line originates in fields to the east of the A5 near Oswestry, to the south-west of Round Wood, with a terminal pole at pole no. 1 accessed via an existing track off of the A5, where the first laydown area will be located. The working area extends westwards of pole no. 1 in order to provide an area for positioning winching equipment to pull the conductors onto the wood poles for this first straight section of line (pole nos. 1 to 8). Approximately 4km of the route passes through the *Settled Pastoral Farmlands* Shropshire Landscape Typology[16] (SLT). It then runs in an easterly direction, passing through hedged fields with occasional blocks of trees to the south (near Middleton Coppice). To the north-west of Middleton Coppice an existing 11kV overhead line would be undergrounded, at the point where the two overhead lines would have to cross. Up to pole no. 21 the route continues in a broadly east-south-easterly direction across fields before crossing the B5009 and the Shrewsbury to Crewe rail line north of the fuel oil distribution yard, which lies south of Babbinswood. South of Babbinswood pole no. 22 is an angle pole which gently changes the direction of the line to east-north-east. At this location the main construction access is via Perrymoor Farm where there is a temporary laydown area which is proposed to be used for approximately 4 weeks, for storing materials used in constructing the overhead line for the poles nos. up to 38 (i.e. to the west of Montgomery Canal). From pole no. 22 the route runs through some smaller, low-lying fields to the north of The Oaks and Decoy Farm passing a small woodland block and frequent mature hedgerow trees.

[16] The Shropshire Landscape Typology, Shropshire County Council (September 2006)

3.3.7 Continuing in an easterly direction the route passes through the *Lowland Moors* SLT and skirts small sections of the *Estate Farmlands* SLT. It crosses the Montgomery Canal and The Shropshire Way regional trail, a long distance walking trail promoted by the Long Distance Walking Association which forms part of the Shropshire Way Route 27, and part of the locally promoted 53km Oswestry Round Trail. The route crosses the Montgomery Canal to the north of Green Wood which is situated on the eastern banks of the canal. East of the canal, the route crosses an area of slightly elevated hedged fields to the north of the privately owned Woodhouse Estate (which is the single largest landholding crossed by the route). The main construction accesses east of the canal are via existing tracks through the Woodhouse Estate. At this location the route goes through a block of immature managed woodland for approximately 80m before continuing in an easterly direction, crossing the River Perry and passing between the occupied properties at Rednal Mill and Misty Meadows. It then crosses a lower-lying road (Woodhouse Drive) north of the industrial estate at Rednal.

3.3.8 Pole nos. 49 to 72 extend between Rednal and Lower Hordley. East of Woodhouse Drive and to the east of Rednal Mill Cottage, the route turns south-east, crossing back over the River Perry, and continuing east and passing north of Lower Lees Farm. It then runs through an area of lower lying land to the south of Tetchill Brook and Springs Brook before crossing the River Perry. From here it turns north-east and continues across the *Lowland Moors* SLT and heads to the north of Lower Hordley. Throughout this area the landscape is generally comprised of low-lying, large scale arable fields, bounded by mature hedgerows.

3.3.9 Between the village of Lower Hordley and south of the residential property and farm at Dandyford the landform begins to rise again. Here the route straightens and a further small section of an existing 11kV overhead line is undergrounded to the immediate north of Lower Hordley. At this point, as the landform continues to rise, the route heads in a south-easterly direction (from

pole nos. 72 to 97 (near Stanwardine), crossing arable fields and the rural lane to the north-east of Lower Hordley. It follows the grain of the field pattern on the approach to Top House Farm. From here it continues south-east before crossing an area of slightly more elevated farmland south of Top House Farm and entering a landscape with a smaller and more irregular field pattern, and more mature trees. For approximately 6.5km from Lower Hordley heading eastwards the route passes through the *Estate Farmlands* SLT.

3.3.10 The construction accesses along this section are via Top House Farm, where there is a temporary construction laydown area, and Kenwick Lodge. Construction access is also proposed from Stanwardine Grange, where there is a temporary construction laydown area and Stanwardine Hall.

3.3.11 As the route continues in an easterly direction it approaches a localised (north-west to south-east) ridgeline near Kenwick Lodge. This is in an area of small to medium scale fields with scattered mature hedgerow trees, including a distinctive line of oaks. The route gently changes direction twice, to the south and then south-east, of Kenwick Lodge in order to increase the distance from the property and reduce the likelihood of visual impacts. At pole no. 97, south of Kenwick Lodge, the route changes to a straight easterly direction until it reaches pole no. 111 near Wackley Lodge. From pole no. 97 the route crosses a shallow localised ridgeline to the north of Stanwardine in the Wood and Stanwardine Hall, and descends into the lower lying fields near Cockshutt and Stanwardine Grange, passing through small to medium scale fields with scattered mature hedgerow trees. The localised ridge continues east-south-east of Stanwardine in the Wood, which would limit views from the area east of Stanwardine. From here it would cross an unnamed lane and the A528 in relatively quick succession, before continuing east to the north of Wackley Lodge. A small section of an existing 11kV overhead line would be undergrounded to the immediate north-east of Wackley Lodge.

3.3.12 For approximately 900m the overhead line would head east-north-east (to pole no. 117) across lower lying farmland associated with the *Lowland Moors* SLT around Wackley Brook. This is a landscape which comprises some large open fields with occasional mature hedgerow trees. Between pole no. 111 and no. 148 (north of The Shayes) the route deviates around properties and other constraints. Construction accesses along this section of the route are typically short because the line is close to public roads. The line would skirt to the north of a large pond before turning south-eastwards, passing through the *Principal Settled Farmlands* SLT, crossing a lane and passing to the north of the residential properties at The Wood and Malt Kiln Farm through an area of slightly elevated land. The route is located broadly equidistant between The Runner's Rest and The Wood residential properties. It is also designed to avoid the many ponds scattered throughout this area. The route continues on the far side of a row of mature hedgerow trees, which will provide some screening from Malt Kiln Farm and other nearby properties. It then continues in a south-easterly direction, crossing fields with some individual mature trees, and passing briefly through the *Estate Farmlands* SLT, before oversailing the B4397 and crossing open fields (with no hedgerow boundaries). At this point it lies over 200m south of Coppice Farm farmhouse where a further section of 11kV overhead line would be undergrounded.

3.3.13 The route continues in a south-easterly direction, passing back into the *Lowland Moors* SLT, and skirting around the southern edge of Moor Fields Local Wildlife Site. Moor Fields is an area of distinctive field patterns with mature hedgerows and trees, which is important for its grassland habitats. The route then turns to the north-east, passing through an area of small-medium scale pastures and arable farmland to the east of Bentley Farm, and running largely parallel to an existing 33kV wood pole overhead line. For approximately 2.4km from Moor Fields the route runs through the *Principal Settled Farmlands* SLT. Field boundaries contain mature hedgerows and trees and there are scattered individual mature trees within the fields which

are often associated with ponds. The route passes to the west of the residential property, farm and listed buildings at The Shayes, before turning sharply east south of the residential property at Chapel House, and adjacent to a large pond bordered by trees.

3.3.14 Between pole no. 147 and terminal pole no. 176 there are four broadly straight sections of line as the route avoids Noneley and Commonwood before heading into Wem Substation.

3.3.15 From pole no. 147 (near The Shayes) the route continues near to the route of an existing wood pole 33kV overhead line, and crosses a rural lane before heading east through an area of more open, larger scale arable fields and occasional strips of trees along hedgerows as it approaches the *Lowland Moors* SLT. To the north of Commonwood the route turns south-east before crossing the River Roden, at which point it turns north-east and heads towards Wem substation. This is an open, sparsely populated, level and low-lying landscape.

3.3.16 South of the residential property at Pools Farm, a section of the existing wood pole 33kV overhead line would be placed underground, at which point the route turns north-north-east, crossing low-lying open fields with occasional hedgerow trees. It crosses the B5063 Ellesmere Road before entering Wem substation. This latter section lies close to the western edge of Wem, in particular the individual residential properties (Avondale, Harley House and Overfields) that lie close to the B5063.

3.4 DESIGN DETAILS OF ENGINEERING DESIGN

Line Height and Span Length

3.4.1 The Trident wood pole design is lower in height and has a more slender and simple appearance than steel lattice towers or heavy duty wood poles. Wood poles are easily screened by trees and are less likely to be visible from the surrounding landscape than heavy duty wood poles and, particularly steel towers. Trident poles are also more flexible in terms of routeing around

obstacles, thereby enabling a better landscape 'fit'. Wood poles have a further advantage in that they do not generally have concrete foundations and so construction methods are typically less intrusive. For this development none of the wood poles will have concrete foundations.

3.4.2 The overall height of the line is also dependent on a number of criteria, including the need to maintain a statutory ground clearance of 6.7m, geographical location, topography, height above sea level, wind and ice loading and span length and conductor type.

3.4.3 The standard above ground pole height is approximately 12m. This includes the 2m high steel work and insulators to support the conductors (wires), which are fitted on top of the poles. Approximately 2.5m of pole is installed below the ground. Pole heights may be reduced where there are short spans or if they are located on an area of higher ground, or they may be increased to provide adequate clearance for conductors over elevated or sloping land, structures or features.

3.4.4 The span length depends on similar criteria as line height. The span length between poles would be on average 120m, with a maximum of 200m (between poles 99 and 100, to the north of Stanwardine in the Wood).

Support Structures

3.4.5 All the proposed pole positions are shown on Figure 1.2 'Proposed Project Boundary' and individually numbered, the numbers relate to the proposed pole schedule accompanying this PEIR as Appendix 3.1.

3.4.6 The different types of support or pole types are illustrated below in Diagram 3.2. In total there will be 176 structures comprising:

- Two terminal H-poles;
- Six section poles (four single poles and two H-poles);
- 32 angle poles (three single poles and 29 H-poles); and
- 136 intermediate poles (130 single poles and six H-poles).

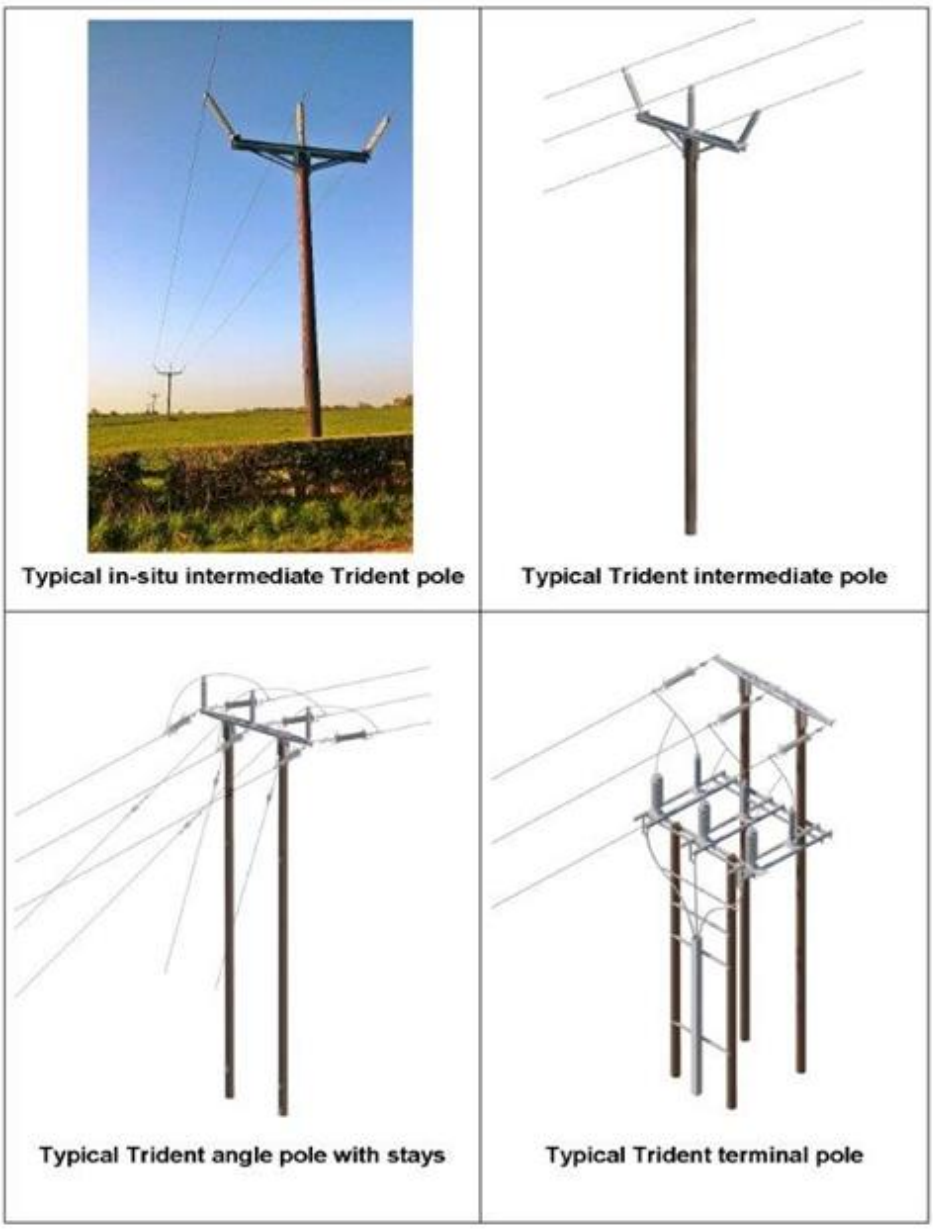

Diagram 3.2 – Illustration of different Trident pole types

3.4.7 Intermediate structures would be used where the overhead line follows a straight line/alignment. Options include single poles or 'H' structures, with the majority being single poles. Structures include a small amount of steelwork and insulators to carry the conductors. For example, poles 2 to 5 (inclusive) at the start of the line east of Oswestry, are all intermediate singles poles;

pole no. 6 is an intermediate H-pole as it supports longer spans (160m and 170m) to either side.

3.4.8 Angle section structures are used to enable changes in direction in the overhead line, in order to avoid sensitive receptors or settlements. For instance pole nos. 64, 69, 72, 78 and 81 are all angle poles and route the line around the settlement of Lower Hordley with intermediate poles used between these angle poles. The structures can be single or 'H' pole structures (pole nos. 64, 69, 72, 78 and 81 are H-poles). The maximum angle of deviation is 35 degrees.

3.4.9 Terminal structures are used at either end of the overhead line. The terminal structure allows the overhead line to be connected either to a cable (as at the Oswestry end) or directly to a substation (as at the Wem end). The cable termination structure comprises a terminal pole with two smaller poles in front to support the required steelwork.

3.4.10 All wood poles are fully seasoned and treated with appropriate preservative. The galvanised steelwork (pole top steelwork) is assembled using galvanised high tensile steel bolts with nuts and locking devices.

Overhead Line Components

3.4.11 A single circuit 132kV overhead line comprises three separate phase conductors which are attached to the pole-top structure on insulators, which are made from a composite material. Insulators are fastened to the pole-top steel crossarm. One of the phase conductors will have an integrated fibre optic core, which provides a means of transmitting SP Manweb's protection and communication information.

3.4.12 Angle poles typically have three stay wires attached to the top of the poles at angles of up to 45 degrees from vertical. These are spread out from the pole top in such a way as to counterbalance any forces and make the structure stable.

Land Take

3.4.13 The design has a very limited land take for each wood pole, with negligible land take required for single wood poles.

3.4.14 The construction corridor is typically 25m wide but this extends at changes in direction by a radius of 10m on the reflex angle of the line, as shown in the Diagram 3.1. This is to allow for the conductors to be fixed to the wood poles by means of a winch. In addition each angle pole has a 70m x 25m working area to allow space for angle winches. Figure 1.2 'Proposed Project Boundary' illustrates the working area required for angle winches - for example at the angle poles (referenced in paragraph 3.3.9) required to route the overhead line around Lower Hordley. The construction accesses are typically 3m – 5m wide and follow existing farm tracks wherever possible. Further construction information is provided in Section 3.5 below.

3.5 TEMPORARY CONSTRUCTION WORKS

Construction Working Areas and Access Routes

3.5.1 Within and extending out from the Preferred Line Route are integral overhead line construction working areas and access routes. The accesses would utilise existing access tracks and roads.

3.5.2 Construction would involve:

- Pre-construction activities;
- Vegetation clearance and ground preparation works;
- Delivery of construction materials;
- Erection of wood pole supports;
- Delivery of conductor drums and stringing equipment;
- Insulator and conductor erection and sagging; and
- Ground reinstatement.

Pre-construction Activities

3.5.3 Prior to construction of the overhead line a precise ground survey would be carried out to determine the exact location of the overhead line and poles. This process is called 'setting out' and involves an engineer with a GPS locator placing 50cm wooden pegs in the ground to mark the exact location of each pole. Once the line is set out, accurate tree surveys then take place. This is to ensure that the location selected for poles and stays and their relationship with each other complies with the technical limits laid down for maximum span lengths, maximum sums of adjacent spans and safe clearance to live conductors.

3.5.4 Where the route of the line passes over or close to trees that could infringe safety clearances to 'live' conductors, the trees would be felled or pruned prior to construction of the line. Further details on the number of trees affected are provided within Chapter 8 'Ecology' and Appendix 8.4 'Arboricultural Survey'. In order to reduce the likelihood of trees falling and causing damage to the power line during abnormal weather conditions, the Energy Networks Association has recommended that cutting back of vegetation incorporates an allowance for growth (ENA Engineering Technical Report 136, 2007[17]).

3.5.5 A programme of vegetation clearance and ground preparation works will be undertaken prior to the start of construction works at any given location. This programme of works would likely be phased over the construction programme to avoid key breeding seasons of fauna and to minimise the time that areas of bare ground were exposed.

[17] Energy Networks Association (2007), Engineering Technical Report 136, Issue 1 June 2007 Vegetation Management near Electricity Equipment – Good Practice

Temporary Construction and Accesses

Access

3.5.6 Access for construction would be required and maintained to all sites during the construction phase. Future access arrangements for periodic maintenance and fault repairs would be arranged with the relevant landowners as required. The types of vehicles required for construction are of a standard specification and can be used on the public highway with no escort vehicles or the need to deliver outside the working day. There would be no requirement for very large vehicles that are typically referred to as an 'Abnormal Indivisible Load' (AIL).

3.5.7 As shown on Figure 1.2 'Proposed Project Boundary', existing field entrances from existing access tracks and minor roads would be used for temporary access purposes with existing farm tracks and the works corridor providing access between wood poles. For instance, the track off Berghill Lane, east of Babbinswood, would be used as a temporary access track, with five spurs, for wood pole nos. 26 to 35 inclusive.

3.5.8 A maximum access width of 5m would be secured to every pole site on the route. No construction work is anticipated for temporary access tracks.

3.5.9 Temporary access routes, as shown on Figure 1.2 'Proposed Project Boundary' have been provisionally agreed with each landowner or occupier.

3.5.10 It is proposed that SP Manweb's existing Maesbury Road Depot, south of Oswestry, would be used as the holding compound for the proposed development. Eleven laydown areas, areas where poles and other equipment are temporarily stored, have also been identified along the route. The laydown areas are located either adjacent to construction access routes or nearby farm buildings. The depot, laydown areas and provisional access routes are shown in Figures 1.1 and 1.2 'Proposed Project Boundary'.

3.5.11 The laydown areas are located:

- Adjacent to the southbound carriageway of the A5, nearest pole no. 1;
- Cabin House Farm, Middleton Road, nearest pole no. 4;
- Adjacent to the northbound carriageway of the B5009, opposite the oil terminal south of Babbinswood, nearest pole no. 17;
- Perrymore Farm, Berghill Lane, nearest pole no. 27;
- Rednal Industrial Estate, nearest pole no. 54;
- Dandyford, nearest pole no. 69;
- Red House Farm, Lower Hordley, nearest pole no. 76;
- Top House Farm, north of Bagley, nearest pole no. 85;
- Stanwardine Grange, nearest pole no.104;
- Coppice Farm, nearest pole no. 126; and
- Adjacent to the westbound carriageway of the B5063, opposite Wem substation, nearest pole no. 175.

3.5.12 Typically access would be required for an excavator (JCB and/or tracked 360 degree excavator), agricultural loader, 4 x 4 lorry (often with Hiab) and 4 x 4 pickups. During the stringing phase of the works, there would also be the need for access for 1 tractor, 1 tensioner and 1 MEWP (mobile elevated working platform) and cable trailers to several locations along the route. The works would be undertaken sequentially and the plant would move from one location to the next until the stringing were complete. The low level of traffic numbers anticipated for the Proposed Development has meant that the effects on traffic and transport have been scoped out of the ES, as detailed in Appendix 4.2 'Traffic and Transport' of this PEIR.

Transport of Materials

3.5.13 During construction the wood poles would be transported on general purpose four-wheel drive cross-country vehicles which have incorporated lifting

devices. Drums of conductors would be delivered as close as possible to the angle or tension pole sites from which the conductors are pulled. If necessary tractors adapted to carry such loads would be used to transport drums to the pole sites.

3.5.14 Special plant is available if there are any requirements for special precautions to be taken during construction of the line due to local environmental conditions or hazards.

Staff and Vehicle Numbers

3.5.15 It is envisaged that the overhead line works would be undertaken by a team of approximately 10 to 20 staff using the vehicles identified above and transit vans, or similar, to transport the staff to site.

3.5.16 The overall number of vehicles movements on the public highway during the construction period would be limited as explained in Appendix 4.2 'Traffic and Transport'.

Wood Pole Installation and Conductor Stringing

3.5.17 The installation of wood poles requires excavation to install the pole brace blocks and/or steel foundation braces. Following pole installation the excavation would then be backfilled and consolidated in layers, normally with the original materials. Topsoil would be reserved for the top layer and any surplus subsoil or rock removed from the site.

3.5.18 Once all the poles within the section of line under construction had been installed, all poles would be fitted with insulator supports. Running blocks would be fitted to the top of the insulator support and the conductors fitted using the following techniques.

