SP MANWEB

Reinforcement to the North Shropshire Electricity Distribution Network

Document Reference: 6.9
Environmental Statement Chapter 9
Flood Risk, Water Quality and Water Resources

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November 2018

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CHAPTER 9

FLOOD RISK, WATER QUALITY AND WATER RESOURCES

Environmental Statement
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The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Regulation 5(2)(a)

Reinforcement to the North Shropshire Electricity Distribution Network

Environmental Statement: Chapter 9 – Flood Risk, Water Quality and Water Resources

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CONTENTS

Environmental Statement Documents

ENVIRONMENTAL STATEMENT		
DCO Document	**Chapter**	**Document**
6.1	1	Introduction
6.2	2	Alternatives and Design Evolution
6.3	3	Proposed Development
6.4	4	Approach and General Methodology
6.5	5	Planning Considerations
6.6	6	Landscape and Visual
6.7	7	Ecology and Biodiversity
6.8	8	Historic Environment
6.9	9	Flood Risk, Water Quality and Water Resources
6.10	10	Socio-Economics
6.11	11	Land Use and Agriculture
6.12	12	Cumulative Effects
6.13	13	Summary of Environmental Effects
6.14		Environmental Statement Figures
6.15		Non-Technical Summary
6.16		Glossary

Reference is also made to the following DCO documents:

DCO Document	Document
5.1	Consultation Report
5.2	Flood Risk Assessment
6.3.2	Draft Construction Environmental Management Plan

CHAPTER 9: FLOOD RISK, WATER QUALITY AND WATER RESOURCES

9.1 INTRODUCTION

9.1.1 This chapter assesses the likely significant environmental effects on Flood Risk, Water Quality and Water Resources in relation to the construction and operation of the Proposed Development described in Chapter 3 'The Proposed Development' (**DCO Document 6.9**).

9.1.2 This 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 9.2 of this chapter) and identifies 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.

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

- Appendix 9.1: Flood Risk, Water Quality And Resources Assessment Methodology (DCO Document 6.9.1);
- Appendix 9.2: Flood Risk, Water Quality And Resources Baseline and Assessment (**DCO Document 6.9.2**); and
- Appendix 9.3: Response to the Scoping Opinion (**DCO Document 6.9.3)**.

9.1.4 A detailed assessment of flood risk effects during both construction and operation is provided in the Flood Risk Assessment (**DCO Document 5.2**), which should be read in conjunction with this chapter.

9.2 LEGISLATION AND POLICY BACKGROUND

9.2.1 Planning policy considerations are presented in Chapter 5 'Planning Considerations' **(DCO Document 6.5)** and include European, national and local development plan policies.

9.2.2 The following text refers to the key pieces of planning policy and guidance relevant to flood risk, water quality and resources which provide the context for and are considered relevant to the assessment of the Proposed Development.

European Directives

Water Framework Directive

9.2.3 The Water Framework Directive (WFD) came into force in December 2000 and became part of UK law in December 2003. The WFD is implemented across Wales and England through the Water Environment Regulations 2003. These Regulations provide an integrated framework for the protection of the water environment through the delivery of actions set out in River Basin Management Plans (RBMPs).

9.2.4 The Directive aims to protect the water environment from deterioration, achieve the objectives of Protected Areas by 2015 (i.e. Habitats and Birds, Bathing Waters, Drinking Water, Freshwater Fish, Shellfish Waters, Nitrates, Urban Waste Water), aim to achieve WFD Good Ecological Status/Potential and Good Chemical Status for all surface waters (and the equivalent for ground waters) by 2015; and ensure new modifications to water bodies are in line with WFD objectives.

UK Regulations

The Environmental Permitting (England and Wales) Regulations 2016

9.2.5 These Regulations provide a consolidated system of environmental permitting in England and Wales. The principal offences under the Regulations are operating a regulated facility without a permit, causing or knowingly permitting a water discharge activity or groundwater activity without a permit, and failing to comply with a permit or an enforcement

related notice.