3.5.19 Drums of conductor and a tensioner with a hydraulic brake are located at one end of the line section, with the pulling winch at the other. The conductor is joined to a single, heavy duty pilot wire and drawn through the section, one conductor at a time, under constant tension. During stringing, radio

communication is maintained between the operators of the pulling winch, the tensioner, hydraulic brake and intermediate observation points so that pulling can be stopped if problems arise. By using the 'continuous tension stringing' method, the conductors are held aloft at all times and would not touch the ground or other structures.

3.5.20 Overhead line conductors are usually installed from one end of the line, in short sections (dependent on the terrain and complexity of the design). Temporary stays would be required along the line to balance the conductors as the build progresses to the other end. These stays would be installed and removed along the length of the line as the individual sections were completed.

Reinstatement

3.5.21 Areas of ground disturbed by the construction works would be reinstated. Subject to programme requirements, some sections of the construction may be reinstated earlier than the final construction completion.

Crossing Existing Lines (Lower Voltage Diversions)

3.5.22 In five locations, as detailed in section 3.3 (above) it would be necessary to cross existing overhead lines where existing lines obstruct the new line. The crossing of lines may cause temporary interruptions to supply carry out the works. Crossing of lines would therefore be programmed at times when existing lines could temporarily be taken out of service to minimise the disruption to customers.

3.5.23 This work would involve the diverting of the existing lower voltage lines underground. This work forms part of the Proposed Development and has been considered within the environmental assessment work.

Line Clearance

3.5.24 New lines are positioned to maintain statutory clearances from buildings, structures, trees, vegetation etc. For instance the span between poles 17 and

18 is only 92m to ensure clearance of the Crewe-Shrewsbury rail line. As detailed in Section 3.3 (above) lower voltage lines will be undergrounded in five locations to ensure that statutory clearances are not an issue. Safety clearances for overhead lines are specified in ENA-TS 43-08 Issue 3 2004 , and as required under the Electrical Safety, Quality and Continuity Regulations 2002 as amended (ESQCR) .

Crossing/Paralleling Roads, Railways, Waterways and other Services

3.5.25 Where the line crosses road, railways, and other electricity lines or telephone wires, certain precautionary works have to be completed prior to the commencement of conductor stringing. Scaffolding and nets would normally be erected over major roads and railways to enable the conductors to be pulled out unhindered.

3.5.26 Where the line crosses navigable rivers and underground pipelines, all requirements of the appropriate authority would be adhered to, both at the design stage when locating individual poles and ensuring minimum clearances are provided, and at the construction stage by complying with relevant codes of practice, specification and procedures.

3.6 OPERATION AND MAINTENANCE

3.6.1 132kV wood pole overhead lines generally require very little maintenance. They are regularly inspected to identify any unacceptable deterioration of components so that they can be replaced.

3.6.2 The operational requirements of the local electrical network and associated demand would be kept under continuous review throughout the life of the North Shropshire Reinforcement Project, in order to determine the long term use and retention of the connection. For the purposes of the EIA, however, the connection is assumed to be permanent, although experience indicates that it is likely to require refurbishment after approximately 40 years, depending upon local environmental factors (e.g. local weather conditions). Unless otherwise stated, all effects of the operational phase of the proposed

overhead line are considered adverse and permanent. Additional effects during construction include tree removal/reduction, access tracks, storage compounds, vehicle and personnel movements. Tree removal/reduction will be assessed as an adverse, permanent and irreversible effect. All other construction effects are considered adverse, but temporary.

3.7 MITIGATION

Control of Environmental Effects During Construction

3.7.1 SP Manweb has consulted extensively with environmental agencies concerning the matter of construction and/or dismantling in or near sensitive habitats and conservation areas. The company has in the past prepared method statements which were issued to contractors for use in environmentally sensitive sites to address issues of habitat, archaeology, designed landscapes and historic structures. This practice would continue for this project and the method statement would be rigorously applied.

3.7.2 Where hedgerows need to be removed, hedgerow replacement/replanting is classed as a standard construction practice. If hedgerows have to be removed to allow a pole to be positioned, these would be lifted and replaced within 48 hours using specialist lifting equipment. Where it would not be possible to replant within 48 hours (e.g. where hedges have to be removed for access), replanting with locally sourced species would take place as soon as possible. Where trees have to be removed they would be replaced by new tree planting on a two for one basis. This would be undertaken as part of the specific mitigation planting as agreed with landowners. At this stage, however, it is not considered that any hedgerows would have to be removed to facilitate access.

3.7.3 A Construction Environmental Management Plan (CEMP) will be produced to outline the means by which the effects on the environment would be minimised. The document will sit alongside SP Manweb's Construction, Health, Safety and Welfare requirements. The CEMP would help to control

and guide the working practices used during the construction of the development, and would be reviewed and amended as necessary throughout construction. The document will also incorporate Natural England, Historic England and Environment Agency guidelines by reflecting current best practice in protecting the environment during the works.

3.7.4 A mitigation schedule for the Proposed Development would be included within the CEMP, together with other guidance and requirements to provide best practice environmental management.

3.7.5 One of the key measures for control of environmental effects during construction is environmental awareness training of the contractor's workforce prior to works commencing on site. Information regarding presence of sensitive sites and species, and the importance of implementing mitigation measures, would be given via a series of 'toolbox talks' by specialists in ecology and archaeology.

Control of Environmental Effects During Operation

3.7.6 Within Schedule 4 of the Infrastructure EIA Regulations (2009) it explains that the following information should be included in the ES for a DCO application:

- A description of the likely significant effects of the project on the environment; and
- A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.

3.7.7 Through the evolution of the development proposals, SP Manweb has been mindful of its obligation under the EIA Regulations and has sought to implement mitigation measures and strategies to reduce the effects on expected receptors. Within the hierarchical approach described in the EIA Regulations the key mitigation method used has been to 'avoid' significant adverse effects wherever possible.

3.7.8 Mitigation has been considered as an integral part of the overall design strategy of the Preferred Line Route and not just an 'add-on' measure to ameliorate potential significant environmental effects. The key mitigation measure for the Proposed Development has been the iterative design of the Preferred Line Route in conjunction with the significant levels of pre-application consultation undertaken with the local community and statutory consultees. This consultation and detailed routeing process has ensured that any potential significant adverse effects resulting from the Proposed Development have been avoided wherever possible, and if unavoidable kept to a minimum.

3.7.9 This PEIR has identified those potential significant adverse environmental effects which could not be prevented through the iterative design of the Preferred Line Route. For each of these it is considered that the scope for mitigation i.e. the reduction of a significant adverse effect to not significant, is limited and that there are no instances of potentially significant adverse environmental effects that would justify additional mitigation measures.

3.7.10 However, SP Manweb wishes to use this statutory consultation process as an opportunity to identify any potential mitigation measures which would reduce a significant adverse environmental effect to 'not significant'.

3.8 DECOMMISSIONING

3.8.1 The operational lifetime for 132kV overhead line circuits is 40 years. Throughout this time, maintenance and repair of the asset would be required, including inspection to identify any unacceptable deterioration of components so that they can be replaced. Examples of deterioration include wood pole rot or unacceptable line sag. After 40 years, a new overhead line of this type is likely to require significant refurbishment, depending upon the severity of pollution and local weather conditions.

3.8.2 Decommissioning of an overhead line is the reverse of construction, with the components being removed and then recycled where possible. Wood poles

are cut down just above ground level and then removed or recycled. However, unless there is no requirement for the overhead line after the 40 year period, the line would be refurbished rather than decommissioned, as described above.

3.8.3 Cables do not require regular inspection or replacement, unless there is a cable fault which could be caused by external damage. In this case the length of damaged cable would need to be identified and replaced.

3.8.4 Decommissioning is not anticipated because it is highly likely that the overhead line would be refurbished and be operated in perpetuity.

3.9 INDICATIVE PROGRAMME FOR THE PROPOSED DEVELOPMENT

3.9.1 It is currently anticipated that (subject to consent being granted) work on site would commence in 2020. Construction is anticipated to take approximately 12 months. The construction phase is therefore anticipated to be completed and the North Shropshire Reinforcement Project operational in 2021. Work at individual pole locations is anticipated to last 1-2 days.

3.9.2 This programme may, however, be influenced by the progress of the DCO application and construction methodologies/availability of project resources.

3.9.3 It is anticipated that the works will involve the following activities:

- Enabling Works:
    - Establish main construction compound;
    - Take delivery of materials;
    - Make required improvements to access tracks, gateways and bell-mouths;
    - Tree and hedgerow trimming/removal (where works are sensitive to ecological constraints, these may be carried out at times outside those indicated in paragraph 2.4.5 below); and
    - Permanent and temporary diversions of existing utilities (including electricity).
- Main Construction Activities:

- Deliver materials to temporary laydown areas;
- Pole/steelwork erection and installation;
- Install stays (temporary and permanent);
- Conductor stringing; and
- Testing and commissioning.

- Reinstatement Works:
  - Reinstatement of access tracks and gateways, and bell-mouth improvements;
  - Improvement/replacement planting; and
  - Demobilise main construction compound.

3.9.4 It is further anticipated that the works will be undertaken during the following months:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Enabling Works											
		Main Construction Activities									
						Reinstatement Works					

3.10 SUMMARY

3.10.1 This chapter describes the Proposed Development and provides an overview of the landscape through which it passes. It explains how the Trident wood pole design selected by SP Manweb is more suited to the North Shropshire landscape than steel lattice towers or heavy duty wood poles, because it is easily screened by trees and other vegetation. It also more flexible in terms of routeing around obstacles, thereby enabling a better landscape 'fit'. It also explains how, to ensure that impacts are avoided or minimised, SP Manweb has incorporated a high degree of inbuilt mitigation by following the Holford Rules when developing the Preferred Line Route.

CHAPTER 4 CONSULTATION

CONTENTS

CHAPTER 4: CONSULTATION

4.1 INTRODUCTION

4.1.1 Public participation and consultation lie at the heart of the statutory planning process. The Planning Act 2008 introduced the notion of 'front loading' the preparation of an application for development consent. The purpose was to ensure that detailed matters were consulted upon and solutions or mitigation negotiated with the local community and other consultees before the submission of the application for development consent. This included requirements placed upon developers to:

- Conduct pre-application consultation with statutory consultees, local authorities, landowners and prescribed persons (under section 42 of the Planning Act 2008);
- Conduct pre-application consultation with the local community in accordance with a Statement of Community Consultation (SOCC) (the content of which must be the subject of consultation with the local authority and then publicised) (section 47 of the Planning Act 2008);
- Undertake further pre-application publicity under section 48 (of the Planning Act 2008);
- To take account of responses to consultation under section 49 (of the Planning Act 2008); and
- Prepare a consultation report under section 37 (of the Planning Act 2008), which should explain how the applicant has responded to representations made in response to the consultation.

4.1.2 Guidance on the pre-application process[18] sets out the consultation

[18] Guidance on the Pre-application Process: Department for Communities and Local Government (DCLG) (March 2015)

requirements for DCO applications for both the developer and the Secretary of State (SoS).

4.1.3 SP Manweb has, from the early development of the project, engaged in environmental and technical consultations with a wide variety of stakeholders, including Shropshire Council, The Environment Agency, Natural England, Historic England and other organisations. The feedback from this pre-application consultation has informed the project design.

4.1.4 This chapter outlines the consultation process which has been undertaken to date and the following figures support the information provided in this chapter:

- 4.1: Amendments to the Preferred Line Route; and
- 4.2: Consultation Zone.

4.1.5 The informal Stage One Consultation, which was not a statutory requirement, was carried out to help shape the proposals before they were formally presented to statutory consultees, local communities and landowners in the required statutory consultation, which will be referred to as the Stage Two Consultation.

4.1.6 The Stage One Consultation Feedback Report (November 2016)[19] describes the consultation process undertaken by SP Manweb in this initial consultation. That report explains that the consultation sought peoples' views in Summer 2016 on the following:

- The Preferred Line Route as represented by a 100m wide corridor and which included a number of alternative line route options;
- The likely environmental impacts of the Preferred Line Route;
- Other aspects of the project such as the earlier work carried out in terms of the need for the reinforcement or how the initial route corridor

[19] SP Energy Networks (November 2016), Stage One Consultation Feedback Report

options had been identified; and

- The way that the consultation was managed.

Line Routeing

4.1.7 Section 2.3 in Chapter 2 'Alternatives and Design Evolution' refers to the way in which the outcome of the Stage One consultation informed the selection of the Preferred Line Route and this is not repeated here. Figure 4.1 'Amendments to Preferred Line Route', shows how the Preferred Line Route has changed since November 2016 in response to further consultation feedback and the outcome of additional environmental surveys and assessments.

Likely Environmental Impacts

4.1.8 Question 2 of the Stage One Consultation invited comments on the likely environmental impacts of the Proposed Development. The comments received are referred to in paragraphs 2.58 to 2.63 of the first Updated Line Route Report (November 2016). Tables 4 and 5 in the Stage One Consultation Feedback Report (November 2016) outline SP Manweb's response to comments provided in response to that consultation.

4.1.9 As also explained above, SP Manweb's approach to the pre-application consultation has been to continue to engage with stakeholders following the close of Stage One Consultation in November 2016.

4.1.10 The comments received within the consultation process provided guidance on environmental concerns which were then addressed in the Scoping Report.

Other Aspects of the Project

4.1.11 The Stage One Consultation also provided an opportunity for comment on other aspects of the project. The feedback received is set out in the Stage One Consultation Feedback Report (November 2016) (Tables 4 and 5, Chapter 4). All the feedback received was addressed in one or both of the

Line Route Report (June 2016) and Scoping Report.

Statutory Bodies

4.1.12 From the above comments, it is noted that SP Manweb has already extensively engaged with a number of statutory bodies, including: Shropshire Council, Natural England, the Environment Agency and Historic England, such that they are already familiar with the project proposals.

4.1.13 A list of the bodies consulted to date was provided as Appendix 2 of the Stage One Consultation Feedback Report.

4.2 THE SCOPING OPINON

4.2.1 A formal Scoping Opinion from the SoS was published on 25 April 2017.

4.2.2 Under Regulation 8(6) of the EIA Regulations the SoS has a duty to widely consult on the proposals before adopting an opinion. Details of this consultation are provided in the Scoping Opinion and its appendices. The comments provided have been taken into consideration during the continuing process of developing a Preferred Line Route and the ongoing environmental assessment work.

4.2.3 Tables detailing specific points raised by the SoS within the Scoping Opinion, and demonstrating consideration of those points, are provided within the appendices of this PEIR. Included within these points were areas where continued and/or further consultation was recommended.

4.2.4 In summary the Scoping Opinion noted,

'The main potential issues identified are:

- *potential effects on landscape and visual receptors;*
- *potential effects on ecological features, including designated sites'.*

4.2.5 The Opinion detailed those areas which the SoS had confirmed could be scoped out of the final ES and stated:

'*Matters are not scoped out unless specifically addressed and justified by the Applicant, and confirmed as being scoped out by the SoS*.'

4.2.6 Paragraph 3.9 of the Opinion states that:

'*Whilst the SoS has not agreed in this Opinion to scope out certain topics or matters on the basis of the information available at this time, this does not prevent the Applicant from subsequently agreeing with the relevant consultees to scope such topics/matters out of the ES, where further evidence has been provided to justify this approach. In order to demonstrate that the topics/matters have not simply been overlooked, the ES should explain the reasoning for scoping them out and justify the approach taken*.'

4.2.7 As a result of the further consultation taken since publication of the Scoping Opinion there are matters which SP Manweb now believe should be scoped out of the final ES. These matters include construction impacts for noise and air quality; and all impacts for traffic and transportation. SP Manweb has received agreement from the relevant consultees that these topics can now be scoped out of the ES. Further details on why these topics are now scoped out are provided in Appendices 4.1 and 4.2.

4.3 POST-SCOPING OPINION PROJECT DEVELOPMENT

Line Route

4.3.1 As detailed within Chapter 2 'Alternatives and Design Evolution' and Chapter 3 'The Proposed Development' of this PEIR, following further consultation there is a now a single Preferred Line Route without options at Lower Hordley and Noneley. In addition there has also been a minor change to the Preferred Line Route at Woodhouse Estate.

Undergrounding

4.3.2 Within the Proposed Project Boundary there are six areas of undergrounding, consisting of approximately 1.2km of new cable between Oswestry substation

and wood pole no. 1 of the overhead line; and five areas along the route where existing low voltage overhead lines are being diverted underground where they would otherwise cross the new overhead line. The areas of undergrounding are shown on Figures 1.1 and 1.2 'Proposed Project Boundary'.

4.4 SUMMARY

4.4.1 SP Manweb's consultation process provided feedback which was then used to inform the routeing and design process and enabled potentially significant environmental effects to be avoided or minimised.

4.4.2 The feedback also highlighted where there may still be some concerns and issues that need to be included in the EIA process. By identifying these concerns at an early stage SP Manweb were able to address these matters. Since receiving the Scoping Opinion SP Manweb has continued to engage with local communities, statutory stakeholders and local interest groups, in order to inform the detailed design and EIA process.

4.4.3 This PEIR is the start of a key statutory consultation stage (The Stage Two Consultation) when further comments are welcomed.

CHAPTER 5 PEIR APPROACH & GENERAL METHODOLOGY

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CHAPTER 5: PEIR APPROACH & GENERAL METHODOLOGY

5.1 INTRODUCTION

5.1.1 This Chapter sets out the approach and methodology used in gathering the preliminary environmental information (PEI) about the Proposed Development presented in this Preliminary Environmental Information Report (PEIR).

5.1.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations) define PEI as information set out in Part 1 and Schedule 4 to the Regulations, which has been compiled by the applicant and is reasonably required to assess the environmental effects of the development (including any associated development).

5.1.2.1 No reference is made to Part 2 of Schedule 4 which sets out the information that must always be included in an Environmental Statement (ES). In short, the PEI does not therefore need to comprise a draft ES in its entirety but will need to be sufficient to reasonably assess the environmental effects of the development. This is confirmed by PINS Advice Note 7 which states that,

> *'The PEI is not expected to replicate or be a draft of the ES. However, if the applicant considers this to be appropriate (and more cost-effective) it can be presented in this way. A good PEI document is one that enables consultees (both specialist and non-specialist) to understand the likely environmental effects of the proposed development and helps to inform their consultation responses on the proposed development'.*

5.1.3 A significant amount of survey work has been completed to date to inform the Environmental Impact Assessment (EIA), including ecological surveys, landscape and visual surveys, and cultural heritage surveys. This PEIR therefore presents the environmental information available at this time, and

SP Manweb's current understanding of the likely significant environmental effects of the Proposed Development.

5.1.4 It provides details of the work that has been undertaken in sufficient detail to enable consultees (both specialist and non-specialist) to understand the likely significant environmental effects of the Proposed Development and help inform their consultation response. The PEIR is not intended to be a draft of the ES, although much of the work presented within it will form the basis of the ES.

5.2 AMENDED EIA REGULATIONS

5.2.1 As a result of the EIA Directive 2014/52/EU, the EIA Regulations changed in May 2017, to include new requirements for population and human health, biodiversity and vulnerability of project to risks of major accidents and/or disasters including climate change.

5.2.2 In recognition that a number of EIAs would already be in preparation, the UK Government via regulation 37 of the 2017 EIA Regulations set out transition provisions. These state that the 2009 EIA Regulations continue to apply to any application for a DCO where, before the commencement of the 2017 Regulations (i.e. 16 May 2017), an applicant has:

- Submitted an ES, or
- Requested a scoping opinion from the Secretary of State (SoS), or
- Made a request for a screening opinion, or
- The SoS has initiated a screening direction.

5.2.3 SP Manweb is submitting the EIA under the previous 2009 Regulations as per these transition arrangements for the reasons outlined below.

5.2.4 SP Manweb made a request for a scoping opinion for the Proposed Development on 9 March 2017 (i.e. before 16 May 2017) and on that basis consider that the transitional provisions are met and the 2009 Regulations apply rather than the 2017 Regulations. Furthermore, the transitional

provisions set out in the 2017 Regulations accord with the transitional arrangements set out in Article 3 of the 2014/52/EU Directive.

5.2.5 Paragraph 3.4 of PINS Scoping Opinion for the Proposed Development dated April 2017 states:

> *'Whilst transitional provisions will apply to such new regulations (the 2017 Regulations), the Applicant is advised to consider the effect of the implementation of the revised Directive in terms of the production and content of the ES'.*

5.2.6 SP Manweb is of the view that the additional requirements of the new regulations e.g. greater considerations of alternatives, greater details on impacts on cultural heritage and landscape and so on; were already being addressed or had (e.g. in the case of EMFs) been scoped out of the assessment.

5.2.7 Any impacts resulting from the additional requirements to provide a health impact assessment and an assessment of the vulnerability to risk of major accidents and/or disasters are considered unlikely to be significant given the nature, scale and location of the Proposed Development.

5.2.8 Given the clear statement in the Directive itself, SP Manweb does not consider that it is required to follow the 2017 Regulations. Any reference in this PEIR to the 'EIA Regulations' should therefore be taken to mean the 2009 Regulations.

5.3 SCOPE OF THE ASSESSMENT

5.3.1 The EIA Scoping Report was issued to the PINS in March 2017, together with a request for an EIA Scoping Opinion in accordance with Regulation 8(3) of the EIA Regulations. The Scoping Report provided an outline approach for the identification of potentially adverse and beneficial effects for each of the identified topics.

5.3.2 A Scoping Opinion was received from PINS in April 2017, and the comments in the Opinion have been taken into account, as set out the appendices to this PEIR.

5.3.3 Within the Scoping Opinion, the SoS agreed that effects on the following matters were not relevant to the assessment and could be scoped out of the EIA process:

- Potential effects on heritage assets as a result of routine operation and maintenance of overhead lines and pruning/vegetation clearance during the operational phase, and hydrological changes during construction and operation;
- Socio-economic effects during construction and operation (excluding effects on leisure and tourism);
- Water resources during operation;
- Mineral resources during construction and operation;
- Traffic and transport during operation;
- Noise during operation;
- Vibration during construction[20] and operation;
- Air quality during operation;
- Electro-magnetic fields (EMF) during construction and operation;
- Geology and ground conditions during construction and operation;
- Other emissions during operation;
- Waste during operation; and
- Contribution to climate change during construction and operation.

[20] On the assumption that a continuous flight auger will not be used.

5.3.4 Since receiving the Scoping Opinion, further survey and assessment work has been undertaken and SP Manweb has agreed with the relevant authorities to scope the following topics out of the EIA process:

- Traffic and transport during construction;
- Noise during construction; and
- Air quality during construction.

5.3.5 Further details on the exclusion of these topics is provided in Chapter 4 'Consultation' and Appendices 4.1 and 4.2 of this PEIR.

5.3.6 As a result of the scoping process, the following environmental topics are considered within the PEIR:

- Landscape and Visual (Chapter 7);
- Ecology (Chapter 8);
- Historic Environment(Chapter 9);
- Hydrology (chapter 10);
- Socio-Economic (Chapter 11); and
- Land Use and Agriculture (Chapter 12).

5.3.7 A full Cumulative Effects Assessment (CEA) will be included within the final ES once the developments to be included within the assessment are finalised (as these can change any time a new planning application is received).

Study Area

5.3.8 There is no single study area which is applicable to all topic areas in this PEIR as the study areas for each topic vary according to the environmental resource potentially affected. The individual study areas for each environmental topic are defined in Chapters 7 to 12 and summarised in Table 5.1 below. Study areas extend from the boundary of the 25m wide Construction and Operation Corridor in each direction e.g. around the

overhead line a 200m study area is in reality a 425m corridor (the 25m corridor plus a further study area of 200m either side of the corridor). The exception is ecology where the study areas are more accurately described as survey areas, are minimum distances and extend from the Preferred Line Route. The study areas are based on the geographical scope of the potential effects relevant to the topic, and the information required to assess the effects, as well as good practice guidance and consultation with stakeholders.

Table 5.1

Assessment Study Areas

Landscape and Visual Assessment	**Distance from edge of the Construction and Operation Corridor**
Residential Amenity	200m
Detailed Study Area	1km
Wider Study Area	5km
Ecology	**Distance from the Preferred Line Route**
Phase 1 Habitat Survey	250m
Species-rich Vegetation	50m
Habitats	50m
Hedgerows	50m
Arboricultural	25m

Table 5.1 **Assessment Study Areas**	
Breeding Birds	100m
Non-breeding Birds	500m
Otter and water vole	100m
Badgers and bats	50m
All other species	25m
Historic Environment	**Distance from edge of the Construction and Operation Corridor**
Inner Study Area (to include physical effects on sub-surface archaeology)	1km
Middle Study Area	2km
Outer Study Area	5km
Flood Risk, Water Quality and Resources	**Distance from edge of the Construction and Operation Corridor**
Water Quality and Resources	1km
Flood Risk	500m

Table 5.1 Assessment Study Areas	
Socio-Economic	**Distance from edge of the Construction and Operation Corridor**
Business	Shropshire
Tourism	1km
Recreation	1km
Land Use and Agriculture	**Distance from edge of the Construction and Operation Corridor**
Land Use and Agriculture	1km

Temporal Scope

5.3.9 The assessment considers the effects of the Proposed Development at the following points in time:

- Construction – the point at which the construction works would be visible;
- Operation Year 1 – the point at which the Proposed Development would first be visible in its entirety; and
- Operation year 15 – the point in time at which the Proposed Development would be visible, taking into account anticipated changes within the landscape and local environment.

5.3.10 Construction of the Proposed Development is anticipated to take place between 2020 and 2021, and the intensity and scale of construction will vary

along the route during this period. Works in any one location are anticipated to take no more than one week. Any effects resulting from removal of vegetation are considered under the assessment of construction effects and are considered to be long-term.

5.3.11 The connection is anticipated to be operational from 2021.

5.3.12 Construction impacts are considered short term and temporary (other than vegetation removal which is considered long term), whilst operational impacts are considered long term (each wood pole is expected to have a minimum life span of 40 years) and permanent.

5.3.13 The Scoping Opinion requested that the effects of decommissioning the Proposed Development is considered in the assessment. Whilst for the reasons outlined in Section 3.8 of this PEIR, decommissioning is not anticipated because it is highly likely that the overhead line would be refurbished and be operated in perpetuity, decommissioning is referred to in the individual topic chapters.

Technical Scope

5.3.14 The environmental topics to be considered and the spatial extent of the assessment proposed for each topic is referred to as the technical scope.

5.3.15 The main effect of a Trident wood pole overhead line is widely acknowledged to be indirect visual effects, which can have consequences for the landscape, for peoples' views and visual amenity and for the setting of cultural heritage assets. For this reason, information relating to topography, landscape character, designated or valued landscapes and cultural heritage sites, residential properties and public viewpoints are given high consideration in the review and assessment process. Factors such as tree and woodland removal required for constructing a new overhead line can have visual as well as ecological considerations and also need to be carefully considered.

5.3.16 Direct environmental effects are associated with the ground occupied by the wood pole supports, sections of underground cable and any direct effects associated with the construction/decommissioning phases.

5.4 BASELINE CONDITIONS

5.4.1 Establishing the baseline environmental conditions (i.e. the environment without the Proposed Development) is a necessary starting point for any assessment of potential change. For each topic, the existing conditions for the study area have been identified by a combination of desk-based study and site survey.

5.4.2 For the assessment of environmental effects, the baseline needs to reflect the conditions that may exist in the future (the 'future baseline') in the absence of the Proposed Development.

5.4.3 The description of the baseline and future baseline conditions has identified receptors that may be affected by the Proposed Development and also their 'value' and 'sensitivity' to potential change arising from the Proposed Development. Receptors may be a physical resource (e.g. a water body or a habitat type), flora/fauna, or a user group (e.g. the local community or recreational users of an area). Some receptors will be more valuable and/or sensitive to particular environmental impacts than others.

5.5 APPROACH TO MITIGATION

5.5.1 Paragraph 5.9.8 of the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) recognises that major energy infrastructure projects are likely to result in effects on the landscape, stating that,

> *'Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate'.*

5.5.2 As explained in Section 3.7 of this PEIR, the main strategy for minimising adverse landscape and visual effects of the Proposed Development is avoidance through careful planning, design and routeing. Referred to as primary or 'embedded mitigation', this is the strategy that led to the identification of the Preferred Line Route which is the subject of this PEIR.

5.5.3 Throughout the evolution of the Proposed Development, embedded mitigation has been considered an intrinsic part of the overall design strategy. The design has evolved iteratively from the original route options through a number of revisions in response to consultees' comments and the outcome of studies being undertaken. In addition to environmental considerations, technical and economic considerations were also taken into account in developing the Preferred Line Route.

5.5.4 The approach to routeing was based on the Holford Rules, the broad principles formulated by the late Lord Holford for the routeing of overhead transmission lines. Whilst the Holford Rules relate specifically to high voltage electricity lines supported on lattice steel towers, many of the principles can also be used as guidance for routeing overhead lines supported on wood poles. The Holford Rules are regarded as industry standard and have been tested at public inquiries and at hearings under the Electricity Act 1989. Their use for routeing new overhead lines is advocated by NPS EN-5 (paragraph 2.8.7).

5.5.5 The basic premise of the Holford Rules is that the major effect of an overhead line is visual and that the degree of visual intrusion can be lessened by routeing the line to 'fit' the grain of the landscape. This can be done by using landform and trees to provide screening and/or background and by routeing a line at a distance from residential areas and roads. In addition, the Rules note that a well-routed line takes account of other environmental considerations by seeking to avoid the most sensitive and valued natural and man-made features.

5.5.6 The effect of including a high degree of embedded mitigation in the design of the Proposed Development is to avoid or reduce effects on the landscape, views and visual amenity by:

- Avoidance where practicable of designated and other 'sensitive' landscapes;
- Maximising separation from residential areas, including villages and other small settlements and occupied properties;
- Avoidance of areas with high tree cover to minimise requirements for tree felling and pruning;
- Avoidance of skyline locations, which tend to increase the visibility of poles;
- Using landform and trees to provide screening and backdropping. Wherever possible routeing the line along the 'grain' of the landscape e.g. by following field boundaries and by locating poles close to hedgerows rather than in the middle of fields;
- Utilising existing field accesses wherever possible, to minimise the need for new site access tracks and removal of trees; and
- Locating poles as far away as possible from designated routes and other public rights of way.

5.5.7 Finally, on-site negotiation with landowners led to careful micro-routeing of the overhead line and its associated infrastructure (both temporary and permanent). This has led to a route that as far as possible accords with the Holford Rules and minimises effects on the landscape and views, and on visual amenity.

5.5.8 The ongoing iterative detailed design and assessment process may lead to further refinement of the route in order to avoid or reduce potentially significant adverse environmental effects if identified. Mitigation measures will also be informed by ongoing discussions and engagement with

stakeholders through the consultation process. In this way the EIA, consultation, and design processes are all interlinked.

5.5.9 As detailed in Section 3.7, at this stage SP Manweb do not consider any further mitigation measures as feasible (in terms of reducing a significant impact), therefore it is anticipated that at Year 15 the impacts will be broadly similar to Year 1. However, as with any material subjected to the elements on a consistent basis, wood pole structures suffer weathering and subsequent colour variations over time. The colour of the poles at the time of construction is a dark brown colour, which fades to an appreciably lighter silver-grey colour over time. The rate of change of colour will depend on prevailing weather conditions and to some degree on the type of timber and timber treatment that is used. These changes are likely to reduce the visibility/perceptibility of elements above the skyline over time, but may increase the visibility of supports which are viewed against a dark backcloth (for example, coniferous woodland). The effects of this are taken into account at Year 15 of the assessment.

5.5.10 Standard construction practices for avoiding and minimising environmental effects, for example measures contained in the Construction Environmental Management Plan (CEMP), will be submitted as part of the DCO application. The CEMP, which will form an Appendix to the ES, will detail the control measures that will be implemented to avoid effects and impacts wherever possible.

5.5.11 Environmental effects of the Proposed Development that remain after mitigation are referred to as 'residual effects'. Therefore, the key outcome of the assessment is the identification of significant residual effects after the embedded mitigation has been taken into account.

5.6 DEFINING SIGNIFICANT EFFECTS

5.6.1 The EIA Regulations require that the ES reports only on significant effects, but the EIA process typically focusses on assessing the level of impacts that give rise to all predicted effects and determining how to avoid or reduce them.

5.6.2 The significance of an environmental effect is typically a function of the 'value' or 'sensitivity' of the receptor and the 'magnitude' or 'scale' of the predicted impact. Combining the environmental value of the resource or receptor with the magnitude of change produces a significance of effect category.

5.6.3 The approach to assigning significance of effect relies on reasoned argument, professional judgement, experience on similar projects and taking on board the advice and views of appropriate organisations. For some disciplines, predicted effects may also be compared with quantitative thresholds and scales as outlined within the Appendices of Chapters 7 – 12 of this PEIR. Where any uncertainty exists this, together with any assumptions relied on, will be noted in the relevant assessment and any limitations to the PEIR or EIA work will be reported in the appropriate chapter.

5.6.4 Assigning each effect to standard significance categories (major, moderate, minor or negligible) enables different topic issues to be placed upon the same scale. This assists the decision-making process at whatever stage the project is at within that process.

5.6.5 In arriving at the significance of effect, the assessor also considers whether the effect is direct, indirect, secondary, cumulative, short, medium or long-term, permanent or temporary, positive or negative.

5.6.6 The different terms are defined in Table 5.2:

Table 5.2
EIA Predicted Effects Definitions

Adverse	Detrimental or negative effects on an environmental resource or receptor.

Table 5.2 EIA Predicted Effects Definitions	
Beneficial	Advantageous or positive effects on an environmental resource or receptor.
Negligible	Imperceptible effects on an environmental resource or receptor.
Minor	Slight, very short term or highly localised effect of no significant consequence.
Moderate	More than a slight, very short or localised effect (by extent, duration or magnitude) which may be considered significant.
Major	Considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards.

5.6.7 For the purpose of the assessment, moderate and major effects are deemed to be 'significant' unless stated otherwise in individual topic chapters.

5.6.8 In determining whether or not an effect is likely to be significant, consideration is given to:

- Nature of the construction and operational activities;
- Feedback from scoping and consultation, including views from the local community;
- Spatial extent (e.g. local, district, regional, national or international);
- Magnitude of effect;
- Duration of effect (short, medium or long term);
- Nature of the effect (direct, indirect, reversible or irreversible);
- Frequency of occurrence;
- Whether the effect occurs in isolation or is cumulative;
- The sensitivity and numbers of receptors affected;

- Value of the affected resource;
- Performance against environmental quality standards; and
- Compatibility with environmental policies and standards which offer protection to the environment and community.

5.6.9 Some effects will arise directly from construction or operation of the Proposed Development and others will arise more indirectly as a consequence of activities associated with it. Whether an effect arises directly or indirectly does not affect whether the resulting effects are considered to be significant or not.

5.6.10 The assessments are being undertaken by experienced teams of assessors who are able to apply expert professional judgement on a consistent basis.

5.6.11 Not all environmental effects will be significant. Moreover a significant effect does not necessarily mean that such an effect will be unacceptable to the Secretary of State (SoS) when considering the application for consent. This is a matter that the SoS will weigh, alongside other factors, when determining the DCO. What is important is that the likely significant effects of the Proposed Development are identified and transparently assessed and described in order that the SoS can bring a balanced and well-informed judgement to bear as part of the decision-making process.

5.7 ASSUMPTIONS AND LIMITATIONS

5.7.1 Each environmental topic chapter in the PEIR will include a section to explain the key assumptions made in undertaking the assessments.

5.7.2 During preparation of the PEIR, there could be some circumstances that may limit the information available to inform the assessment process. Any limitations, and consequences on the potential completeness or accuracy of the conclusions, is described within the relevant topic chapter.

5.8 SUMMARY

5.8.1 This chapter explains how the approach and methodology used in gathering the preliminary environmental information (PEI) about the Proposed Development presented in this PEIR follows a transparent and consistent approach.

5.8.2 The PEIR represents a stage in the assessment process. The full assessment will be provided in the ES which will be submitted as part of the DCO application.

CHAPTER 6 PLANNING POLICY

CONTENTS

CHAPTER 6: PLANNING POLICY

6.1 INTRODUCTION

6.1.1 This chapter provides a general overview of the national and local planning policy framework relevant to the environmental impact assessment of the Proposed Development. A planning policy assessment of the Proposed Development will form part of the application for a DCO.

6.2 NATIONAL POLICY STATEMENTS

6.2.1 National Policy Statements (NPS) set out Government policy for the delivery of national infrastructure and are of primary importance to the decision making process for NSIPs.

6.2.2 Section 104 of the Planning Act 2008 states:

> *'(2) In deciding the application the Secretary of State must have regard to -*
>
> *(a) any national policy statement which has effect in relation to development of the description to which the application relates (a 'relevant national policy statement)*
>
> *and*
>
> *(3) The Secretary of State must decide the application in accordance with any relevant national policy statement, except to the extent that one or more of subsections (4) to (8) applies'.*

6.2.3 Six NPSs for energy infrastructure were designated by the Secretary of State for Energy and Climate Change (SoS) in July 2011. The most relevant NPS for distribution infrastructure are the Overarching National Policy Statement

for Energy (EN-1)[21] and the National Policy Statement for Electricity Networks Infrastructure (EN-5)[22] (which must be read in conjunction with NPS EN-1).

6.3 OVERARCHING NATIONAL POLICY STATEMENT FOR ENERGY (NPS EN-1)

6.3.1 Part 4 of NPS EN-1 sets out general polices. Its states that:

> *'In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the IPC should take into account:*
>
> *- Its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long term or wider benefits; and*
>
> *- Its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.*
>
> *In this context, the IPC should take into account environmental, social and economic benefits and adverse impacts at national, regional and local levels'. (paras 4.1.2 and 4.1.4)*

6.3.2 NPS EN-1 (para 4.1.5) references development plan policies as being 'other matters' which could potentially be taken into account by the relevant decision making authority in determining a DCO application:

> *'… matters that [the decision maker] may consider both important and relevant to its decision making may include Development Plan*

[21] Department for Energy and Climate Change (July 2011), Overarching Energy National Policy Statement (EN-1)

[22] Department for Energy and Climate Change (July 2011), National Policy Statement for Electricity Energy Infrastructure (EN-5)

Documents or other documents in the Local Development Framework. In the event of a conflict between these or any other documents and an NPS, the NPS prevails for the purposes of … decision making given the national significance of the infrastructure'.

6.3.3 Section 6.6 of this chapter provides an overview of the local planning policies and notes how the environmental impact assessment will address their requirements.

6.3.4 NPS EN-1 goes on:

'All proposals for projects that are subject to the European Environmental Impact Assessment Directive must be accompanied by an Environmental Statement (ES) describing the aspects of the environment likely to be significantly affected by the project'. (para 4.2.1)

6.3.5 NPS EN-1 sets out additional matters which the Secretary of State must consider in his determination process. They include the matters summarised in Table 6.1 below:

Table 6.1
Other Matters Identified for Consideration in the ES (NPS EN-1)

Issue	Included in the PEIR/ES
Para 4.2.3 states that '*For the purposes of this NPS and the technology-specific NPSs the ES should cover the environmental, social and economic effects arising from the pre-construction, construction, operation and decommissioning of the project'.*	The ES will cover all these aspects as outlined in Chapter 5 of this PEIR.
Para 4.3.1 states that '*Prior to granting a development consent order the IPC must, under the Habitats and Species Regulations…consider where the project may have a significant*	Chapter 8 'Ecology' describes the assessment of potential effects on European sites using the approach agreed in the Scoping Report. At this stage it is considered that the Proposed Development will not have

Table 6.1 Other Matters Identified for Consideration in the ES (NPS EN-1)	
Issue	**Included in the PEIR/ES**
effect on a European site….Applicants should also refer to Section 5.3 of this NPS on biodiversity and geological conservation'.	an adverse effect on any European site of nature conservation importance.
Para 4.4.1 confirms that '*this NPS does not contain any general requirement to consider alternatives….however applicants are obliged to include their ES ….information about the main alternatives they have studied'*.	Chapter 2 'Alternatives and Design Evolution' describes how the Proposed Development has developed and explain the alternatives considered.
Section 4.5 of the NPS deals with good design for energy infrastructure. '*applicants should be able to demonstrate … how the design process was conducted and how the proposed design evolved*'. *(para 4.5.4).*	Chapter 2 'Alternatives and Design Evolution' describes how the Proposed Development has developed and explain the alternatives considered. The Trident wood pole design proposed is preferred as it is technically feasible, less visually intrusive, less likely to be visible on the skyline and more flexible for routeing, thereby providing a better fit with the landscape.

6.3.6 Part 5 of NPS EN-1 goes on to identify the generic impacts which should be considered. The table below identifies these potential impacts and identifies where in this PEIR information is provided:

Table 6.2 Generic Impacts to be considered in an ES (NPS EN-1)	
Generic Impact (NPS EN-1)	**Location within ES**
Air quality and emissions	Information on air quality and emissions was provided in Chapter 14 'Statutory Nuisance' of the

Table 6.2 Generic Impacts to be considered in an ES (NPS EN-1)	
Generic Impact (NPS EN-1)	**Location within ES**
	Scoping Report and in Appendix 4.1 of this PEIR. Agreement was received from the Environmental Protection Team at Shropshire Council that the potential impacts were at such a low level that they could be scoped out of the ES.
Biodiversity and geological conservation	Information on biodiversity is presented in Chapter 8 'Ecology' of this PEIR. There are no geological conservation sites in the area.
Dust	Information on the practices that would be adopted in order to reduce potential impacts associated with dust will be incorporated within a Construction Environmental Management Plan (CEMP), which will form part of the assessment and will be included as an Appendix to the ES.
Electro-magnetic fields (EMFs)	Information on 'Electric and Magnetic Fields' was presented in Chapter 17 of the Scoping Report. The Scoping Opinion confirmed that this potential impact could be scoped out of the ES.
Flood risk	Information on flood risk is presented in Chapter 10 'Flood Risk, Water Quality and Resources' of this PEIR. The application for a DCO will also be accompanied by a Flood Consequence Assessment.
Historic Environment	Information on potential historic

Table 6.2 Generic Impacts to be considered in an ES (NPS EN-1)	
Generic Impact (NPS EN-1)	**Location within ES**
	environment impacts is presented in Chapter 9 ‘Historic Environment’ of this PEIR.
Landscape and visual	Information on potential landscape and visual impacts is presented in Chapter 7 ‘Landscape and Visual’ of this PEIR.
Land Use	Information on potential land use impacts is presented in Chapter 12 ‘Land Use’ of this PEIR.
Noise and vibration	Information on noise and vibration was provided in Chapter 14 'Statutory Nuisance' of the Scoping Report and in Appendix 4.1 of this PEIR. Agreement was received from the Environmental Protection Team at Shropshire Council that the potential impacts were at such a low level that they could be scoped out of the ES.
Socio-economic	Information on potential socio-economic impacts, in terms of recreation and tourism, is presented in Chapter 11 ‘Socio-Economic’ of this PEIR.
Traffic and transport	Information on traffic and transport was provided in Chapter 15 'Traffic and Transport’ of the Scoping Report and in Appendix 4.2 of this PEIR. Agreement is currently being sought from Shropshire Council and Highways England that the potential impacts are at such a low level that they could be scoped out of the ES.

Table 6.2 Generic Impacts to be considered in an ES (NPS EN-1)	
Generic Impact (NPS EN-1)	**Location within ES**
Waste management	Information on waste management was presented in Chapter 14 'Statutory Nuisance' of the Scoping Report. Information on the practices that would be adopted in order to reduce waste associated with the development will be incorporated within the CEMP, which will form part of the assessment and will be included as an Appendix to the ES.
Water quality and resources	Information on water quality and resources is presented in Chapter 10 'Flood Risk, Water Quality and Resources' of this PEIR.