National Planning Policy

The Overarching National Policy Statement for Energy (EN-1)

9.2.6 The Overarching National Policy Statement for Energy (NPS EN-1)[1] includes a number of requirements with respect to water quality and flood risk. Table 9.1 provides a summary of how the assessment has complied with the requirements of NPS EN-1

Table 9.1 – Compliance with NPS EN-1 Requirements

NPS EN-1 Section	Location in the ES
Para 5.7.4 Applications for energy projects of 1 hectare or greater in Flood Zone 1 in England or Zone A in Wales and all proposals for energy projects located in Flood Zones 2 and 3 in England or Zones B and C in Wales should be accompanied by a Flood Risk Assessment.	A Flood Risk Assessment has been undertaken and is provided as **DCO Document 5.2**.
Para 5.15.2 Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment as part of the ES or equivalent.	An assessment of the existing status of the water environment and potential impacts of the Proposed Development upon it is provided in in Appendix 9.2 (**DCO Document 6.9.2**) of this ES.
The ES should in particular describe: ● The existing quality of waters affected by the proposed project and the impacts of the proposed project on water quality, noting any relevant existing discharges, proposed new	An assessment of the existing water quality and water resources is provided in Appendix 9.2 (**DCO Document 6.9.2**) of this ES. There are no discharges or abstractions and no changes proposed to the physical characteristics of watercourses. These have therefore not been considered

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

Table 9.1 – Compliance with NPS EN-1 Requirements	
NPS EN-1 Section	Location in the ES
discharges and proposed changes to discharges; ● Existing water resources affected by the proposed project and the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates and proposed changes to abstraction rates (including any impact on or use of mains supplies and reference to Catchment Abstraction Management Strategies); ● Existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project and any impact of physical modifications to these characteristics; and ● Any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive and source protection zones (SPZs) around potable groundwater abstractions.	further.

National Policy Statement for Electricity Networks Infrastructure (NPS EN-5)

9.2.7 The National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) also refers to flood risk. The policy statement makes no reference to impacts on water quality arising from electricity networks. Table 9.2 provides a summary of how the assessment has complied with the requirements of NPS EN-5.

Table 9.2 – Compliance with NPS (EN-5) Requirements	
NPS EN-5 Section	**Location in ES**
Para 2.4.1 applicants should in particular set out to what extent the proposed development is expected to be vulnerable, and, as appropriate, how it would be resilient to…flooding, particularly for substations that are vital for the electricity transmission and distribution network.	A Flood Risk Assessment has been undertaken and is included with the ES as **DCO Document 5.2**.

National Planning Policy Framework

9.2.8 The National Planning Policy Framework (NPPF) provides national planning policies to be used in the preparation of development plan documents and determining planning applications. The NPPF does not contain specific policies for NSIPs. However, matters that the decision maker considers 'important and relevant' when making decisions on NSIP applications, (which is equivalent to a material consideration in the Town and Country Planning Act) may include the NPPF itself. When promoting an NSIP, it should be considered, whether the project is compatible with what is set out in the NPPF. Whilst the NPS are the primary policy tools for determination of applications for development consent, the NPPF remains relevant in terms of shaping and guiding the environmental topic assessments.

9.2.9 The revised NPPF[2], published in July 2018, incorporates policy proposals previously consulted on in the Housing White Paper[3] and the 'Planning for the right homes in the right places'[4] consultation. NPPF requires that flood risk is considered for all developments within flood zones 2 and 3 (as defined in the Environment Agency Flood Map for Planning) and provides guidance within a technical appendix on the requirements for undertaking a

[2] Revised National Planning Policy Framework, Ministry of Housing, Communities & Local Government (July 2018)
[3] Housing White Paper, Ministry of Housing, Communities & Local Government (February 2017)
[4] Planning for the right homes in the right places: consultation proposals, Ministry of Housing, Communities & Local Government (Updated March 2018)

Flood Risk Assessment.

9.2.10 The Flood Risk Assessment undertaken for the Proposed Development and presented in **DCO Document 5.2** meets these requirements.

Local Planning Policy

9.2.11 The two key documents which make up the development plan in Shropshire are the:

- Core Strategy DPD - adopted 24 February 20115; and
- Site Allocations and Management of Development Adopted Plan – adopted 17 December 20156.