6.3.7 Further information to demonstrate the Proposed Development's compliance with the requirements of NPS EN-1 will be provided within the Planning Statement.

6.4 NATIONAL POLICY STATEMENT FOR ELECTRICITY NETWORKS INFRASTRUCTURE (NPS EN-5)

6.4.1 National Policy Statement EN-5 provides specific guidance relevant to 'electricity networks infrastructure'.

6.4.2 NPS EN-5 (para 2.6.1) sets out additional technology specific considerations on the generic impacts considered in NPS EN-1 (see Table 6.2 above). These are:

- Biodiversity and geological conservation;
- Landscape and visual; and
- Noise and vibration.

6.4.3 Consideration of these impacts, and the specific consideration set out in EN-5 will be covered in the appropriate topic specific chapters of the ES.

6.4.4 With respect to biodiversity the NPS states that:

> *'…large birds such as swans and geese may collide with overhead lines associated with power infrastructure, particularly in poor visibility. Large birds in particular may also be electrocuted when landing or taking off by completing an electric circuit between live and ground wires'. (para 2.7.1)*
>
> and
>
> *'The applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the Environmental Impact Assessment'. (para 2.7.2)*

6.4.5 Appendix 8.7 'Ornithology' of this PEIR sets out the preliminary assessment of the potential effects of the Proposed Development on birds.

6.4.6 Section 2.8 of EN-5 identifies specific considerations which apply to electricity networks infrastructure.

6.4.7 Para 2.8.2 of EN-5 states that:

> *'…new above ground electricity lines, whether supported by lattice steel towers/pylons or wooden poles, can give rise to adverse landscape and visual impacts, dependent upon their scale, siting, degree of screening and the nature of the landscape and local environment through which they are routed. For the most part these impacts can be mitigated, however at particularly sensitive locations the potential adverse landscape and visual impacts of an overhead line proposal may make it unacceptable in planning terms, taking account of the specific local environment and context.'*

6.4.8 It goes on:

> *'Cumulative landscape and visual impacts can arise where new*

overhead lines are required along with other related developments such as substations, wind farms and/or other new sources of power generation.'

6.4.9 The preliminary assessment of the potential landscape and visual effects of the Proposed Development is set out in Chapter 7 'Landscape and Visual' of this PEIR.

6.4.10 Para 2.8.4 notes that:

'Where possible, applicants should follow the principles below in designing the route of their overhead line proposals and it will be for applicants to offer constructive proposals for additional mitigation of the proposed overhead line. The ES should set out details of how consideration has been given to undergrounding or sub-sea cables as a way of mitigating such impacts, including, where these have not been adopted on grounds of additional cost, how the costs of mitigation have been calculated'.

6.4.11 Chapter 2 'Alternatives and Design Evolution' of this PEIR outlines how consideration has been given to alternative means of making the connection.

Undergrounding

6.4.12 With respect to noise and vibration, Section 2.9 of the NPS states that:

'Generic noise effects are covered in Section 5.11 of EN-1. In addition there are specific considerations which apply to electricity networks infrastructure.' (para 2.9.1)

and,

'All high voltage transmission lines have the potential to generate noise under certain conditions'. (para 2.9.2)

6.4.13 Chapter 4 'Consultation' of this PEIR explains that noise and vibration have been scoped out of the assessment process following agreement with Shropshire Council.

6.4.14 With respect to EMFs, Section 2.10 of the NPS notes that the ICNIRP has developed health protection guidelines[23] for both public and occupational exposure (para 2.10.3). The Scoping Opinion confirmed that this topic could be scoped out of the ES.

6.5 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

6.5.1 The National Planning Policy Framework (March 2012) sets out government's planning policies for England and how these are expected to be applied.

6.5.2 The introduction to the framework notes that the NPPF *'sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so'*. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. Planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise. The NPPF must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. For the foreseeable future planning policies and decisions must still reflect, and where appropriate promote, relevant EU obligations and statutory requirements.

6.5.3 The Framework does not contain specific policies for NSIPs as particular considerations apply to those projects, as these are determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant national policy statements for major infrastructure, as well as any other matters that are considered both important and relevant (which may include the NPPF).

[23] International Commission on Non-Ionising Radiation Protection (1998). Guidelines for limiting exposure to time varying electric, magnetic and electromagnetic fields.

6.6 LOCAL PLANNING POLICY

6.6.1 Information on relevant local planning policy which informed the design and assessment of the Proposed Development is provided within this section. The Local Development Framework for Shropshire comprises several planning documents, known as Local Development Documents (LDDs).

6.6.2 Two of the key documents which make up the Shropshire Local Development Framework (LDF) are:

- The Core Strategy Development Plan Document (DPD) (adopted 24 February 2011); and
- The Site Allocations and Management of Development (SAMDev) Plan (adopted 17 December 2015).

The Core Strategy

6.6.3 The Core Strategy provides the overarching local planning policy document for Shropshire and includes a spatial vision and a set of strategic county-wide objectives and policies to inform future development. The Core Strategy's vision sets a development strategy, which identifies the level of development anticipated to take place.

6.6.4 The Strategic Approach (Core Strategy Policy CS1) states that:

> '*Shropshire will flourish, accommodating investment and new development to contribute to meeting its needs and to make its settlements more sustainable, delivering over the plan period 2006 – 2026, around 27,500 new homes… around 290 hectares of employment land, and accompanying infrastructure across Shropshire….'.*

6.6.5 Core Strategy Policy CS8 'Facilities, Services and Infrastructure Provision' seeks to encourage the development of '*sustainable places in Shropshire with safe and healthy communities where residents enjoy a high quality of life*', recognising that this will be assisted by:

> *'working closely with network providers to ensure provision of necessary*

energy distribution networks'.

6.6.6 Core Strategy Policy CS9 'Infrastructure Contributions' recognises that development that provides additional dwellings or employment premises will help deliver more sustainable communities by making contributions to local infrastructure. These are defined as 'critical', 'priority' and key infrastructure, depending on the scale.

6.6.7 Core Strategy Policy CS13 'Economic Development, Enterprise and Employment' goes on:

'Shropshire Council …will plan positively to develop and diversify the Shropshire economy…

- *Planning and managing a responsive and flexible supply of employment land and premises comprising a range and choice of sites in appropriate locations to meet the needs of business, with investment in infrastructure to aid their development or to help revitalise them*…'.

6.6.8 Core Strategy Policy CS5 'Countryside and the Green Belt' states that new development will be strictly controlled in accordance with national planning policies protecting the countryside.

6.6.9 Core Strategy Policy CS17 'Environmental Networks' seeks to ensure development which both protects and enhances the diversity, high quality and local character of Shropshire's natural, built and historic environment, noting that this should not adversely affect the visual, ecological, geological, heritage or recreational values and functions of these assets, their immediate surroundings or their connecting corridors. The policy also seeks to ensure that development should not have a significant adverse impact on environmental assets and should not create barriers or sever links between sites.

6.6.10 Core Strategy Policy CS20 'Strategic Planning for Minerals' notes that Shropshire has important and finite mineral resources:

'Shropshire's important and finite mineral resources will be safeguarded to avoid unnecessary sterilisation …..

- *Protecting Mineral Safeguarding Areas (MSAs)….Non-mineral development in these areas…..will be expected to avoid sterilising or unduly restricting the working of proven mineral resources…… consistent with the requirements of national and regional policy..'.*

The SAMDev Plan

6.6.11 The SAMDev Plan (adopted 17th December 2015) supports the Core Strategy and provides the site specific allocations element of the Shropshire LDF.

6.6.12 The SAMDev Plan sets out proposals for the use of land and policies to guide future development. Of particular relevance to the Proposed Development are Sustainable Design (Policy MD2), Infrastructure Provision (Policy MD8), the Natural Environment (Policy MD12), the Historic Environment (Policy MD13), and Mineral Safeguarding (Policy MD16).

6.6.13 The explanation to Policy MD2: 'Sustainable Development' recognises that consideration should also be given to safeguarding existing infrastructure so as to maintain continued operation and provide opportunities for appropriate expansion of infrastructure to meet local needs:

'6. Ensure development demonstrates there is sufficient existing infrastructure capacity, in accordance with MD8, and should wherever possible actively seek opportunities to help alleviate infrastructure constraints….'

6.6.14 Policy MD4 'Managing Employment Development' relates to the management of a portfolio of employment land and premises, and maintaining a reservoir of available sites. Sites are identified on the Policies Map. The policy reasoning provided is:

'The strategic supply of employment land is a key resource for this authority, its partners and stakeholders and the commercial property

market. The strategic land supply will be used to support and encourage economic development by businesses and investors and to deliver continuing growth and prosperity in the local economy'.

6.6.15 Two areas have been identified to the east of Oswestry on the Policies Map:

- Land south of Whittington Road (ELR043): and
- Land at Mile End East (ELR072).

6.6.16 These areas are illustrated on Figure 2.5 (a reproduction of Figure 4.6 'Additional Environmental Constraints' from the Route Corridor Options Report, June 2016). They were both avoided by the sensitive routeing of the proposals.

6.6.17 Policy MD8: 'Infrastructure Provision' provides policy guidance for New Strategic Infrastructure':

'3. Applications for new strategic energy, transport, water management and telecommunications infrastructure will be supported in order to help deliver national priorities and locally identified requirements, where its contribution to agreed objectives outweighs the potential for adverse impacts. Particular consideration will be given to the potential for adverse impacts on:

i. residential and other sensitive neighbouring land uses;

ii. visual amenity;

iii. landscape character and sensitivity, including impacts on sensitive skylines;

iv. natural and heritage assets…

v. the visitor and tourism economy including long distance footpaths, cycle tracks and bridleways (Policy MD11);

vi. noise, air quality, dust, odour and vibration;

vii. water quality and resources;

viii. impacts from traffic and transport during the construction and operation of the infrastructure development; and

ix. cumulative impacts'.

6.6.18 It goes on:

'Development proposals should clearly describe the extent and outcomes of community engagement and any community benefit package'.

6.6.19 Policy MD12: ' The Natural Environment' states that:

'….the avoidance of harm to Shropshire's natural assets and their conservation, enhancement and restoration will be achieved by:

2. Ensuring that proposals which are likely to have a significant adverse effect, directly, indirectly or cumulatively, on any of the following:

i. the special qualities of the Shropshire Hills AONB;

ii. locally designated biodiversity and geological sites;

iii. priority species;

iv. priority habitats;

v. important woodlands, trees and hedges;

vi. ecological networks;

vii. geological assets;

viii. visual amenity; and

ix. landscape character and local distinctiveness.

will only be permitted if it can be clearly demonstrated that:

a) there is no satisfactory alternative means of avoiding such impacts through re-design or by re-locating on an alternative site and;

b) the social or economic benefits of the proposal outweigh the harm to

the asset.

In all cases, a hierarchy of mitigation then compensation measures will be sought'.

6.6.20 Policy MD13: 'The Historic Environment' sets out specific guidance on the protection of Shropshire's historic environment including the requirements that need to be met for those development proposals which are likely to have an impact on the significance, including the setting, of a heritage asset.

'2. Ensuring that wherever possible, proposals avoid harm or loss of significance to designated or non-designated heritage assets, including their settings;

3. Ensuring that proposals which are likely to affect the significance of a designated or non-designated heritage asset, including its setting, are accompanied by a Heritage Assessment, including a qualitative visual assessment where appropriate; and

4. Ensuring that proposals which are likely to have an adverse effect on the significance of a non-designated heritage asset, including its setting, will only be permitted if it can be clearly demonstrated that the public benefits of the proposal outweigh the adverse effect….'.

6.6.21 Mineral safeguarding is dealt with under Policy MD16, which states that every effort will be made to ensure that, where practicable, known mineral resources are not sterilised by other forms of development:

'Applications for non-mineral development which fall within Mineral Safeguarding Areas (MSA) and which could have the effect of sterilising mineral resources will not be granted unless:

i. The applicant can demonstrate that the mineral resource concerned is not of economic value; or

ii. The mineral can be extracted to prevent the unnecessary sterilisation of the resource prior to the development taking place

without causing unacceptable adverse impacts on the environment and local community; …'.

6.6.22 It goes on

'3. Applications for permission for non-mineral development in a MSA must include an assessment of the effect of the proposed development on the mineral resource beneath or adjacent to the site of the development….. This assessment will provide information to …demonstrate to the satisfaction of the MPA that mineral interests have been adequately considered and that known mineral resources will be prevented, where possible, from being sterilised or unduly restricted by other forms of development occurring on or close to the resource…'.

6.6.23 With respects to minerals, a Minerals Resource Appraisal for the Preferred Line Route was provided as an appendix to the Scoping Request. The Scoping Opinion confirmed that this topic could be scoped out of the ES.

Place Plans

6.6.24 The LDF also includes a number of Place Plans, which summarise and prioritise the local infrastructure needs which are required to support the sustainable development of the individual areas and identify the wider investment needs to assist delivery of the communities' visions and aspirations. Of relevance to the Proposed Development are the Oswestry and Wem Place Plans.

6.6.25 The Place plans recognise that in order to ensure that new development is sustainable it is important that it is supported by the necessary infrastructure.

6.6.26 The 'Place Plan for Oswestry and the Surrounding Area' (2015-2016) identifies the following:

- Oswestry Innovation Park; and
- Investment required for provision of infrastructure for employment sites (Land south and north of Whittington Road).

6.6.27 These are categorised as 'Priority' under the Core Strategy definitions in Policy CS9.

6.7 SUMMARY

6.7.1 The policy context pertinent to the Proposed Development is set out in a number of national and local planning policy documents.

6.7.2 The National Policy Statements provide the policy framework for NSIPs, particularly in this instance NPS EN-1 and NPS EN-5.

6.7.3 The ES will include topic specific assessments against National Policy Statements. It will also refer to relevant guidance, local planning policy and legislation in each technical chapter.

6.7.4 A more detailed planning policy assessment will be provided in the Planning Statement which will be a separate document that will form part of the application for a DCO for the Proposed Development.

CHAPTER 7 LANDSCAPE AND VISUAL

CONTENTS

CHAPTER 7: LANDSCAPE AND VISUAL

7.1 INTRODUCTION

7.1.1 This chapter presents information about the preliminary landscape and visual effects identified to date, which could result from the Proposed Development described in Chapter 3 'The Proposed Development'.

7.1.2 This preliminary landscape and visual assessment focuses on those areas that are likely to experience significant effects. This accords with the EIA Regulations which require the identification of the 'likely significant effects of the Proposed Development on the environment' (Schedule 4, Part 1, Paragraph 20). It considers landscape character within the study area (as defined in Section 7.2 of this chapter) and key viewpoint locations that are representative of the receptors and the views experienced in the study area.

7.1.3 Further details relating to this chapter including methodology, baseline information and assessment findings are presented in the following appendices and figures:

- Appendix 7.1: Landscape and Visual Assessment Methodology;
- Appendix 7.2: Landscape Baseline and Assessment;
- Appendix 7.3: Landscape Character Area Assessment Sheets;
- Appendix 7.4: Visual Baseline and Assessment;
- Appendix 7.5: Viewpoint Sheets;
- Figure 7.1: LVIA Study Areas;
- Figure 7.2: Shropshire Landscape Typologies;
- Figure 7.3: Landscape Character Areas;
- Figure 7.4: Landscape Designations;
- Figure 7.5: Topography – Elevation;

- Figure 7.6: Public Rights of Way and Areas of Open Access;
- Figure 7.7: Residential Amenity; and
- Figure 7.8: Viewpoint Locations.

7.2 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

7.2.1 The detailed methodology, as agreed with Shropshire Council, for the landscape and visual assessment (LVIA) is presented in Appendix 7.1. It is based on best practice and information in the third edition of the 'Guidelines for Landscape and Visual Assessment' (GLVIA3)[24]. GLVIA3 is the established best practice guidance for landscape and visual impact assessment.

Scope – Study Areas

7.2.2 The study areas for the landscape and visual assessments was agreed with Shropshire Council and in the Scoping Opinion. The detailed study area extends up to 1km from the edge of the Construction and Operations Corridor for the Preferred Line Route. A wider less detailed study area up to 5km from the Construction and Operations Corridor is also being considered. The purpose of this wider study area is to ensure that any high ground with views across the route, or particularly sensitive landscapes, within the wider area are captured within the assessment. The study area for the residential amenity study area extends to 200m from the edge of the Construction and Operations Corridor. These study areas are shown in Figure 7.1, 'LVIA Study Areas'.

7.2.3 Each of the study areas extends from the boundary of the 25m wide Construction and Operation Corridor for the overhead line. The study areas

[24] Guidelines for Landscape and Visual Assessment, Landscape Institute/IEMA, 2013

do not extend from the boundaries of the proposed undergrounding work, temporary access routes or laydown areas, because potential visual effects resulting from the Proposed Development in these locations would be transient in nature and very short term. There are no areas of proposed undergrounding work, temporary access routes or laydown areas that fall outside the detailed study area.

7.2.4 The study area will continue to be reviewed, as stakeholder feedback requires, and as the Proposed Development develops. This is to ensure that all potentially significant landscape and visual effects are captured by the assessment.

Surveys

7.2.5 The findings of the desktop study have been informed by a series of site surveys which have been undertaken since February 2017. Some survey work may be revisited if required, for instance if seasonal changes need to be checked or if required following the statutory consultation.

7.2.6 A series of viewpoint photographic surveys has been undertaken to represent views and the character of the local landscape within the study area. A full set of viewpoint assessments will be presented in the ES. Further detail on the viewpoints, including how they were selected and what they represent, is provided in Appendices 7.1, 7.4 and 7.5.

7.2.7 All photography and data collection is being undertaken in accordance with the Landscape Institute's (LI) Advice Note 01/11 ‘Photography and Photomontage in Landscape and Visual Assessment’ and Scottish Natural Heritage's (SNH) ‘Visual Representation of Wind Farms Version 2.1’. Whilst the latter is specifically intended for use in relation to wind farms, it is widely accepted as being applicable to other vertical infrastructure. The LI Advice Note 01/11 strongly advises members to follow this guidance where applicable in preference to any other guidance or methodology.

7.2.8 Site and viewpoint surveys allow assessors to obtain baseline photographs and gain further understanding and appreciation of the landscape and visual experience within the study area.

Assumptions and Limitations

7.2.9 A number of assumptions and limitations are made in relation to the information presented in this chapter of the PEIR. These reflect the evolving nature and preliminary stage of the Proposed Development:

- All conclusions and assessments are by their nature preliminary. The final assessment will be reported in the ES. All assessment work applies a precautionary principle, in that where limited information is available (e.g. in terms of the development proposals), a realistic worst-case scenario is being assessed;
- The PEIR focusses on those Shropshire Landscape Character Areas (LCAs) which would potentially experience potentially significant effects;
- There are no photomontages presented in the PEIR, however, verified photomontages will be prepared for the ES for those viewpoints which are identified within this PEIR as potentially experiencing significant effects;
- This chapter identifies only those effects identified as likely to be significant. These are categorised as moderate or major;
- A lighting assessment is not required because there is no requirement for night-time lighting during construction or operation;
- Given the type of development being proposed it is assumed that predicted effects would be adverse (negative) unless otherwise stated; and
- The PEIR is based on an assessment of SP Manweb's Design Freeze 4 (October 2017). This design could be subject to further

changes following consultation and any design developments, and these changes will be reflected in the outcome of the final ES.

Determining the Significance of Effects

7.2.10 To determine the overall significance of each landscape or visual effect, the separate judgements about the sensitivity of the receptor and the magnitude of effect are combined to allow a final judgement to be made about the level of importance of the overall effect and whether or not the effect is considered significant. This involves a combination of quantitative and qualitative assessment and the application of professional judgement. The rationale in support of the assessment is set out for each receptor so that it is clear how each judgement has been made.

7.2.11 The relationship between receptors and effects is not generally a linear one and there are no hard or fast rules about what makes an effect significant. Judgements are therefore supported by qualitative text to draw out the key issues, describe the effects and explain the underlying rationale.

7.2.12 In terms of landscape effects, paragraph 5.56 of GLVIA3 notes that at opposite ends of the spectrum:

- *'Major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance; and*
- *Reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to, but are not key characteristics of the character of landscapes of community value, are likely to be of the least significance and may, depending on the circumstances, be judged as not significant.'*

7.2.13 In terms of visual effects, paragraph 6.44 of GLVIA3 notes the following:

- *'Effects on people who are particularly sensitive to changes in views*

and visual amenity are more likely to be significant;

- *Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant; and,*
- *Large-scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features which are already present within the view.'*

7.2.14 Within the final ES landscape and visual assessment, residual identified effects will be categorised as major, moderate, minor or negligible. Each of these four categories covers a broad range of effects and represents a continuum or sliding scale. At this stage any effect preliminarily judged to be major or moderate has been deemed to be significant.

7.3 ENVIRONMENTAL BASELINE

7.3.1 The existing landscape forms the basis for the identification and description of the landscape changes that may result from the Proposed Development.

7.3.2 No significant effects outside the detailed 1km study area have been identified (to date), and the descriptions below therefore focus on the 1km study area.

Existing Landscape Baseline

7.3.3 The landscape is predominantly arable with some pastoral land. Although almost entirely agricultural the landscape does display some differing characteristics, with areas of settled farmland sitting alongside estate farmland and lower lying floodplains. The key features of the existing baseline are detailed below, with a more detailed landscape baseline, including features within the wider 5km study area (see Fig 7.2, 'Proposed Project Boundary'), outlined in Appendix 7.2.

7.3.4 The landscape baseline has established the character of the area, based on reference to published characterisation studies, including the National

Character Areas[25] and The Shropshire Landscape Typology[26] (SLT). Site survey work has further informed the classification of the landscape.

7.3.5 The Proposed Development is located entirely within the Shropshire, Cheshire and Staffordshire Plain National Character Area (NCA 61).

7.3.6 Within the 1km study area 11 separate landscape areas have been identified. These are (west to east):

- LCA 1 Urban: Oswestry
- LCA 2 Settled Pastoral Farmlands: Middleton to Babbinswood
- LCA 3 Principal Timbered Farmlands: Halston Hall
- LCA 4 Estate Farmlands: Woodhouse
- LCA 5 Lowland Moors: River Perry
- LCA 6 Estate Farmlands (Semi-Industrial): Lower Hordley and Bagley
- LCA 7 Estate Farmlands: Stanwardine and Kenwick Elevated Ridge
- LCA 8 Lowland Moors: Wackley Brook to River Roden
- LCA 9 Principal Settled Farmlands: Cockshutt to Ruewood
- LCA 10 Settled Pastoral Farmlands: Wem Fringe
- LCA 11 Urban: Wem

7.3.7 Greater detail on these landscape character areas is provided in Appendices 7.2 and 7.3.

[25] A National Character Area (NCA) is a natural subdivision of England based on a combination of landscape, biodiversity, geodiversity and economic activity. There are 159 National Character Areas and they follow natural, rather than administrative, boundaries. They are defined by Natural England, the UK government's advisors on the natural environment.

[26] Shropshire Landscape Typology, Shropshire County Council (2006)

7.3.8 There are no nationally important designated landscapes or sites within the 1km study area. Excluding listed buildings, designated sites within the 1km study area are limited to:

- Gravenhall Ancient Woodland: east of Babbinswood, 740m north of the Preferred Route at its closest point;
- Montgomery Canal, Aston Locks – Keepers Bridge SSSI: west of Rednal, the northern end of the SSSI is 870m south of the Preferred Line Route; and
- Ruewood Pastures SSSI: east of Commonwood, 540m south of the Preferred Route at its closest point.

7.3.9 There are three local conservation areas[27] within the 1km study area:

- The southern boundary of the Whittington Conservation Area is approximately 960m from the Preferred Route. Almost the entire conservation area is outside the study area;
- Approximately the southern third of Loppington Conservation Area lies within the north of study area and its southern boundary is approximately 900m north-west of the Preferred Route; and
- Approximately the western half of Wem Conservation Area is within the 1km study area and its western boundary is approximately 650m east of the Preferred Line Route.

7.3.10 There is one Grade I listed building and five Grade II* listed buildings within the 1km study area. These are:

- Church of St Michael, Loppington, Grade I listed, 900m north-west of the Preferred Line Route;

[27] People living within Conservation Areas and in Listed Buildings are included in the LVIA as sensitive receptors.

- Woodhouse Hall, Rednal, 670m south of the Preferred Route;
- Stanwardine Hall, Stanwardine-in-the-Wood, 370m south of the Preferred Line Route;
- The Ditches Hall, Wem, 690m north of the Preferred Line Route;
- Tilley Hall, Tilley, 990m south-east of the Preferred Route; and
- Church of St Peter and St Paul, Wem, 910m east of the Preferred Route.

7.3.11 Although predominantly an agricultural landscape there are several settlements within the 1km study area. These include (west to east):

- The eastern edge of Oswestry;
- Middleton;
- Babbinswood;
- Lower Hordley;
- Cockshutt;
- Loppington;
- Noneley and Commonwood;
- Ruewood and Tilley; and,
- The western edge of Wem.

7.3.12 In addition to the small areas of settlement there are several scattered farmhouses and individual properties, 19 of which are within 200m of the Preferred Line Route, as shown in Figure 7.7 ‘Residential Amenity’.

7.3.13 Other key landscape features within the 1km study area are:

- The Shrewsbury-Chester railway line which crosses the western section of the 1km study area to the south of Middleton;
- The Shropshire Way: a long distance regional trail which crosses the

1km study area from north-to-south along the route of the Montgomery Canal 5km east of Oswestry and again at the eastern end of the 1km study area, where the trail passes through the south and west of Wem;

- The Montgomery Canal: 5km east of Oswestry;
- The privately owned Woodhouse Estate;
- The River Perry through the centre of the study area, and the River Roden within the eastern part of the study area;
- A-class roads within the study area are limited to the A5 adjacent to the eastern edge of the Oswestry; the A495 between Oswestry and Whittington on the northern edge of the study area; and the A528 between Ellesmere and Shrewsbury which runs north-to-south through the centre of the study area between Cockshutt and Burlton; and
- Small-scale industrial facilities at Babbinswood, Rednal and Lower Hordley.

7.3.14 Formal recreation areas within the 1km study area include the school playing fields within Oswestry and Wem, and Wem Sports and Social Club, where views of the site are screened by buildings and/or vegetation. There are no formal recreation areas, such as golf courses or camping/caravan sites, within the 1km study area.

7.3.15 Throughout the 1km study area the landform is broadly level, with localised gently undulating areas of topography. A slightly higher ridge of land runs through the centre of study area between the settlements of Lower Hordley and Cockshutt. The large properties of Stanwardine Hall and Kenwick Lodge are located on this low ridgeline. Most field boundaries comprise maintained hedgerows with hedgerow trees. Individual and small groups of trees, and some small woodlands are scattered throughout the landscape. There are also occasional ponds which are often surrounded by vegetation.

Existing Visual Baseline

7.3.16 The study area for the visual assessment is the same as that described for the landscape assessment.

7.3.17 The visual baseline (existing views and visual amenity) forms the basis for the identification and description of the visual changes that may result from the Proposed Development. It establishes the areas from where the development may be visible, the different groups of people who may experience views of the different elements of the Preferred Route, the locations or viewpoints where they will be affected and the nature of the views at those locations.

7.3.18 The visual baseline is informed by the landscape baseline presented above. Almost the entire study area comprises level or gently undulating arable farmland and pastures, with fields of varying sizes bounded by hedgerows with mature hedgerow trees. It is a scenic rural landscape with a mixture of villages, hamlets and scattered individual properties, connected by a network of roads and lanes. The local landform is generally level, but there are small pockets of higher ground including a north-south ridge of higher land through the centre of the study area. Some of the lower lying, flatter fields around the Rivers Perry and Roden are categorised as flood zones by the Environment Agency.

7.3.19 Roadside trees and hedgerows serve to limit views, and in places it is only possible to appreciate the wider view through roadside field gates. Elsewhere, and beyond and above the confines of hedges, visual containment is provided primarily through tree cover, particularly through the 'layering effect' of field boundary trees.

7.3.20 The level landform means that from settled areas, in particular Oswestry, Cockshutt, Loppington and Wem potential views towards the development are all but impossible except from either the very edge of those settlements or from occasional and isolated high vantage points within individual buildings.

7.3.21 A significant amount of desk study and field research identified 76 separate viewpoints within the wider study area, all of which have been surveyed and considered in relation to the Preferred Route. The viewpoints are primarily associated with areas of settlement (individual or grouped), Public Rights of Way (PRoW), users of recreational landscapes or road users.

7.3.22 No protected views have been identified within the detailed 1km or wider 5km study areas.

7.3.23 A more detailed visual baseline, including details of the viewpoints selected, is presented in Appendices 7.4 and 7.5.

Future Baseline

7.3.24 All landscapes can be dynamic and influenced by social, economic, technological and climatic changes, all of which can influence patterns of land use, land cover and land management. As such, the baseline for the landscape and visual assessment is constantly evolving and changes to the landscape which may arise in the future have been taken into account. The SC Site Allocations and Management of Development (SAMDev) Plan does not allocate land anywhere along the Preferred Line Route alignment for potential development or new purposes.

7.3.25 The baseline landscape along the Preferred Line Route is mainly influenced by established agricultural management practices, which can influence patterns of land use, cover and vegetation diversity. The effects of climate change and natural succession (for example the gradual silting up of unmanaged ponds, or encroachment of scrub) may also occur.

7.3.26 It is therefore not anticipated that the future baseline would differ noticeably from the existing baseline.

7.4 PRELIMINARY APPRAISAL OF POTENTIAL EFFECTS

7.4.1 This section of the chapter presents the preliminary assessment of significant landscape and visual effects, based on the Proposed Development as described in Chapter 3 'The Proposed Development'.

7.4.2 Any effect identified as not significant is not included in this chapter but is included in Appendix 7.2 'Landscape Assessment' or Appendix 7.4 'Visual Assessment'.

7.5 EFFECTS DURING CONSTRUCTION

Avoidance and Mitigation Measures

7.5.1 Effects during the construction period would be minimised by ensuring good construction and environmental working practices as outlined in the draft Construction Environmental Management Plan (CEMP) which will be submitted with the ES. Full details on avoidance and mitigation measures will be established during the statutory consultation period for the Proposed Development and their effects fully considered prior to submission of the ES.

Potential Effects

7.5.2 Construction of electricity connections can have the following effects:

- Landscape pattern can be affected by the felling of individual mature trees, woodland, shelterbelts or screen planting as these often provide the landscape with a distinctive character or local identity;
- The removal of woodland/tree cover may cause the opening up of the landscape and reduce the sense of enclosure provided by woodland, thereby allowing views into other landscape spaces beyond;
- Wayleave corridors are required when an overhead line or underground cable passes through a wooded area and the straight and linear nature of these can be visually intrusive;
- The removal of hedgerows may be required to provide access for

construction and or maintenance;

- Where new access tracks are required, potential landscape effects may occur when a new straight access track is routed across a grassy hillside or moor, creating a visible man-made mark on the landscape;
- The visual intrusion and contrast, within an agricultural landscape, created by temporary laydown areas, compounds and the movement of construction vehicles and machinery; and
- The digging of trenches and other works associated with installation of underground cables.

7.5.3 No changes to landform are required to accommodate the Proposed Development.

Landscape Assessment

7.5.4 Although construction work can often be highly visible within the landscape all potential effects are temporary and short term. In the case of the Proposed Development there are no anticipated visual effects and is only one likely significant landscape effect. This is near Woodhouse where tree removal would have an impact on the character of part of the LCA 4 Estate Farmlands: Woodhouse as explained in Table 7.1. Although significant, this effect would be geographically limited and would not affect the wider character of the LCA. It is therefore of local (as opposed to regional or national) level.

:**Table 7.1 – Operational phase likely significant landscape effects**	
LCA Estate Farmlands: Woodhouse	**Medium-low sensitivity**
Construction activity includes work at pole positions, stringing locations, access tracks and lay down areas close to Rednal Mill and at Rednal Industrial Estate. Tree removal necessary to accommodate the route includes a short section at the Montgomery Canal crossing, the corner of a woodland block in the private estate farmland at Woodhouse (clearance of 2 to 3 hectares could be required) and clearance to narrow pockets of	

riverside vegetation along the River Perry at two crossing points near Rednal Mill. There is potential loss of short sections of hedgerow, and small numbers of trees subject to lopping or, if safety clearances require, felling. Permanent losses of trees as a result of the access areas are not anticipated. No changes to landform are required. There would be short-term disturbance to the rural scene, although this is a working landscape with pockets of industry.

During construction the **magnitude of change would be medium-high and effects would be moderate adverse** (significant).

7.5.5 Elsewhere, construction of the Proposed Development is likely to result in the loss of some to individual trees and a few small groups of trees at a number of locations along the route. These losses are to allow enough space to accommodate the Proposed Development and to provide the necessary safety clearances. The locations of trees to be removed are identified in the Arboricultural Survey (Appendix 8.4) and discussed in Chapter 8, 'Ecology'. When considered within the context of the LCAs across the study area, the effects are not considered significant.

Visual Assessment

7.5.6 There are no visual receptors which would potentially experience significant effects during the construction phase.

Cumulative Assessment

7.5.7 At this stage, no significant cumulative landscape or visual effects are anticipated during the construction phase.

7.6 EFFECTS DURING OPERATION

Avoidance and Mitigation Measures

7.6.1 A process of iterative design (refer to Chapter 2, 'Alternatives and Design Evolution') has been the key mitigation factor in avoiding or minimising likely significant landscape or visual effects. Further potential mitigation measures, including planting and undergrounding, will be established and agreed upon

during the statutory consultation phase, should it be deemed that such a measure would reduce a potentially significant effect to not significant.

Likely Effects

7.6.2 The likely effects on landscape and visual receptors during operation are limited to the introduction and presence of new structures, i.e. the single pole wood structures and overhead line, H-pole structures, angle structures and stay wires, into the existing landscape.

7.6.3 Consideration has been given to likely effects during the construction phase (as noted above), and at Year 1 during both summer and winter in the operational phase. This allows for consideration of seasonal variations in leaf cover and screening. The effects at Year 15 are considered to be broadly similar to those at Year 1. Whilst there is potential for a slight reduction in any minor effects, for example, as a result of additional vegetation growth and areas of natural regeneration, it is anticipated that effects will remain within the same category of significance.

Landscape Assessment

7.6.4 There are no landscape receptors which would potentially experience significant effects during operation on a local, regional, national or international level.

Visual Assessment

7.6.5 The following visual receptors would potentially experience significant effects during operation. All the significant effects are on a local level:

Table 7.2 – Operational phase likely significant visual effects
VIEWPOINTS
76 viewpoints were identified within the 5km study area, these viewpoints are considered representative of the range of likely effects, viewing experiences and viewers. From the 76 viewpoints four were assessed as experiencing significant visual effects.

Viewpoint 14: PRoW 0207/14/13 near Kenwick Oak	**Medium sensitivity (PRoW)**
View south from slightly elevated location on a PRoW across an attractive arable landscape, with expansive views across neighbouring landscapes and beyond to the distant hills along the Welsh border. Up to eight new poles would be visible from the viewpoint extending from the near to middle distance. Poles 89 to 93 would be visible on the skyline, but the remainder would be seen against a backdrop of landform and vegetation which would reduce their perceptibility. Although a single turbine is present within the view, the introduction of the new overhead line and Trident wood poles, would bring a new element to the landscape and view, which contrasts from the existing baseline view. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	
Viewpoint 23: PRoW 0217/4/2 near Malt Kiln Farm (listed building)	**High sensitivity (residential and PRoW)**
View north from PRoW near residential properties. Poles 120, 121 and 122 are quite close to the viewpoint. Pole 121 would be particularly noticeable as it would be situated on the rising ground to the west of the viewpoint where it would be seen on the skyline. Poles 119, 123 and 124 would be heavily screened by intervening vegetation in the summer months, but potentially visible (although not prominent) during the winter months. The new overhead line would be seen within the context of an existing wood pole line when looking westwards, but would bring a new element to the landscape when looking eastwards. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	
Viewpoint 70: Dandyford Farm, Lower Hordley	**High sensitivity (residential)**
Views across level and relatively open farmland, with long views to neighbouring landscapes including the slightly elevated Woodhouse Estate, and the elevated wooded hill at Tedsmore, and beyond to more distant uplands. Up to nine new poles would be visible from this viewpoint, most of which would be visible on the skyline. All the poles would benefit, to a varying degree, from at least some level of screening and/or be backdropped by landform and vegetation. The overhead line would be visible within the context of the existing baseline which includes a telegraph	

pole line, wind turbines and in the distance a 400kV pylon line. Views from within Dandyford Farm would benefit from greater screening than the actual viewpoint. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	
Viewpoint 72: PRoW 0217/12/1 near The Shayes (listed building)	**Medium sensitivity (PRoW)**
In views south and east from this PRoW the overhead line would be visible across the view and on the skyline, particularly between poles 148 and 149. Looking east, poles 149 - 151 would be partially visible through the intervening vegetation. Looking south-west, angle pole no. 148 would be prominent and appear 50% taller than the existing 33kV and 11kV wood pole lines currently present within the view. Wood poles 147-145 would also be visible heading away from the viewpoint, where they would be seen 'stacked' behind one another. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	
SETTLEMENTS AND RESIDENTIAL PROPERTIES	
The visual impact of the Proposed Development has been considered in respect of all main settlements within 5km of the Preferred Line Route and all individual properties within 200m of the Preferred Line Route. No settlements were assessed as experiencing significant visual effects. Of the 24 individual properties identified within 200m of the Preferred Line Route, three were assessed as likely to experience significant visual effects.	
Residential Amenity: Misty Meadows Approx. 80m from the north of line to the edge of the house, and 15m from the nearest edge of the garden	**High sensitivity (residential)**
Misty Meadows would have views of the overhead line to the south and west, particularly from the garden of the property (which is only 30m from the Preferred Line Route) and upper floors of the house. Although the views would be screened by intervening vegetation, the Proposed Development would add to the views of an existing 400kV pylon line and other lower voltage lines. Tops of poles may be visible, particularly in winter	

months. There would also be loss of planting at the River Perry crossing which would add to the magnitude of change experienced by this receptor. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	
Residential Amenity: Avondale Approx. 60m from the north of line to the edge of the house, and 45m from the nearest edge of the garden	**High sensitivity (residential)**
Avondale would have relatively open views towards the overhead line as it heads into Wem Substation. A new overhead line would intensify the visual effects of the five existing wood pole lines already present in the view. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	
Residential Amenity: Harley House Approx. 85m from the north of line to the edge of the house, and 70m from the nearest edge of the garden	**High sensitivity (residential)**
Harley House would have close range and open views of the overhead line as it approaches Wem substation. A new overhead line would intensify the visual effects of the five existing wood pole lines already present in the view. It is anticipated that the **magnitude of change in the view would be medium and the level of effect moderate adverse**.	

Cumulative Assessment

7.6.6 There are no other Proposed Developments which would give rise to significant cumulative landscape or visual effects during the operational phase of the Proposed Development.

7.7 SUMMARY OF PRELIMINARY ANTICIPATED LANDSCAPE AND VISUAL EFFECTS

Landscape

7.7.1 Preliminary appraisals suggest that there is likely to be one localised significant landscape effect during the construction of the Proposed Development, where a small area of managed woodland would be removed from within the Woodhouse Estate, and vegetation cleared to facilitate the crossing of the River Perry in two locations in LCA4. There would be no significant landscape effects during the operational (including maintenance) or decommissioning phases of the Proposed Development.

Visual

7.7.2 No significant visual effects are currently predicted during the construction, maintenance or decommissioning phases of the Proposed Development. The preliminary appraisal does however suggest that the operational phase of the Proposed Development may result in some localised significant visual effects at the locations where PRoWs cross the alignment (as noted above), and at Viewpoints 14 (near Kenwick Oak), 23 (near Malt Kiln Farm), 70 (near Dandyford Farm) and 72 (near The Shayes).

CHAPTER 8 ECOLOGY

CONTENTS

CHAPTER 8: ECOLOGY

8.1 INTRODUCTION

8.1.1 This chapter presents information about the preliminary ecological effects that have been identified to date, which could result from the Proposed Development described in Chapter 3 'The Proposed Development'.

8.1.2 This preliminary ecological information focuses on those areas that are likely to experience significant effects. This accords with the EIA Regulations which require the identification of the 'likely significant effects of the Proposed Development on the environment' (Schedule 4 Part 1 Paragraph 20). It considers the ecological baseline within the study area (as defined in Section 8.2 of this chapter) and identifies preliminary mitigation measures that could be required to prevent, reduce or offset any likely significant adverse effects of the Proposed Development, or indeed to enhance biodiversity value and provide beneficial effects, where possible.

8.1.3 Further details on this chapter including methodology, baseline information and assessment findings are presented in the following appendices and figures:

- Appendix 8.1: Ecology Assessment Methodology;
- Appendix 8.2: Ecology Baseline and Assessment;
- Appendix 8.3: Extended Phase 1 Habitat Survey;
- Appendix 8.4: Arboricultural Survey;
- Appendix 8.5: Ornithology Surveys;
- Appendix 8.6: Amphibian Surveys;
- Appendix 8.7: Bat Surveys;
- Appendix 8.8: Otter and Water Vole Surveys;
- Appendix 8.9: Badger Surveys (*CONFIDENTIAL*);

- Figure 8.1: Preferred Line Route and Ecological Study Area;
- Figure 8.2: Phase 1 Habitat Survey;
- Figure 8.3: Arboricultural Survey;
- Figure 8.4: Breeding Bird Survey;
- Figure 8.5: Winter Bird Survey;
- Figure 8.6: Heron, Lapwing and Kingfisher Locations;
- Figure 8.7: Great Crested Newt (GCN) Pond Survey;
- Figure 8.8: Bat Activity Survey;
- Figure 8.9: Water Vole Survey;
- Figure 8.10: Badger Survey (*CONFIDENTIAL)*; and
- Figure 8.11: Reptile Habitat Suitability.

8.2 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

8.2.1 The methodology for the ecological assessment is presented within Appendix 8.1.

Scope – study area

8.2.2 The study areas for different habitats/species for the ecological assessments was agreed with Shropshire Council, Natural England and the RSPB, and agreed in the Scoping Opinion. The ecological surveys undertaken to date broadly covered a 100m wide corridor, 50m either side of the Preferred Line Route. However some survey areas extended well beyond this 100m corridor to reflect potential zones of influence of particular species (for example certain bird species) or where suitable habitat connectivity existed. The need or otherwise for additional surveys at specific locations was reviewed alongside the evolving detailed design and as baseline information was gathered. This

ensured that all potentially significant ecological effects were captured by the assessment.

8.2.3 Ecological study areas were established which reflected the identified ecological receptors. The different study areas are detailed in Table 8.1 below, but were extended as required for target species or habitats. Temporary access tracks and laydown areas were also surveyed, with study areas extending to 25m beyond the boundaries, reflecting the temporary and restricted nature of works at these locations.

Table 8.1
Assessment Study Areas

Ecological study areas	Distance either side of the Preferred Line Route
Phase 1 Habitat Survey	250m
Species-rich Vegetation	50m
Habitats	50m
Hedgerows	50m
Arboricultural	25m
Breeding Birds	100m
Non-breeding Birds	500m
Otter and water vole	100m
Badgers and bats	50m
All other species	25m

Zone of Influence

8.2.4 The definition of the zones of influence that extend beyond the direct land-take required for the Construction and Operation Corridor (typically 25m wide) has been identified based upon professional judgement, informed by available information about the behaviors, life cycle and habitat requirements

of ecological receptors and their likely sensitivity to effects arising from the Proposed Development.