9.2.12 Policies within the Local Plan typically seek to protect and enhance the natural environment.

9.2.13 Policy CS18: Sustainable Water Management:

'Developments will integrate measures for sustainable water management to reduce flood risk, avoid an adverse impact on water quality and quantity within Shropshire, including groundwater resources, and provide opportunities to enhance biodiversity, health and recreation, by ensuring that:

- *Planning applications and allocations in the Site Allocations and Management of Development (SAMDev) DPD, are in accordance with the tests contained in PPS25, and have regard to the SFRAs for Shropshire;*
- *New development is designed to be safe, taking into account the lifetime of the development, and the need to adapt to climate change. Proposals should have regard to the design guidance provided in the SFRAs for Shropshire;*

[5] Shropshire Local Development Framework: Adopted Core Strategy (February 2011) [available at: https://shropshire.gov.uk/media/8534/core-strategy.pdf]

[6] [6] Shropshire Sustainable Community Strategy 2010-2020 [available at: http://www.baystonhill.net/cd-content/uploads/files/Shropshire-s-Community-Strategy-2010-2020.pdf]

- *All development within local surface water drainage areas, as identified by the Water Cycle Study, and any major development proposals, demonstrate that surface water will be managed in a sustainable and coordinated way. Proposals will be supported by either a Surface Water Management Statement or Plan, depending on the scale of the development;*
- *All developments, including changes to existing buildings, include appropriate sustainable drainage systems (SUDS) to manage surface water. All developments should aim to achieve a reduction in the existing runoff rate, but must not result in an increase in runoff; ….*
- *New development enhances and protects water quality, including Shropshire's groundwater resources…'*

9.2.14 The explanation to this policy states that:

'*Site specific flood risk assessments (FRAs) should be submitted alongside development proposals, as identified in Annex E of PPS25'* (para 7.12)…

Whilst the Council seeks to avoid flood risk, there is a need to reduce the impact of flooding when it does occur. Proposals should have specific regard to the design principles outlined in the SFRAs, including taking a sequential approach to site layout, ensuring safe access is available for the lifetime of the development and is supported by flood warning and suitable evacuation plans.' (para 7.13)

9.2.15 It goes on:

'*The EU Water Framework Directive requires that water bodies do not deteriorate in terms of quality and aim to achieve and maintain a good quality status. It is important that, wherever possible, new development contributes to achieving these objectives, by protecting and enhancing water quality within Shropshire, including groundwater resources*.' (para 7.18)

Strategic Flood Risk Assessment

9.2.16 The Shropshire Strategic Flood Risk Assessment (SFRA) is a strategic document prepared by the County Council which provides more detailed information on the probability of flooding, taking other sources of flooding, such as surface water and artificial sources, and the impacts of climate change into account. The SFRA informs the Shropshire Local Plan and is the basis for applying the Sequential Test, a process which seeks to locate new development in appropriate flood zones, based on the development's vulnerability classification.

9.2.17 The functional floodplain is the area most regularly used to store and convey water in frequent flood events and is also defined in the SFRA. The Shropshire SFRA uses the 1 in 20 year annual flood extent to define the functional floodplain where suitable modelling exists and elsewhere takes a precautionary approach of equating flood zone 3b with flood zone 3a so that the 1 in 100 year flood event is used to define the functional floodplain.

9.3 METHODOLOGY, SCOPE, ASSUMPTIONS AND LIMITATIONS

Methodology

9.3.1 The detailed methodology for the flood risk, water quality and water resources assessments is presented in Appendix 9.1. (**DCO Document 6.9.1**).

Scope of the Assessment

9.3.2 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 EIA process. Effects of flood risk during the operational life of the Proposed Development were not scoped out but it was agreed that effects on underground hydrology could also be scoped out of the EIA.

9.3.3 Accordingly, this assessment covers flood risk, water quality and water resources for the construction phase and flood risk and water resources during the operational phase.

Scope – Study Area

9.3.4 The study area extends up to a distance of 50m either side of the Order Limits to ensure any possible effects on receptors are identified.

9.3.5 The study area has been reduced from that used in the Preliminary Environmental Impact Report (PEIR)[7] This is because, following further analysis, only local impacts on flood risk, water quality and water resources are likely to arise from the proposed works and installation of the pole foundations.

Surveys

9.3.6 Published information, supported by specific information requests to Shropshire Council and the Environment Agency (see Section 9.4 below) to obtain detailed flood and water abstraction information, were used to inform this assessment. The water survey methodology was agreed by the Environment Agency (see Section 9.4 below). The flood risk information obtained is considered to be the best available and unlikely to be improved by on-site surveys due to the infrequency of flood events. Information collected to support the assessment was therefore restricted to desktop studies.