8.2.5 Further details of the study and survey areas and how they were established are presented within Appendices 8.1 and 8.2.

Desk Study and Surveys

8.2.6 The findings of this assessment have been informed by desk study and a programme of habitat and species surveys undertaken between October 2016 and August 2017. It builds upon earlier work carried out to identify the Preferred Line Route, as detailed in Chapters 2 'Alternatives and Design Evolution' and Chapter 4 'Consultation'.

Assumptions and Limitations

8.2.7 A number of assumptions and limitations are set out in relation to the information presented in this chapter:

- All conclusions and assessments are by their nature preliminary. Further surveys will be carried out, if required, and the final assessment will be reported in the Environmental Statement (ES). All assessment work has and continues to apply a precautionary principle, in that where limited information is available (in terms of the development proposals), a realistic worst-case scenario is being assessed;
- The PEIR focusses on those ecological receptors considered likely to experience significant effects;
- The preliminary ecological assessment presented in this chapter makes an assessment of whether or not a potential effect is likely to be significant in relation to the EIA Regulations, without categorising into defined thresholds (i.e. moderate or major). The work involved to provide this additional level of detail is still ongoing and will be provided in the ES;

- Given the type of development being proposed it is assumed that predicted effects would be adverse (negative) unless otherwise stated; and
- The PEIR is based on an assessment of SP Manweb's Design Freeze 4 (October 2017). This design could be subject to further changes following consultation and any design developments, and these changes will be reflected in the outcome of the final ES.

Determining the Significance of Effects

8.2.8 To determine the overall significance of each ecological effect, judgements on the sensitivity of the receptor(s) and the magnitude of effect are considered together in order to determine whether or not an effect is likely to be significant. This involves a combination of quantitative and qualitative assessment and the application of professional judgement. The rationale in support of the assessment is set out for each receptor so that it is clear how each judgement has been made.

8.2.9 For the purposes of this preliminary assessment, effects are categorised as significant or not significant in line with the EIA Regulations. Further information is provided in Appendix 8.1 and Appendix 8.2 on the assessment of effects at different geographic scales i.e. where effects may be discernable at a local scale but not considered significant. As the assessment progresses towards the ES this will be refined and effects will be categorised as major, moderate, minor or negligible and presented in further detail. Each of these four categories covers a broad range of effects and represents a continuum or sliding scale. Any effect judged to be major or moderate in the ES will be deemed to be significant.

8.2.10 Greater detail on determining significance for the ecological assessment is presented within Appendix 8.1.

8.3 ENVIRONMENTAL BASELINE

8.3.1 The existing ecological baseline forms the basis for the identification and description of the changes that may result from the Proposed Development. The baseline includes survey information set out in Appendices 8.2 to 8.9.

8.3.2 The habitats along the survey corridor of the Preferred Line Route are dominated by agricultural land supporting a mixture of arable and (largely improved) grassland fields with scattered ponds. The route crosses the Montgomery Canal, River Perry and River Roden, and land to either side of these waterways includes ditch-lined fields within the floodplain. Field boundaries predominantly comprise species-poor hedgerows, many with trees, or post-and-wire fences. Tree lines, and scattered mature trees are present, and a number of broadleaved woodland copses are found alongside the route. Although predominantly within a rural landscape, the route passes a range of built features including roads, a railway line, farm complexes, and residential and commercial buildings.

8.3.3 Protected species along the survey corridor of the Preferred Line Route include great crested newt, water vole, badger, bats, barn owl, kingfisher (and other bird species in the breeding season).

8.3.4 There are no protected areas which the Proposed Development directly crosses.

Future Baseline

8.3.5 The ecological baseline along the Preferred Line Route is mainly influenced by established agricultural management practices, which can influence patterns of land use, cover and habitat diversity. The effects of climate change (for example potentially affecting species distribution, productivity and breeding ranges) and natural succession (for example the gradual silting up of unmanaged ponds, or encroachment of scrub) may also occur.

8.3.6 However, as the Preferred Line Route crosses land that is almost entirely under established agricultural management regimes, it is considered that the current baseline is unlikely to experience notable change in the near future.

8.4 PRELIMINARY APPRAISAL OF POTENTIAL EFFECTS

8.4.1 This section presents the preliminary assessment of significant ecological effects based on the Proposed Development as described in Chapter 3 'The Proposed Development'. It describes the likely impacts and potential significant effects that may arise during construction, operation maintenance and decommissioning on ecological receptors.

8.4.2 This chapter only addresses likely significant ecological effects.

8.5 EFFECTS DURING CONSTRUCTION

8.5.1 Likely effects of construction identified for the assessment are:

- Direct land take and habitat loss – permanent and temporary;
- Direct or indirect disturbance to or displacement of protected or notable species; and/or
- Indirect habitat damage or degradation of habitat quality.

8.5.2 The assessment focuses on those works to be conducted within Construction and Operation Corridor, where the majority of the intrusive activities for construction, operation, maintenance and decommissioning occur. Indirect effects from those works, and those effects associated with the construction compounds, laydown areas and temporary access roads that extend beyond the Construction and Operation Corridor are also assessed as appropriate.

Avoidance and Mitigation Measures

8.5.3 Potential effects during the construction period have been avoided or reduced as a result of embedded mitigation within the evolving detailed line design, including positioning of poles, alignment, routeing of accesses and location of laydown areas and compounds. Effects will be further reduced by the

adoption of appropriate working methods, and implementing standard good practice pollution prevention and control measures within the Construction Environmental Management Plan (CEMP). The CEMP will be submitted as part of the ES.

Direct Land Take and Habitat Loss – Permanent and Temporary

8.5.4 The Proposed Development would result in a very small area of direct permanent land take required for pole positions, requiring less than 0.5ha and largely comprising low ecological value arable land and improved grassland habitat. This figure (0.5ha) is an approximation and will be assessed in more detail for the ES. Approximately 82ha of temporary land take would be involved during the construction phase for working and laydown areas, construction compounds and temporary access routes. Again this land take is dominated by low ecological value arable land and improved grassland agricultural land, with negligible hedgerow loss. Limited tree, scrub and woodland removal is required for the Proposed Development, estimated at this stage to comprise less than 0.5ha in total.

8.5.5 No significant degradation or fragmentation of habitats is considered likely to occur during construction given the relatively small footprint of individual pole construction locations, the temporary 25m wide Construction and Operation Corridor along the Preferred Line Route and the fact that undisturbed habitat would be maintained around, and often between, construction areas. Apart from the land take under the poles themselves, habitat disturbance during the construction phase would be temporary and habitats (and their connectivity) around poles would be reinstated on completion of works. This will be discussed further in the ES.

8.5.6 It is estimated that 48 trees and 15 sections of tree groups would be removed to facilitate the construction of the Proposed Development. This is not considered significant degradation (see Appendix 8.2 ‘Ecology Baseline and Assessment’ for further information). A further 26 individual trees and

sections of 11 groups have been identified for pruning based on current dimensions and/or estimated growth over the next three years. This estimate is subject to confirmation and will be provided within the ES. Further information on this is provided within Appendix 8.4 'Arboricultural Survey'.

Direct Harm or Disturbance to, or Indirect Disturbance to or Displacement of Species

8.5.7 Disturbance or harm to individuals of protected or notable species during construction works may occur should individuals be present within working areas. No population levels effects are predicted due to the restricted working area and availability of refuge habitat in close proximity. Habitats affected by the working area are mainly of low ecological value (arable or improved grassland fields) or represent small areas of habitat types commonly present in the wider area. Hence the construction footprint would not affect sufficient areas of habitat to present a risk to the continued viability of a local population of any species. Similarly the confined nature of the working area and widespread availability of similar and higher quality habitat for species in the vicinity means that construction activity would not cause displacement or disturbance effects that could adversely affect an entire local population of any species.

8.5.8 Construction effects are therefore considered to be restricted to individuals of a species where such individuals are present within the 25m wide Construction and Operation Corridor along the Preferred Line Route (and hence at risk from direct harm or disturbance), or adjacent to it (and hence at risk from indirect disturbance or displacement).

Indirect Habitat Damage or Degradation of Habitat Quality

8.5.9 Given the nature of the construction for the proposed development as set out in Chapter 3 'The Proposed Development', with small working areas around poles, use of existing accesses for the majority of the works and short duration

of disturbing activities, the risk and magnitude of indirect habitat effects are low and not significant.

Overall Effects

8.5.10 No significant ecological effects are anticipated during the construction phase, with embedded mitigation as part of the proposed development and with implementation of the CEMP. Details of the receptors assessed are provided in Appendix 8.2.

Cumulative Assessment

8.5.11 No significant cumulative effects are anticipated during the construction phase. However, a full assessment will be undertaken for the final ES.

8.6 EFFECTS DURING OPERATION

Avoidance and Mitigation Measures

8.6.1 A process of iterative design has adjusted the alignment of the Preferred Line Route to help avoid identified sensitive ecological receptors and potential ecological constraints where possible.

Assessment of Impacts and Effects

8.6.2 The likely effects on receptors during operation are restricted to possible collision of vulnerable bird species. Bird surveys and consultations with RSPB undertaken as part of the assessment have not identified significant constraints. Overall the Proposed Development does not constitute a particularly sensitive area for target species of birds and does not support large numbers of vulnerable species such as geese or other waterfowl. Small numbers (1-2 pairs) of lapwing were observed attempting to breed in a small number of the numerous large open fields present across the survey area, however agricultural management and ploughing of fields meant that little or no successful breeding was noted. Numerous heron flights were recorded in winter passing north-south and intersecting the preferred line route. Flights were however all above the height of the Proposed Development. It is

recognized that occasional collisions may occur, as with any man-made structure in the environment (including buildings) but this is not assessed to be a significant effect on any local bird population. No specific mitigation is therefore required to address effects, however the use of bird deflectors remains an embedded design option at certain locations, with the final requirement or otherwise for such measures still to be confirmed.

8.6.3 No other significant effects are considered likely.

8.6.4 The operational phase of the proposed development would not result in any additional habitat loss or fragmentation or risk of disturbance, to species above that already addressed in relation to construction. Habitats around poles would be reinstated and continue to be under agricultural management as previously.

8.6.5 Periodic maintenance of the line during the operational phase may cause localized and temporary/short term disturbance as access to poles and the line is achieved, but this is not likely to be significantly different to normal disturbance due to agricultural activities.

8.6.6 Periodic vegetation management would be required to maintain a safe clearance of encroaching trees along the overhead line route, involving cutting back of new growth branches where required. This is likely to have negligible additional habitat effects.

8.6.7 Operational effects are therefore considered to be restricted to the risk of bird collision or electrocution due to the presence of the overhead line once operational. The potential for increased predation by raptors and other species on vulnerable ground-nesting birds, caused by the additional use of poles and lines as hunting perches, has also been considered. Negligible effects from increased predation are anticipated, as the area already provides an abundance of suitable hunting perches for raptors in the form of trees, hedgerows and other vertical features.

8.6.8 Once operational it is not considered that the Proposed Development would have any significant effects on habitats, or protected or notable species additional to those considered under the construction phase. This will be discussed with supporting information in the ES.

Cumulative Assessment

8.6.9 No significant cumulative effects are anticipated during the construction phase. However, a full assessment will be undertaken for the final ES.

8.7 SUMMARY OF PRELIMINARY ANTICIPATED ECOLOGICAL EFFECTS

8.7.1 This preliminary assessment indicates that during the operational phase of the Proposed Development there will be no significant ecological effects at a local, regional or national scale. Furthermore, no significant ecological effects are currently predicted during the construction, maintenance or decommissioning phases of the Proposed Development.

CHAPTER 9 HISTORIC ENVIRONMENT

CONTENTS

CHAPTER 9: HISTORIC ENVIRONMENT

9.1 INTRODUCTION

9.1.1 This chapter presents information about the preliminary historic environment effects identified to date, which could result from the Proposed Development described in Chapter 3 'The Proposed Development'.

9.1.2 This preliminary historic environment assessment focuses on those areas which are likely to experience significant effects. This accords with the EIA Regulations which require the identification of the 'likely significant effects of the Proposed Development on the environment' (Schedule 4 Part 1 Paragraph 20). It considers the historic environment within the study area (as defined in Section 9.2 below) and identifies preliminary mitigation measures that could be required to prevent, reduce or offset any likely significant adverse effects of the Proposed Development, or indeed to enhance the historic environment and provide beneficial effects, where possible.

9.1.3 Further details on this chapter including methodology, stakeholder engagement, Scoping Opinion response, baseline information and assessment findings are presented in the following appendices and figures:

- Appendix 9.1: Historic Environment Assessment Methodology;
- Appendix 9.2: Historic Environment Baseline and Assessment;
- Appendix 9.3: Heritage Asset Tables;
- Appendix 9.4: Historic Environment Viewpoints; and
- Figure 9.1: Heritage Assets, Historic Environment Study Area and Viewpoints.

9.2 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

9.2.1 The detailed methodology for the historic environment PEIR assessments was agreed with Historic England and is presented within Appendix 9.1.

Scope – Study Area

9.2.2 Indicative study areas for the historic environment assessment were presented in the Scoping Report and have been agreed with the relevant consultees. The study areas are shown in Figure 9.1 'Heritage Assets and Historic Environment Study Area'.

9.2.3 The inner study area for the PEIR extends to a distance of 1km from the Proposed Project Boundary, so that it captures all components of the Proposed Development that might give rise to direct physical effects and indirect physical effects to sub-surface archaeology, as well as potential visual effects to heritage assets, including those of low significance.

9.2.4 The middle and outer study areas extend to distances of 2km and 5km from the boundary of the 25m wide Construction and Operations Corridor for the overhead line, so that they capture potentially significant visual effects of the overhead line on assets of medium and high significance.

9.2.5 Further details of the study areas and how they were established are presented within Appendix 9.1.

9.3 ENVIRONMENTAL BASELINE

9.3.1 The existing historic environment baseline forms the basis for the identification and description of any effects that may result from the Proposed Development.

9.3.2 A detailed historic environment baseline is provided in Appendix 9.2, with a brief summary of the baseline provided below. A full list of heritage assets is provided in Appendix 9.3.

9.3.3 Heritage assets are identified as either designated assets or non-designated assets. A designated asset as defined by the National Planning Policy Framework (NPPF) includes 'A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant

legislation.' Registered Parks and Gardens and Registered Battlefields are not subject to specific legal protection. A non-designated asset is defined as assets which have not been designated but are recorded on county Historic Environment Records (HER) or equivalent databases. NPPF states that non-designated assets are a material consideration in the planning process[28].

9.3.4 Assessment work to date has identified a total of 1,058 heritage assets within the 5km study area. Of these, 13 non-designated assets, comprising historic landscape features and sub-surface archaeology, have sections within the Proposed Project Boundary. These are:

- HER MSA651: The Montgomery Canal;
- HER MSA3290: Steel Fabrication Works;
- HER MSA12992: The Oswestry, Ellesmere & Whitchurch Railway (Cambrian);
- HER MSA13417: Cropmark circa 300m south-west of Dandyford;
- HER MSA13971: Cropmarks of a rectangular enclosure circa 400m; north-east of Top House Farm;
- HER MSA17003: Rednal Mill;
- HER MSA18439: Woodhouse Estate duck decoy;
- HER MSA18721: Shrewsbury & Chester Railway;
- HER MSA24780: Top House Farm;
- HER MSA29083: Coppice Farm;
- HER MSA30778: Possible cropmark enclosure, south-east of Oswestry;

[28] NPPF, paragraph 135. DCLG, 2012.

- HER MSA30842: Burnt mound circa 580m east of Lower Lees, Rednal; and
- HER MSA31021: Earthwork ridge and furrow west of Wem.

9.3.5 No designated assets are located within the footprint of the Proposed Development.

9.3.6 Within the 1km study area, approximately one third of the assets are designated, and of these approximately 90% are Grade II listed buildings. Conservation areas, listed buildings (Grade I and Grade II*) and scheduled monuments collectively account for approximately 10% of the designated assets.

9.3.7 The non-designated assets include a wide range of sub-surface archaeology, historic landscape features and extant buildings. Within the 1km study area approximately 90% of non-designated assets are of low significance. Non-designated assets of medium significance account for most of the remainder, with three non-designated assets of high significance, which are:

- HER MSA846: Wem Castle;
- HER MSA1226: Cultivation Terraces at Shelf Bank, Oswestry; and
- HER MSA33916: Earthworks of WWI training trenches, interior of Old Oswestry Hillfort.

9.3.8 The relative percentage of designated asset types within the 2km and 5km study areas is almost identical to that within the 1km study area.

9.4 PRELIMINARY APPRAISAL OF POTENTIAL EFFECTS

9.4.1 This section of the chapter presents the preliminary assessment of significant historic environment effects, based on the Proposed Development as described in Chapter 3 ‘The Proposed Development’. It describes the likely impacts and potential significant effects that may arise during construction, operation, maintenance and decommissioning on heritage asset receptors.

9.4.2 This chapter only details likely significant effects.

9.5 EFFECTS DURING CONSTRUCTION

Assessment of Effects

9.5.1 Potential effects (significant and non-significant) on historic environment receptors during construction are described in detail in Appendix 9.2, and summarised below:

- Direct physical impacts on below ground archaeology;
- Indirect below ground impacts, such as de-watering or desiccation of archaeological deposits; and
- Visual impacts on the settings of heritage assets resulting from construction activities.

9.5.2 No potentially significant historic environment effects have been identified during the construction phase due to:

- The small amount of underground disturbance from the Proposed Development which might physically impact archaeology; and
- The temporary nature of the construction phase activities which might give rise to visual impacts on the setting of heritage assets.

Avoidance and Mitigation Measures

9.5.3 Should any effects be identified during the construction period, these may be reduced by archaeological investigation and recording techniques, as described in more detail in Appendix 9.1.

Cumulative Assessment

9.5.4 No significant cumulative historic environment effects are anticipated during the construction phase.

9.6 EFFECTS DURING OPERATION

Assessment of Effects

9.6.1 Potential effects on historic environment receptors during operation are described in detail in Appendix 9.2, and summarised below:

- Visual effects on the settings of heritage assets resulting from the overhead line.

9.6.2 Potentially significant effects as described in 9.6.1 have been identified and are detailed in Table 9.1 below.

Avoidance and Mitigation Measures

9.6.3 A process of iterative design has resulted in the avoidance of direct physical impacts on assets of high significance and has also minimised potential visual impacts on the settings of assets of high significance.

9.6.4 Any potentially significant effects identified during the operation phase could be reduced by the following:

- Micro-siting of poles; and
- On-site planting to reduce or soften impacts to the settings of assets of high significance.

9.6.5 However, it appears unlikely that any new mitigation planting could reduce the preliminary significant effects identified from significant to non-significant. Therefore there are currently no proposals for new on-site planting.

Assessment

9.6.6 The following heritage receptors will potentially experience significant effects during operation:

Table 9.1 – Operational phase likely significant historic environment effects	
Receptor and susceptibility / sensitivity	Summary description and overall effect at Year 1
Malt Kiln Farmhouse (LB 056039) Grade II listed building of High Significance	It is built of two storeys, dates to the late 18th century and has later additions and alterations. The main aspect of the farmhouse is to the south-east (not towards the proposed overhead line). The building has good visual connection with the surrounding landscape, notably to the south. The proposed overhead line crosses from north-west to south-east on the north-east side of the asset's wider setting, at a nearest distance of 128m and therefore will have some adverse effect on appreciation and understanding of setting. The setting contains some modern infrastructure in the form of low voltage overhead lines. Ground level views to the north are blocked by barns. There are middle-distance views from the first floor of the farmhouse to the north-east but these are filtered by hedgerows and trees. Effects on the significance of Malt Kiln Farmhouse are likely to be significant.
The Shayes Farmhouse (LB 1056054) Grade II listed building of High Significance	It is built of two storeys (and attic) and has a lower range to the rear forming an L-plan. It dates to the late 18th century and has later additions and alterations. The farmhouse has moderately good visual connection with the surrounding landscape notably east across land sloping down to the River Roden. Visual connection to the north and west is moderately good despite the presence of modern sheds alongside the track to Bentley Farm. The Shayes' setting mainly comprises historic enclosures. It has a moderate sensitivity to change on account of the existence of some modern infrastructure locally. There would be views of c. 1.8km of the proposed overhead line to/ from the west, north-west and north-east. This would include near-distance views to/ from the west and north-west of

	approximately 500m of the proposed overhead line. At its closest, the line would pass within 159m of the asset. The route would intersect a 'glimpsed' view through trees of the tower of the Grade I church of St Michael's at Loppington. The frequency of hedgerows and trees provide screening/ filtering and back-dropping of some views, notably to the north-east. The effects of the new 132kV line would be combined with those of the existing 32kV line, on account of the doubling up of poles and wires. This would mainly occur in views to the north and less so in views to the west and north east, where the existing 32kV line is less visible. Effects on the significance of The Shayes Farmhouse are likely to be significant.

9.6.7 Greater detail for these assessments is provided in Table 9.2.2 in Appendix 9.2.

Cumulative Assessment

9.6.8 No significant cumulative historic environment effects are anticipated during the operation phase.

9.7 SUMMARY OF PRELIMINARY ANTICIPATED HISTORIC ENVIRONMENT EFFECTS

9.7.1 Preliminary appraisal suggests that the operational phase of the Proposed Development may result in some localised significant effects on two Grade II listed buildings, Malt Kiln Farmhouse and The Shayes Farmhouse. No significant effects are currently predicted during the construction, maintenance or decommissioning phases of the Proposed Development.

CHAPTER 10 FLOOD RISK, WATER QUALITY AND RESOURCES

CONTENTS

CHAPTER 10: FLOOD RISK, WATER QUALITY AND RESOURCES

10.1 INTRODUCTION

10.1.1 This chapter presents information about the preliminary hydrological effects identified to date, which could result from the Proposed Development described in Chapter 3 'The Proposed Development'.