9.3.7 Information on flood extent was acquired from the Environment Agency which provided detailed GIS mapping of flood risk zones 2 and 3 (for modelled watercourses larger than 3 km^2). The Environment Agency (see Section 9.4 below) confirmed that no more detailed flood model output, on flow depth, velocity or direction for instance, is available.

9.3.8 Flood zone 3, where annual fluvial flood risk is expected to be 1% or greater, was used to determine a significant risk of flooding during the construction phase. Flood zone 2, indicating an annual fluvial flood risk between 0.1% and 1%, was 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.

[7] https://www.spenergynetworks.co.uk/userfiles/file/SPM_NSRP_PEIR.pdf

9.3.9 Published areas of surface water flood risk and annual fluvial flood risk of up to 0.1% were 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 and do not receive significant flows from upstream catchments.

9.3.10 Details of the areas in the study area which are considered to be subject to flood risk as defined above are presented in Appendix XX (**DCO Document 5.2**).

9.3.11 Information on water abstraction licenses was provided by the Environment Agency.

9.3.12 Information on private water supplies was requested from Shropshire Council, who confirmed that there are no known private water supplies within the study area (see Table 9.3 below).

Assumptions and Limitations

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

9.3.14 As stated above, no hydrological site visits or walkover surveys of the study area were undertaken as they are not considered to be required, as outlined above in paragraph 9.3.6.

9.3.15 The assessment considered the geographical and temporal flexibility allowed for within the DCO. This may have particular significance for the siting of the wood poles which are close to the banks of watercourses. For assessment purposes indicative locations have been considered for each of the wood poles, however during construction the poles may have to be slightly relocated to allow for localised ground conditions or landowner requirements. This micro-siting would be within the Order Limits and unless otherwise stated would not affect the outcome of the assessment

Determining the Significance of Effects

9.3.16 Significance of effect is categorised as major, moderate, minor or negligible as described in Appendix 9.1 (**DCO Document 6.9.1**). 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 assessment is deemed to be significant.

9.3.17 The assessment follows a standard approach:

- Establish baseline conditions against which the effects of the Proposed Development will be assessed;
- Determine the nature of the receptor likely to be affected and its sensitivity;
- Predict the nature or magnitude of the effect likely to occur (which combines judgments about the likely size and scale of the change, the geographical extent of the area over which it is likely to occur, whether it is direct or indirect) and positive, negative or neutral; and
- Assess whether a significant effect is likely to arise by considering the predicted magnitude of change together with the sensitivity of the receptor, taking into account any identified mitigation measures.

9.3.18 This process was applied to the assessment presented in Appendix 9.2 (**DCO Document 6.9.2**) where each of the above steps is described for the Proposed Development.

9.4 CONSULTATION

9.4.1 To inform the preparation of the application for an order granting development consent SP Manweb undertook a thorough pre application process including publication of a number of documents. Of particular relevance to the EIA are the following document:

- Scoping Report submitted to the PINS (9th March 2017)[8] ;
- Scoping Opinion received from the Secretary of State (25th April 2017)[9]; and

[8] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020021/EN020021-000027-Scoping%20Report.pdf
[9] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020021/EN020021-

- Statutory consultation (in accordance with section 42 of the Planning Act 2008) on a Preliminary Environmental Information Report (PEIR) (November 2017).

9.4.2 Responses to the points raised in the Scoping Opinion are provided in Appendix 9.3 (**DCO Document 9.3.3**).

9.4.3 Information on the statutory and non-statutory consultation is provided in the Consultation Report (**DCO Document 5.**1).

9.4.4 The results of the consultation on the contents of the EIA is provided in Table 9.3 below.

Table 9.3 – Summary of EIA Relevant Consultation Responses

Date	Summary of Contact	Response
Environment Agency		
25/05/2017 Email request	Information on regulated abstractions from both ground and surface sources.	Water abstraction data including location, volume, and use, provided.
25/05/2017 Email request	Maps and information on source protection zones within the 1 km study zone along the route.	Information provided.
25/05/2017 Email request	Flood extents and, if available, modelled flood velocities and depths, for areas within the study area.	Flood depth maps provided. No information available on velocities.