10.1.2 This preliminary assessment focuses on those areas which are likely to experience significant effects. This accords with the EIA Regulations which require the identification of the 'likely significant effects of the Proposed Development on the Environment' (Schedule 4 Part 1 Paragraph 20). It considers the flood risk, water quality and resources within the study area (as defined in Section 10.2 of this chapter) and identifies preliminary mitigation measures that could be required to prevent, reduce or offset any likely significant adverse effects of the Proposed Development, or indeed to enhance the hydrology and provide beneficial effects, where possible.

10.1.3 Further details on this chapter including methodology, stakeholder engagement, Scoping Opinion response, baseline information and assessment findings are presented in the following appendices and figures:

- Appendix 10.1: Flood Risk, Water Quality And Resources Assessment Methodology;
- Appendix 10.2: Flood Risk, Water Quality And Resources Baseline and Assessment;
- Figure 10.1: Mapped flood risk along the Preferred Line Route;
- Figure 10.2: Licensed water abstractions within the study area.

10.1.4 It was agreed in the Scoping Opinion that effects on water resources during the operational life of the Proposed Development could be scoped out of the ES process. Effects of flood risk during the operational life of the Proposed

Development were not scoped out. It was also agreed that effects on underground hydrology, specifically in relation to archaeological/heritage assets, could also be scoped out of the ES.

10.2 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

10.2.1 The detailed methodology for the flood risk, water quality and resources assessments is presented within Appendix 10.1.

Scope – Study Area

10.2.2 An indicative study area for the flood risk, water quality and resources assessments was presented in the Scoping Report and agreed in the Scoping Opinion. For flood risk the study area extends up to a distance of 500m from the 25m wide Construction and Operations Corridor to ensure any possible effects on receptors are identified.

10.2.3 Information on water abstractions, for which effects may be felt at a greater distance, has been collected for an area extending up to 1km from the Preferred Line Route.

10.2.4 The temporary lay down areas and access routes have also been considered for assessment of the possible effects during the construction phase where they extend beyond the study areas detailed above.

10.2.5 The study areas will continue to be reviewed, both in the light of ongoing site surveys and as the Proposed Development develops. This is to ensure that all potentially significant hydrology effects are captured by the assessment.

Surveys

10.2.6 Published information, supported by specific information requests to Shropshire Council and the Environment Agency to obtain detailed flood and water abstraction information, have been used to inform this preliminary assessment. The water survey methodology was agreed by the Environment Agency. The information obtained is considered to be the best available and

unlikely to be improved by on-site surveys. Information collected to support the assessment has therefore been restricted to desktop studies.

10.2.7 Information on flood extent has been acquired from the Environment Agency which provided detailed mapping of flood risk zones 2 and 3 (for modelled watercourses larger than 3 km^2). The Environment Agency has confirmed that no more detailed flood model output is available.

10.2.8 For those areas where flood zones are available, flood zone 3, where annual fluvial flood risk is expected to be 1% or greater, has been used to determine a significant risk of flooding. Flood zone 2, indicating an annual fluvial flood risk between 0.1% and 1%, has been used to indicate areas where flood risk may become significant during the lifetime of the Proposed Development due to potential climate change increases in rainfall and runoff.

10.2.9 Published areas of surface water flood risk have been used to determine potential flood risk areas for catchments less than 3 km^2 in extent as these small areas are most susceptible to this form of flooding. Figure 10.1 shows the extent of these areas along the Preferred Line Route.

10.2.10 Information on water abstraction licenses has been provided by the Environment Agency, as is shown on Figure 10.2.

10.2.11 Information on private water supplies was requested from Shropshire Council, who confirmed that there are no known private water supplies within the study area.

Assumptions and Limitations

10.2.12 It is assumed that all water users are licensed or registered with either the Environment Agency or Shropshire Council, as appropriate.

10.2.13 As stated above, no hydrological site visits or walkover surveys of the study area have been undertaken as they are not considered to be required, as outlined above in paragraph 10.2.6.

Determining the Significance of Effects

10.2.14 To determine the overall significance of each flood risk or water quality effect, the separate judgements about the sensitivity of the receptor and the magnitude of effect are combined to allow a final judgement to be made about the level of importance of the overall effect and whether or not the effect is considered significant. This involves a combination of quantitative and qualitative assessment and the application of professional judgement. The rationale in support of the assessment is set out for each receptor so that it is clear how each judgement has been made.

10.2.15 For the purposes of this preliminary assessment, effects are categorised as significant or not significant. As the assessment progresses towards the ES this will be refined and effects will be categorised as major, moderate, minor or negligible. Each of these four categories covers a broad range of effects and represents a continuum or sliding scale. Any effect judged to be major or moderate in the ES will be deemed to be significant.

10.2.16 Greater detail on determining significance for the hydrological assessments is presented within Appendix 10.1.

10.3 ENVIRONMENTAL BASELINE

10.3.1 The existing hydrological attributes on the receptors forms the basis for the identification and description of the hydrology changes that may result from the Proposed Development.

10.3.2 Greater detail on the environmental baseline is provided within Appendix 10.2.

Existing Hydrology Baseline

10.3.3 The study area extends for 500 metres from the Construction and Operations Corridor, which follows an east-west axis from Oswestry to Wem, within the county of Shropshire.

10.3.4 The area lies entirely within the Severn catchment and features many small watercourses and drainage channels, particularly in the west of the study area. The topography is gently rolling with shallow gradients resulting in low flow velocities and extensive flat areas which have been drained by ditching. There are no large rivers, and each of the watercourses crossed by the Proposed Development will be spanned without requiring support within watercourse channels.

10.3.5 The new overhead line would cross two watercourses recognised by the Environment Agency as main river: the Rivers Perry and Roden. In addition, the line crosses a drainage channel which flows alongside the Roden across low lying land and then flows separately to the north of the Roden, before joining it on the outskirts of Wem. This channel is identified as a part of the River Roden and is also classified as a main river. Responsibility for flood risk management in main rivers rests with the Environment Agency

10.3.6 All other watercourses crossed by the Preferred Line Route are not classed as main rivers and are therefore classed as ordinary watercourses for which responsibility for flood risk management rests with Shropshire Council, the Lead Local Flood Authority within the study area.

10.3.7 The new overhead line would also cross the Montgomery Canal, which is managed by the Canal and River Trust.

10.3.8 Groundwater resources are significant within bedrock in the area, however substantial areas of less permeable superficial deposits exist in many areas and offer protection to the groundwater from surface activities.

10.3.9 The most significant groundwater resource is the Shropshire Groundwater Scheme in the western part of the study area. There are also licensed abstractions of surface and groundwater in the River Perry and the River Roden catchments for agricultural purposes, principally for spray irrigation.

10.3.10 There are no licensed private water supplies identified in the study area.

10.4 PRELIMINARY APPRAISAL OF POTENTIAL EFFECTS

10.4.1 This section of the chapter presents the preliminary assessment of significant hydrological effects, based on the Proposed Development as described in Chapter 3 'The Proposed Development'. It describes the likely impacts and potential significant effects that may arise during construction and operation on surface water and groundwater receptors.

10.4.2 This chapter only details potential significant effects.

10.5 EFFECTS DURING CONSTRUCTION

10.5.1 Likely effects of construction work are:

- Release of sediment into surface water during construction activities;
- Accidental release of oils, fuels and construction materials, particularly from temporary laydown areas; and
- Trenching activities for any required underground sections.

Avoidance and Mitigation Measures

10.5.2 Effects during the construction period may be reduced by:

- Careful siting of access tracks and temporary laydown areas;
- Adoption of a Construction and Environmental Management Plan (CEMP) which will include best practice guidance for pollution prevention, a drainage management plan, and a watercourse crossing plan; and
- Works within 8m of main rivers (i.e. the Rivers Roden and Perry) only being undertaken within the terms of an Environment Agency permit granted under Environmental Permitting (England and Wales) Regulations 2010 and obtained before works commence. However, currently no wood poles are proposed within 8m of either river.

Assessment of Effects

10.5.3 The following receptors may potentially experience significant effects during construction:

Table 10.1 – Construction phase potential significant hydrology effects	
Receptor and susceptibility / sensitivity	Summary description and overall effect
River Perry	Temporary effects from the release of sediment during construction of poles 50, 53 and 64 (all close to main river). The CEMP would ensure proper management of construction activities so these effects are considered to be not significant.
River Roden	Temporary effects from the release of sediment during construction of poles 164 and 167 (both close to main river). The CEMP would ensure proper management of construction activities so these effects are considered to be not significant.
Ordinary watercourses in Area north-east of Wackley Lodge	Temporary effects from the release of sediment during construction of poles 112 and 115 (both immediately adjacent to drainage channels). The CEMP would ensure proper management of construction activities so these effects are considered to be not significant.
Sleap Brook	Temporary effects from the release of sediment during construction of poles 130, 133 and 134 (all immediately adjacent to drainage channels). The CEMP would ensure proper management of construction activities so these effects are considered to be not significant.
Springs Brook	Temporary effects from the release of sediment from laydown area at Dandyford

	(NGR 3391 3297). The CEMP would ensure proper management of construction activities so these effects are considered to be not significant.

10.5.4 All the identified construction effects would be temporary and managed through the CEMP which would minimise the release of sediment and ensure watercourses were not contaminated. Any construction activity with 8m of the Rivers Perry and Roden would also be controlled via an Environment Agency permit. Adherence to good working practices will result in there being no significant adverse effects on flood risk, water quality and resources during the construction phase of the Proposed Development.

Cumulative Assessment

10.5.5 No significant cumulative effects on flood risk, water resources or quality are anticipated during the construction phase.

10.6 EFFECTS DURING OPERATION

Assessment of Effects

10.6.1 The likely effects on hydrological receptors during operation are:

- Effects on flood risk as a result of poles sited within the flood plain, which may collect debris or deflect flood flows; and
- Possible interference with operations associated with development of the Shropshire Groundwater Scheme arising from location of poles in areas where plant access is required for construction and maintenance of groundwater pumping stations.

10.6.2 The following crossing points of flood risk areas could potentially generate significant effects during operation without sufficient mitigation:

Table 10.2 – Operational phase potential significant hydrology effects	
Receptor and susceptibility / sensitivity	Summary description and overall effect
West of Montgomery Canal	Area of low relief land with drainage channel associated with River Perry. 1.1km of line within flood zone 2 or 3 (approximately relating to poles 32 to 40). Flood velocity is expected to be low (<0.25 m3/s) in this area so effects are unlikely to be significant.
River Perry at Rednal Mill (Main river)	River crossed twice but limited flood extent at this location. Poles 50 and 53 are within flood zone 2. Flood velocity is expected to be low (<0.25 m3/s) in this area so effects are unlikely to be significant.
River Perry	Poles 64 and 65 are within flood zone 2 and 3. Pole 64 is close to the river, but greater than 8m from the river edge. Flood velocity is expected to be low (<0.25 m3/s) in this area so effects are unlikely to be significant.
Area north-east of Wackley Lodge	Poles 111 to 115 are within an area of flood zone 2 and 3 associated with local drainage channels. Poles 112 and 115 are immediately adjacent to drainage channels. Flood velocity is expected to be low (<0.25 m3/s) in this area so effects are unlikely to be significant.
Sleap Brook	Poles 130 to 134 are within an area of flood zone 2 and 3 associated with drainage channels on a tributary of Sleap Brook. Poles 131, 133 and 134 are immediately adjacent to drainage channels. Flood velocity is expected to be low (<0.25 m3/s) in this area so effects are unlikely to be

	significant.
River Roden (Main river)	Poles 158 to 170 are within an extensive area of flood zone 2 and 3 associated with the River Roden and its tributary. Poles 164 and 167 are close to the river channels. Flood velocity is expected to be low (<0.25 m3/s) in this area so effects are unlikely to be significant.

Avoidance and Mitigation Measures

10.6.3 The overhead line will span all watercourses and no poles are located within watercourse channels. Some pole locations would have to be sited within wide flood plains but the number of these is minimal and they are not sited in zones of high flood flow velocity. The low flood flow velocities mean debris collection and deflection of the current would be minor and the effects would therefore not be significant.

10.6.4 A route has been selected that avoids possible conflict with anticipated construction and future maintenance of the Shropshire Groundwater Scheme.

Cumulative Assessment

10.6.5 Significant cumulative hydrological effects are not anticipated during the operational phase of the Proposed Development.

10.7 SUMMARY OF PRELIMINARY ANTICIPATED HYDROLOGICAL EFFECTS

10.7.1 Preliminary appraisals suggest that the careful management of sediment, oils and construction materials within a CEMP would be sufficient to avoid significant hydrological effects during the construction phase.

10.7.2 The minimisation of pole locations in recognised floodplains and flood routes, and the low flow velocities expected within the flood zones mean that no significant hydrological effects during the operational phase are anticipated.

CHAPTER 11 SOCIO-ECONOMIC

CONTENTS

CHAPTER 11: SOCIO-ECONOMIC

11.1 INTRODUCTION

11.1.1 This chapter presents information about the preliminary socio-economic effects that have been identified to date, which could result from the Proposed Development described in Chapter 3 'The Proposed Development'.

11.1.2 This chapter describes the current baseline environment for socio-economic features, and the potential significant socio-economic effects associated with the Proposed Development. The socio-economic baseline presented provides details on the population, employment and skills, businesses, recreation and tourism resources within the baseline study area (defined in Section 11.2 of this chapter). The aim of the baseline profile is to establish the sensitivity of communities to socio-economic impacts (both beneficial and adverse), from and associated with, the Proposed Development. Any potentially significant effects on the baseline will be identified and where appropriate preliminary mitigation measures outlined that may be implemented to prevent, reduce or offset any likely significant adverse effects of the Proposed Development.

11.1.3 Socio-economic assessment considers social effects. It refers to the consequences to local populations in terms of ways in which people live, work and interact; and economic effects that include issues such as employment, and impact on economic sectors.

11.1.4 The socio-economic effects covered by this chapter (as agreed with PINS following the issue of the Scoping Opinion) are tourism and recreation. Following consultation with socio-economic stakeholders, including Shropshire Council, the addition of business concerns (due to the beneficial impacts anticipated) has been added to this assessment. Further details on this chapter including greater detail on assessment methodology and baseline information are presented in the following appendices and figures:

- Appendix 11.1: Socio-Economic Assessment Methodology;
- Appendix 11.2: Socio-Economic Baseline and Assessment;
- Figure 11.1 Socio-Economic Super Output Areas (baseline data);
- Figure 11.2 Socio-Economic Assessment Study Areas;
- Figure 11.3 Public Rights of Way; and
- Figure 11.4 Airfields and Approach Route.

11.1.5 The socio-economic assessment work has been undertaken by a local socio-economic specialist, Filkin & Co EHS Limited, based in Whitchurch, North Shropshire.

11.2 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

11.2.1 The detailed methodology for the socio-economic assessment is presented within Appendix 11.1.

Scope – study area

11.2.2 In the socio-economic context receptors are individuals, organisations or groups who are users or beneficiaries of socio-economic resources (community facilities, businesses, accommodation providers etc.). Defining the spatial scope can be complex because of the need to consider individuals and structures at a variety of distances from the Proposed Development. These individuals and structures may be affected because of a number of potential effects such as economic impact (which is difficult to define categorically) and visual impacts that can vary over distance.

11.2.3 The nature of potential socio-economic effects (with tourism and recreation having a direct relationship to visual effects as set out in Chapter 7 'Landscape and Visual') means the decision was taken to correspond the study area with the detailed 1km study area for the visual assessment. Therefore, the study area for the socio-economic assessment extends for

1km from the boundary of the 25m Construction and Operations Corridor for the Preferred Line Route.

11.2.4 For assessment of business effects a wider study area was required due to the nature of the information available, and therefore the geographical area of Shropshire has been used. The spatial scope for the assessment was checked by stakeholders (including groups related to tourism and economic development) via distribution of a description and map of the baseline study area.

11.2.5 Lower super-output areas (LSOAs) have been used for baseline data collection as they present census data at a small, standard statistic level of data. Unitary authority boundaries have also been used for some baseline data (where data was not available at a LSOA level).

11.2.6 The assessment focuses on those areas with the potential for significant effect.

11.2.7 The study area will continue to be reviewed, both in the light of ongoing site surveys and as the Environmental Impact Assessment (EIA) for Proposed Development develops. This is to ensure that all potentially significant socio-economic effects are captured by the assessment.

11.2.8 Further details of the study area and how it was established are presented within Appendix 11.1.

Surveys

11.2.9 There have been no surveys undertaken specific to this assessment. However, contact was made with Shropshire Wildlife Trust to access the results of a visitor survey they undertook in March 2017. This related to sites associated with their Meres and Mosses Landscape Partnership Scheme, which includes a number of areas within North Shropshire that are a resource for recreation and tourism. The visitor survey was completed over a number of weeks and promoted via social media, so it is noted that respondents are likely to be members of the organisation rather than general visitors or tourists

to the area. Shropshire Wildlife Trust agreed to share the results from the survey when completed. The responses (84 in total) received have been incorporated into the tourism and recreation baseline.

Assumptions and Limitations

11.2.10 A number of assumptions and limitations are made in relation to the information presented in this chapter of the PEIR and reflect the evolving nature and preliminary stage of the Proposed Development:

- The baseline data has been based on the most up-to-date at the time of publication of the PEIR but the nature of socio-economic data means it is not static;
- All conclusions and assessments are by their nature preliminary. All assessment work has and continues to apply a precautionary principle, in that where limited information is available (in terms of the development proposals), a realistic worst-case scenario is being assessed, for example we are assuming that for economic purposes there will be minimum job safeguarding associated with the development;
- Where required, judgement has included consideration of the worst case scenario (precautionary principle) on which to base the assessment;
- The survey work undertaken by Shropshire Wildlife Trust (incorporated into the tourism baseline) has an inherent bias as it is likely to have Shropshire Wildlife Trust members that have responded as opposed to general visitors or tourists; and
- The preliminary assessment presented in this chapter makes an assessment of whether or not a potential effect is likely to be significant without categorising into defined thresholds (i.e. moderate or major). The work involved to provide this additional level of detail is still

ongoing and will be provided in the ES.

Determining the Significance of Effects

11.2.11 Following identification of potential effects a level of significance needs to be assigned to that effect. A three stage approach to the assessment has been adopted:

- Assigning a socio-economic value (or sensitivity of) a resource or receptor;
- Assigning a level of effect (the magnitude); and
- Assigning a level of significance.

11.2.12 The first step in assessing the socio-economic effects is to determine the sensitivity of the socio-economic context to the Proposed Development. Socio-economic sensitivity requires a judgement to be made about the susceptibility of a community or individuals (receptor(s)) to accept or adapt to changing socio-economic conditions caused by a proposed development. A receptor or resource can experience a socio-economic effect in different ways:

- As an economic gain and/or financial loss; and
- As a gain or loss of a resource, or access to a resource.

11.2.13 Once sensitivity has been considered a decision on magnitude of a potential effect is undertaken this can be adverse or beneficial, permanent or temporary and be experienced at a range of geographical extents.

11.2.14 For the purposes of the preliminary assessment moderate and major effects are generally deemed to be 'significant'. Greater detail on determining significance for the socio-economic assessments is presented within Appendix 11.1.

11.3 SOCIO-ECONOMIC BASELINE

11.3.1 The aim of the baseline is to provide an understanding of the existing socio-economic features and conditions within the study area to assist in the identification and assessment of effects (positive and negative). The baseline will be further developed as more information becomes available.

11.3.2 Greater detail on the environmental baseline is provided within Appendix 11.2.

Existing Socio-Economic Baseline

11.3.3 Wem and Oswestry are market towns located in North Shropshire. The study area extends between the towns through a rural area with agricultural businesses and some isolated commercial premises. There are a number of PRoW (see Figure 11.3) within the area. There are a total of 11,631 residents within the identified super-output areas with an average density of 5.2 persons per hectare.

11.3.4 Shropshire has a high proportion of the population past the retirement age (like many rural areas) and comparatively low levels of unemployment (compared to UK average). The Shropshire labour force is well qualified compared to the West Midlands area in general but supports fewer professionals, with more work in elementary occupations or as process, plant and machine operatives. Shropshire also supports an above average number of people working in skilled trade occupations. Net out-commuting is significant (with more resident workers than job availability). There are significant numbers of economically inactive people who would like to be in employment (10,400 in 2016, Annual Population Survey) suggesting that there is an available labour resource within the County. 31% of Shropshire employers report employment staff who have qualifications or skills that are

not used in their current role (UKCES Employers Skills Survey, 2015[29]) and levels of part-time employment are exceptionally high (34.8% of all Shropshire jobs in 2015 against 30.9% nationally). All of these factors are indicative of a level of underemployment within the County.

11.3.5 Shropshire supports a primarily small business economy, with more than nine out of 10 enterprises employing less than 10 and with comparatively few large employers. There are only 35 organisations in Shropshire that employ 250 or more (IDBR, 2016[30]).

Future Baseline

11.3.6 North Shropshire has plans, as detailed in the SAMDev Plan to 2026[31], for further growth. The main intentions are for the following increases:

- Oswestry 2,600 dwellings and 45ha employment (p.180 of SAMDev);
- Whitchurch 1,200 dwellings and 26ha employment (p.226 of SAMDev);
- Ellesmere 800 dwellings and 18 ha of land for leisure and tourism uses (p.143 of SAMDev);
- Wem 500 dwellings and 4ha employment (p.221 of SAMDev); and
- Several villages (community hubs and community clusters) also taking

[29] UK CES Employers Skills Survey available at: https://www.gov.uk/government/publications/ukces-employer-skills-survey-2015-uk-report [last accessed 01/10/2017]

[30] Inter-Departmental Business Register, 2016 available at: https://www.ons.gov.uk/aboutus/whatwedo/paidservices/interdepartmentalbusinessregisteridbr [last accessed 01/10/2017]

[31] Available at: http://shropshire.gov.uk/planning-policy/local-plan/samdev-plan-2006-2026/ [accessed 18/10/2017] & http://shropshire.gov.uk/media/1900363/SAMDev-Adopted-Plan.pdf [accessed 18/10/2017]

sustainable levels of growth.