000012-Scoping%20Opinion.pdf

Table 9.3 – Summary of EIA Relevant Consultation Responses		
Date	Summary of Contact	Response
25/05/2017 Email request	Maps showing the designated main rivers on the route.	Information provided.
Shropshire Council		
31/05/2017 Email request	Environmental information request for details of private water supplies within study area.	The Council confirmed that there are no known private water supplies within the boundary provided.
31/05/2017 Email request	Contact details for information on local flooding information and impacts on non-main rivers.	Referred the Council to online flood maps and to Environment Agency.

9.5 BASELINE DESCRIPTION

9.5.1 The following text summarises the baseline for the study area. A more detailed description of the study area and its wider surroundings is provided in Appendix 9.2 (**DCO Document 6.9.2**).

Hydrology of the Study Area

9.5.2 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 Above Ordnance Datum (AOD)) in the north-west close to Oswestry.

9.5.3 The area 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 will be simply spanned without requiring support within watercourse channels. The Proposed Development would cross two watercourses recognised by the Environment Agency as main rivers. These are the Rivers Perry and Roden and an unnamed drainage channel which flows alongside the Roden across low lying land and then flows separately to the north of the Roden, and joins it on the outskirts of Wem.

9.5.4 The Proposed Development line would also cross the Montgomery Canal.

Flood Risk Areas

9.5.5 Areas of fluvial flood risk associated with both main rivers with a catchment area greater than 3km^2 were identified by the Environment Agency. These areas are defined and mapped as three flood zones for the purposes of planning by the Environment Agency, as follows:

- Flood Zone 1 where the annual fluvial flood risk is less than 0.1% (i.e. less than 0.1% risk of fluvial flooding occurring in any one year);
- Flood Zone 2 where the annual risk is between 1% and 0.1%; and
- Flood Zone 3 where the annual flood risk is considered greater than 1%.

9.5.6 Where the Order Limits cross both of the main rivers there is land in Flood Zone 3, i.e. land with an annual flood risk of greater than 1% and Flood Zone 2, with an annual flood risk of between 0.1% and 1%.

9.5.7 Small watercourses with catchment areas less than 3 km^2 and other non-main watercourses are affected more by local rainfall-generated runoff rather than flow from large upstream catchments. Possible flood extents for these have been identified using mapping of surface water flood risk, which also includes areas with no defined channel. Mapping showing the possible flood depth and velocity of flow for "'low risk' events, with an annual probability up to 0.1% were used to assess these remaining flood risk areas.

9.5.8 Although the 0.1% annual flood risk areas covers much of the low lying

agricultural land within the study area, the numbers of residential properties at risk of flooding either from rivers, surface water or other sources identified in the Flood Risk Assessment presented (**DCO Document 5.2**) is not high.

Water Quality

9.5.9 Published water quality information[10] for the watercourses in the study area has classified the chemical and ecological status of each river reach to assess compliance with the WDF.

9.5.10 The River Roden was classified in 2016 as ecologically Poor but Good chemically, with the objective to achieve Good status for both measures by 2027.

9.5.11 The River Perry was classified in 2016 as ecologically Moderate but Good chemically, with the objective to achieve Good status for both measures by 2027.

Water Resources

9.5.12 Groundwater resources are significant within bedrock in the area, although substantial areas of less permeable superficial deposits exist in many areas which offer protection to the groundwater.

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

9.5.14 The Proposed Development passes through a total catchment (zone 3) groundwater source protection zone associated with a public water supply at Woodhouse. This is the area around a source within which all groundwater recharge is presumed to be discharged at the source. The groundwater abstraction is used for potable supply by Severn Trent Water Ltd.

9.5.15 It is likely that further exploitation of groundwater in the area will occur in the

[10] Environment Agency

future and phase 7 of the Shropshire Groundwater Scheme is expected to require the construction and maintenance of groundwater wells in the western part of the Study Area.

9.5.16 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.

Future Baseline

9.5.17 All landscapes can be dynamic and influenced by social, economic, technological and climatic changes, all of which can influence patterns of land use including flood risk, water quality and water resources. As such, the baseline for the assessment could evolve, which is why known changes to the water resources within the landscape, which may arise in the future, have to be taken into account.

9.5.18 Currently there is one planned change with regards to the water resources within the study area – the EA plan to extend the Shropshire Groundwater Scheme in the area crossed by the Proposed Development. However, this proposed change has been taken into account when designing the route of the overhead line to ensure that the Proposed Development does not interfere with the extended Shropshire Groundwater Scheme. Within their statutory consultation response the EA confirmed that the Proposed Development would not interfere with their own scheme.