11.3.7 Improved electricity supply infrastructure is important to support these growth plans with enhancing electricity supply across North Shropshire having been identified as a local infrastructure priority, hence there is local support from the local business community that has been highlighted by Shropshire Council's response to consultation associated with the Proposed Development (see Appendix 11.1 for the detailed response from Shropshire Council). Work on construction of the infrastructure will safeguard a small number of existing jobs for a contractor and will indirectly support the growth of the market towns and the rural economy.

11.4 PRELIMINARY APPRAISAL OF POTENTIAL EFFECTS

11.4.1 This section of the chapter presents the preliminary assessment of significant socio-economic effects, based on the Proposed Development as described in Chapter 3 'Description of the Proposed Development'. It considers potential significant effects that may arise during construction, operation maintenance and decommissioning from a socio-economic perspective.

11.4.2 This chapter details the likely significant effects for consideration with more detailed analysis included in Appendix 11.2.

11.5 EFFECTS DURING CONSTRUCTION

11.5.1 Due to the short term nature of the construction in any one location and the lack of anticipated visual impact (see Chapter 7 'Landscape and Visual' of this PEIR), there are not anticipated to be any significant socio-economic effects resulting from the construction of the Proposed Development.

11.5.2 Further information on effects during construction is provided within Appendix 11.2.

Avoidance and Mitigation Measures

11.5.3 The key avoidance and mitigation measure has been via the iterative design of the route based on technical requirements and ongoing stakeholder consultation.

11.5.4 The Construction Environmental Management Plan (CEMP) which will accompany the final ES will further outline mitigation measures during the construction of the Proposed Development, such as reasonable working hours, to ensure that any potential socio-economic impacts are avoided or minimised.

Cumulative Assessment

11.5.5 No significant socio-economic effects are anticipated during the construction phase.

11.6 EFFECTS DURING OPERATION

11.6.1 Stakeholder consultation has revealed strong support from Shropshire Council (Economic Growth Service) for the Proposed Development. They note that there will be a positive economic impact from the investment in new electricity infrastructure that will facilitate growth plans for North Shropshire. Development proposals for housing and employment are predicated on the availability of power which has been an issue in Whitchurch and Oswestry due to supply and capacity constraints. Improved electricity infrastructure is an important and integral part of Shropshire Councils growth plans.

11.6.2 The conclusion is that the project is expected to have a significant beneficial effect on business in terms of growth plans for the area (including housing development).

11.6.3 No potentially significant negative impacts are anticipated during the operational phase.

11.6.4 Further information on effects during operation is provided within Appendix 11.2.

Avoidance and Mitigation Measures

11.6.5 The key avoidance and mitigation measure has been via the iterative design of the route based on technical requirements and ongoing stakeholder consultation.

11.6.6 Only a beneficial socio-economic effect has been identified, therefore no further avoidance or mitigation is required.

Assessment of Impacts and Effects

11.6.7 The likely effects on socio-economic receptors during operation are limited to the beneficial effects for businesses, as a result of the required increased electricity capacity in the area.

Cumulative Assessment

11.6.8 The project will result in a beneficial effect from a socio-economic perspective. Consideration of other chapters does not suggest that significant effects will lead to any adverse socio-economic effects.

11.7 SUMMARY OF PRELIMINARY ANTICIPATED SOCIO-ECONOMIC EFFECTS

11.7.1 Preliminary appraisals suggest that the operational phase of the Proposed Development may result in significant beneficial effects for local businesses. No significant effects are currently predicted during the construction, maintenance or decommissioning phases of the Proposed Development.

CHAPTER 12 LAND USE AND AGRICULTURE

CONTENTS

CHAPTER 12: LAND USE AND AGRICULTURE

12.1 INTRODUCTION

12.1.1 This chapter presents information about the preliminary land use and agricultural effects that have been identified to date, which could result from the Proposed Development described in Chapter 3 'The Proposed Development'.

12.1.2 Further details relating to this chapter are illustrated in Figure 12.1: Agricultural Land Classification

12.2 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

12.2.1 The methodology presented in this chapter builds upon the general assessment methodology summarised in Chapter 5 'PEIR Approach and General Methodology'. It has been developed to take account of any likely significant impacts on agriculture and other land uses arising during the construction and operation phases of the Proposed Development.

12.2.2 The potential impacts of the Proposed Development on agriculture, relates to land take and effects upon farming practices. In particular the following areas are considered:

- Land take: which is assessed in terms of quality and quantity and the losses evaluated against national and local criteria;
- Farming practices: the farming methods are described and the impact of the Proposed Development on these assessed. Where alternative methods of working are possible, these are described. Losses in terms of cropping are described; and
- Drainage and water supply: any disruption to field drains and water supplies will be described; and
- Agri-environment schemes: details of the schemes will be identified

and any impacts described.

12.2.3 There are a number of factors which influence the value and sensitivity ascribed to various land use and agricultural receptors. These include the quality of agricultural land and land under environmental stewardship schemes. The magnitude of any effect reflects physical extent and duration. The significance of the effects can be identified by considering the sensitivity of the land and magnitude of any impacts on that land and how it can be used.

12.2.4 The preliminary assessment has been undertaken largely by means of a desk study, utilising information from published sources and from specific liaison and consultation, including information that is being obtained from farmers and farm tenants, via consultations between them and SP Manweb's land agents. More detailed information on agri-environment schemes and organic land will be obtained via discussions with farmers, and from information available through the DEFRA website.

12.2.5 Permanent land take for the Proposed Development will only be the footprint of the Trident wood poles (and area of land covered by the stays on angle poles). No new permanent access tracks are required. The assessment therefore uses professional judgement rather than formal guidelines for a methodology.

Scope – Study Area

12.2.6 The 1km study area extends from the boundary of the 25m wide Construction and Operation Corridor for the overhead line.

12.2.7 This study area recognises that the Proposed Development has the potential to affect land beyond the Proposed Project Boundary (e.g. if land drainage is impacted and requires diversion through agricultural fields outside the Proposed Project Boundary). Planning applications within the study area have also been reviewed for any potential changes to land use.

12.2.8 The study area will continue to be reviewed in the light of the continued dialogue between SP Manweb and landowners, farmers and farm tenants to identify further opportunities to mitigate any potential significant effects as the Proposed Development develops. This is to ensure that all potentially significant land use and agricultural effects are captured by the assessment.

12.3 ENVIRONMENTAL BASELINE

12.3.1 Details of agricultural land classification in the study area are illustrated in Figure 12.1 and the topography of the study area in Figure 7.5.

12.3.2 The topography of the area, is typical of the Shropshire Plain, being low lying and relatively flat or gently undulating. There are some areas of higher ground (between 110 - 120m AOD) in the north-west close to Oswestry.

12.3.3 The predominant land use, and therefore the focus of this chapter is agriculture. Arable and pastoral farmland is interspersed with small settlements including Lower Hordley, Bagley, Cockshutt, Noneley and Loppington.

12.3.4 Farming is generally medium scale arable and dairying, with some larger scale fields set aside for arable farming in proximity to some of the low-lying areas associated with flood risk near the River Perry, Wackley and Sleap Brook, and the River Roden.

12.3.5 Consultation feedback has identified the presence of large centre point irrigation facilities used for the growing of quinoa near Lower Hordley and the River Perry, as shown on Figure 12.1.

12.3.6 The quality of agricultural land is assessed using the Agricultural Land Classification (ALC) scheme established by the Ministry for Agriculture, Fisheries and Food (now the Department for the Environment, Food and Rural Affairs (DEFRA)). There are five classifications of agricultural land (six with a subsequent subdivision of Grade 3) with Grades 1, 2 and 3a land currently defined as '*best and most versatile*' (BMV). Provisional

reclassification by DEFRA to-date has removed sub-classifications within Grade 3, considering Grades 1 and 2 as BMV land.

12.3.7 The classification is based on the long term physical limitations of land for agricultural use. Factors affecting the grade are climate, site and soil characteristics. The ALC system is used by DEFRA and others to give advice to local planning authorities, developers and the public if development is proposed on agricultural land or other 'greenfield' sites that could grow crops.

12.3.8 The Proposed Development passes through predominantly Grade 3 (good to moderate quality) agricultural land with some areas of Grade 2 (very good quality) agricultural land and Grade 4 (poor quality) agricultural land. Much of the land within the area is classified as Grade 3, with smaller pockets of Grade 2 near Lower Hordley, Cockshutt, Loppington, Noneley and just west of Wem, and small pockets of Grade 4 particularly near the Montgomery Canal and the River Perry, and in the area south of Loppington.

Agri-environment Schemes

12.3.9 There is a New Environmental Land Management Scheme (NELMS) countryside stewardship (middle tier) area scheme to the south of Lower Hordley.

12.4 PRELIMINARY APPRAISAL OF POTENTIAL EFFECTS

12.4.1 This section of the chapter presents the preliminary assessment of significant land use and agricultural effects, based on the Proposed Development as described in Chapter 3 'The Proposed Development'. It describes the likely impacts and potential significant effects that may arise during construction, operation, maintenance and decommissioning on land use and agriculture.

12.4.2 This chapter only details likely significant effects.

12.5 EFFECTS DURING CONSTRUCTION

12.5.1 The majority of effects on farming operations will arise during the construction phases. Potential temporary effects include:

- Loss of grazing and cropping area. The temporary loss of limited areas of cropping and grazing will occur along temporary access tracks and within working areas surrounding pole locations. This will be during the construction phase and for a short period following reinstatement as the ground settles and re-establishes;
- Timings of construction works. This may impact on seasonally dependent agricultural operations such as harvesting, sowing, lambing and calving;
- Disruption to field drainage and water supplies, which may require diversion or repair;
- Compaction of soil due to tracking by heavy vehicles;
- Temporary removal of field boundaries for access, which will require reinstatement on completion (although this is currently not anticipated);
- Impact on the commitments made by the farmers/landowners, etc. with regard to agri-environmental schemes; and
- Increased risk of disease transmission and transfer of invasive weeds associated with vehicle movements along the temporary access tracks and working corridor.

12.5.2 None of the potential temporary effects are considered to be significant, due to their short term impacts.

Avoidance and Mitigation Measures

12.5.3 Although not significant, the potential impacts described above can be mitigated through careful management and best practice construction techniques prepared and agreed in advance with the landowner/tenant. Assuming the implementation of best practice throughout the construction phase, residual effects are likely to be of negligible or minor impact, and of a temporary and reversible nature and are therefore not significant.

12.5.4 During the ongoing detailed design process SP Manweb will continue to liaise with landowners, farmers and farm tenants to identify further opportunities to mitigate potential effects through sensitive siting and construction practices including:

- Individual pole positions and their associated infrastructure;
- Temporary and permanent access arrangements; and
- Construction areas, techniques and programme.

12.5.5 The proposed pole positions will be accessed by existing farm access arrangements and field gates.

12.5.6 SP Manweb will arrange pre-entry meetings with owners and occupiers of land or their agents to ensure that disruption to farming activities is kept, where possible, to a minimum and there will be liaison with farmers and/or their agents throughout. In this regard, a programme of works in particular locations will be mutually agreed where possible with landowners and tenants.

12.5.7 SP Manweb will ascertain, with the assistance of the landowner/occupier, the location of any field drains which could be damaged by the construction works. These drains may be diverted at pole sites and protected elsewhere. Any damage to land drainage caused by the construction works would be reinstated and/or compensation paid as appropriate. It is not considered there would be any significant effects on field drains as a result of the construction works.

12.6 EFFECTS DURING OPERATION

12.6.1 Longer term potential operational effects on agriculture as a result of the Proposed Development are associated with the permanent loss of small areas of operational agricultural land associated with the footprints of the wood poles and stays. The presence of wood poles within the fields causes

inconvenience to agricultural operations, for example during grass cutting, spraying and irrigation operations.

12.6.2 The anticipated land take from a Trident overhead line is negligible, especially for single poles, and as such no significant effects have been identified during the operational period of the Proposed Development.

Avoidance and Mitigation Measures

12.6.3 The Proposed Development would be built within the 25m Construction and Operations Corridor which provides a degree of flexibility in the micro-siting of the poles allowing minor alterations in the pole position in order to avoid any drains or water pipes.

Cumulative Effects

12.6.4 The Proposed Development is located primarily within agricultural land and the majority of both potential construction and operational effects identified are likely to be localised in nature. There are not expected to be any cumulative effects on land use and agriculture as a result of the Proposed Development.

12.7 SUMMARY OF PRELIMINARY ANTICIPATED LAND USE AND AGRICULTURAL EFFECTS

12.7.1 Preliminary appraisals have identified a range of potential temporary effects as a result of the Proposed Development including the temporary loss and disruption to agricultural land use practices during the construction of the overhead line.

12.7.2 No potentially significant effects on land use and agriculture have been identified during the operational phase of the Proposed Development. However, the likely effects on agricultural, as a result of the Proposed Development, will be assessed in full as part of the EIA.

12.7.3 It is considered if any significant effects were to be identified they could be partially or fully mitigated by SP Manweb via liaison with landowners, farmers and farm tenants to identify further opportunities to mitigate effects through sensitive siting and construction practices.

CHAPTER 13 SUMMARY AND CONCLUSIONS

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CHAPTER 13: SUMMARY AND CONCLUSIONS

13.1 INTRODUCTION

13.1.1 This chapter summarises the potential significant effects identified within the Preliminary Environmental Information Report (the 'PEIR') for the reinforcement to the North Shropshire electricity distribution network.

13.1.2 The Proposed Development, which is the subject of this PEIR, comprises a new 132,000 kilovolt (kV) electrical circuit between Oswestry and Wem in North Shropshire, together with associated construction works. The Proposed Development comprises approximately 1.2km underground cable and 21km overhead electricity Trident wood pole line. The Proposed Development includes work to facilitate the new electrical circuit between Oswestry substation and Wem substation. It also includes work to ensure safe electrical clearance for the new electrical circuit i.e. five short sections of existing lower voltage overhead lines would be placed underground as part of the Proposed Development. Other required works include temporary access roads, temporary works compounds, work sites, vegetation clearance or planting if applicable, works to the local highway and ancillary works.

13.1.3 A brief summary of the baseline is provided for each topic followed by a table listing those receptors likely to experience significant effects.

13.2 BASELINE SUMMARY

Landscape and Visual

13.2.1 Most of the study area comprises level or gently undulating pastoral and arable farmland, with fields bounded by hedgerows with mature hedgerow trees. It is a scenic rural landscape with a mixture of villages, hamlets and scattered individual properties, connected by a network of roads and lanes. The local landform is generally level, but there are small pockets of higher ground including a north-south ridge of higher land through the centre of the

study area. There are lower-lying flat areas around the Rivers Perry and Roden that are categorised as flood zones by the Environment Agency.

Ecology

13.2.2 The habitats along the survey corridor of the Proposed Development are dominated by agricultural land supporting a mixture of arable and (largely improved) grassland fields with scattered ponds. The route crosses the Montgomery Canal, River Perry and River Roden, and land to either side of these waterways includes ditch-lined fields within the floodplain. Field boundaries predominantly comprise species-poor hedgerows, many with hedgerow trees, or post-and-wire fences. Tree lines, scattered mature trees and small broadleaved woodland copses are also present.

Historic Environment

13.2.3 Within the 5km study area there are a total of 1,058 heritage assets. Of these, 13 non-designated assets, comprising historic landscape features and sub-surface archaeology, have sections within the Proposed Project Boundary. No designated assets are located within the Proposed Project Boundary.

13.2.4 Within the 1km study area, approximately one third of the assets are designated, and of these approximately 90% are Grade II listed buildings. Conservation areas, listed buildings (Grade I and Grade II*) and scheduled monuments collectively account for approximately 10% of the designated assets.

13.2.5 The non-designated assets include a wide range of sub-surface archaeology, historic landscape features and extant buildings. Within the 1km study area approximately 90% of non-designated assets are of low significance. Non-designated assets of medium significance account for most of the remainder, with three non-designated assets of high significance.

13.2.6 The relative percentage of designated asset types within the 2km and 5km study areas is almost identical to that within the 1km study area.

Flood Risk, Water Quality and Resources

13.2.7 The Proposed Development lies entirely within the Severn catchment and features many small watercourses and drainage channels, particularly to the west of the study area. There are no large rivers, and each of the watercourses crossed by the Proposed Development would be spanned without requiring support within watercourse channels. The new overhead line would cross two watercourses recognised by the Environment Agency as main rivers: the Rivers Perry and Roden. In addition the route crosses a drainage channel, which flows alongside the Roden across low lying land and then flows separately to the north of the Roden, before joining it on the outskirts of Wem. The overhead line would also cross the Montgomery Canal. All other watercourses crossed by the route are classed as ordinary watercourses.

Socio-Economic

13.2.8 Wem and Oswestry are market towns located in North Shropshire. The route extends between the towns through a rural area with agricultural businesses and some isolated commercial premises. There are a total of 11,631 residents within the identified super-output areas with an average density of 5.2 persons per hectare. There are a number of Public Rights of Way (PRoW) within the area.

13.2.9 Shropshire has a high proportion of the population past the retirement age and comparatively low levels of unemployment. Net out-commuting is significant, with more resident workers than job availability. Overall there is a level of underemployment within the county. Shropshire supports a primarily small business economy, with more than nine out of 10 enterprises employing less than 10 and with comparatively few large employers.

Land Use and Agriculture

13.2.10 The predominant land use is agriculture. Arable and pastoral farmland is interspersed with small settlements including Lower Hordley, Bagley,

Cockshutt, Noneley and Loppington. Farming is generally medium scale arable and dairying, with some larger scale fields set aside for arable farming in proximity to some of the low-lying areas associated with flood risk near the River Perry, Wackley and Sleap Brook, and the River Roden.

13.3 SUMMARY OF POTENTIALLY SIGNIFICANT EFFECTS

13.3.1 All potentially significant environmental effects are listed in the table below:

Table 13.1 – Summary of Potentially Significant Effects		
Landscape and Visual		
Receptor	Sensitivity	Brief Summary of Potential Effects
LCA Estate Farmlands: Woodhouse	Medium	During construction some tree removal would be necessary to accommodate the route, including a short section at the Montgomery Canal crossing and the corner of an immature managed woodland block in the private Woodhouse Estate. In addition there would be clearance to narrow pockets of riverside vegetation along the River Perry at two crossing points near Rednal Mill.
Residential Amenity: Misty Meadows	High	Residents of this property would have views of the Proposed Development to the south and west, particularly from the garden of the property (which is only 30m from the Preferred Line Route) and upper floors of the house.

Residential Amenity: Avondale	High	Residents of the property would have relatively open views towards the Proposed Development where it would be visible heading into Wem Substation.
Residential Amenity: Harley House	High	Residents of the property would have relatively close range and open views of the Proposed Development as it heads into Wem substation.
Viewpoint 14: PRoW 0207/14/13 near Kenwick Oak	Medium	View south from slightly elevated location on a PRoW across an attractive arable landscape, with long/expansive views across neighbouring landscapes and beyond, to distant upland areas in south Shropshire and on to the Welsh border. Up to eight new poles would be visible from the viewpoint extending from the near to middle distance. Poles 89 to 93 would be visible on the skyline, but the remainder would be seen against a backdrop of landform and vegetation which would reduce their perceptibility. Although a single turbine is present within the view, the introduction of the new overhead line and Trident wood poles, would bring a new element to the landscape and view, which contrasts from the existing baseline view.
Viewpoint 23: PRoW 0217/4/2	High	View north from PRoW near residential properties. Poles 120, 121 and 122 are

near Malt Kiln Farm (listed building)		situated quite close to the viewpoint. Pole 121 would be particularly noticeable as it would be situated on the rising ground to the west of the viewpoint where it would be seen on the skyline. Poles 119, 123 and 124 would be heavily screened by intervening vegetation in the summer months, but potentially visible (although not prominent) during the winter months. The new overhead line would be seen within the context of an existing wood pole line when looking westwards, but would bring a new element to the landscape when looking eastwards.
Viewpoint 70: Dandyford Farm, Lower Hordley	High	View across level and relatively open farmland towards the slightly elevated Woodhouse Estate, the elevated wooded hill at Tedsmore and more distant uplands beyond. Up to nine new poles and the overhead line will be visible from this viewpoint. Most of these would be present on the skyline, although some would be partially screened and backdropped by landform and vegetation. The majority of visible poles will be at such a distance as to make their individual impact on the view limited, however poles 69, 71 and 72 are all angle poles and will therefore be slightly more prominent within the landscape than the standard Trident pole. The new line,

		which goes across the view, will be a noticeable new element within the landscape, however this would be in the context of the existing baseline which includes a telegraph pole line, wind turbines and in the distance a 400kV pylon line.
Viewpoint 72: PRoW 0217/12/1 near The Shayes (listed building)	Medium	Views south and east from this PRoW would include the overhead line which would be visible on the skyline, particularly between poles 148 and 149. Looking east wood poles 149 - 151 would be partially screened by intervening vegetation. Looking south-west the angle pole no. 148 would be prominent within the view and approximately 50% taller than the existing overhead lower voltage wood poles currently visible. Wood poles 147-145 would also be visible heading away from the viewpoint, where they would be seen 'stacked' behind one another.
Ecology		
No potential significant effects identified.		
Historic Environment		
Receptor	Value	Brief Summary of Potential Effects

Malt Kiln Farmhouse Grade II listed building	High	The proposed 132kV overhead line would impact on the setting of this listed building. The effects are likely to be significant.
The Shayes Farmhouse Grade II listed building	High	The proposed 132kV overhead line would impact on the setting of this listed building. The effects are likely to be significant.
Flood Risk, Water Quality and Resources		
No potential significant effects identified.		
Socio-economic		
Potential significant beneficial effects for local businesses, as a result of the required increased electricity capacity in the area.		
Land Use and Agriculture		
No potential significant effects identified.		