9.5.19 Even taking into account the proposed extension to the Shropshire Groundwater Scheme, it is t not anticipated that the future baseline would differ noticeably from the existing baseline.

9.6 ASSESSMENT OF POTENTIAL EFFECTS

9.6.1 This section presents the assessment of the likely significant effects of the Proposed Development as described in Chapter 3 ‘The Proposed Development’ (**DCO Document 6.3**), on flood risk, water quality and water resources.

9.6.2 An assessment of all identified effects on flood risk, water quality and water

resources (significant and non-significant) is provided in Appendix 9.2 (**DCO Documents 6.9.2**). A detailed flood risk assessment is provided as **DCO Document 5.2.**

Effects during Construction

Sources of Construction Effects

9.6.3 Potential effects on surface water and groundwater features during the construction phase include:

- Increased flood risk due to location of laydown areas, access tracks and temporary construction activities within the floodplain;
- Release of sediment into surface water during construction activities;
- Accidental release of oils, fuels and construction materials, including accidental release of contaminants into the groundwater, particularly from temporary laydown areas; and
- Trenching activities for the underground sections.

Flood Risk, Water Quality and Water Resources Assessment

9.6.4 Each of these potential effects have been identified in the Construction Environmental Management Plan (CEMP) (**DCO Document 6.3.2**) and measures adopted to manage and minimize their impact on the environment. Implementation of the measures set out in the CEMP) (**DCO Document 6.3.2**) will therefore ensure construction of the Proposed Development would not give rise to any significant effects on flood risk, water quality or water resources, as set out in Appendix 9.2 (**DCO Document 6.9.2**).

Effects during Operation

Sources of Operational Effects

9.6.5 Potential effects on flood risk during the operational phase would arise from crossing identified floodplains. There will be no increase in flood risk from the Proposed Development once access tracks have been restored

9.6.6 Potential effects on surface water and groundwater features during the operation phase include:

- Effects on flood risk as a result of poles sited within the flood plain, which may collect debris or deflect flood flows;
- Runoff from the Proposed Development which could increase flood risks elsewhere; 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.

9.6.7 There is very limited potential for operational effects on water quality as only occasional maintenance access would be required. This would not generate significant erosion or pose a pollution hazard.

9.6.8 There is no hydrological connectivity with the Midlands Meres and Mosses RAMSAR sites. The closest, Brownheath Moss SSSI, is 1.7km from the Order Limits. The two areas drain independently to the Roden, and the Moss is at a higher elevation that the area crossed by the Order Limits so any possible change caused by the line or its construction would not affect the Moss.

9.6.9 The assessment presented in Appendix 9.2 (**DCO Document 6.9.2**) has not identified any significant effects on flood risk, water quality or water resources arising from the Proposed Development.

9.7 CUMULATIVE ASSESSMENT

9.7.1 There are no developments (as identified in Chapter 4 'Approach and General Methodology (**DCO Document 6.4**)) which would give rise to significant cumulative effects in respect of flood risk, water quality or water resources during the construction or operational phase of the Proposed Development.

9.8 MITIGATION AND RESIDUAL EFFECTS

9.8.1 Effects during the construction period would be reduced by ensuring good construction and environmental working practices as outlined in the draft Construction Environmental Management Plan (CEMP) (**DCO Document 6.3.2**).

9.8.2 As explained in Chapter 3 'The Proposed Development' (**DCO Document 6.3**) and Section 4.6 of Chapter 4 'Approach and General Methodology' (**DCO Document 6.4**), the main strategy for minimising adverse environmental effects of the Proposed Development has been avoidance through careful planning, design and routeing. This has led to the Proposed Development which is the subject of this ES and the application for an Order granting Development Consent.

6.8.1 Given the level of work undertaken to identify the final route of the Proposed Development and the absence of any identified significant effects (assuming the measures set out in the CEMP were applied), SP Manweb do not consider that any further mitigation measures are necessary.

9.8.3 No significant effects have been identified and therefore there would be no residual significant effects.

9.9 SUMMARY

9.9.1 No significant effects have been identified in respect of flood risk, water quality or water resources during either the construction or operation of the Proposed Development.