Reinforcement to the North Shropshire Electricity Distribution Network:

132kV Electrical Circuit from Oswestry to Wem

APPENDICES 4.1 – 4.2 CONSULTATION

Preliminary Environmental Information Report

November 2017

APPENDIX 4.1

SCOPING OUT OF CONSTRUCTION NOISE AND AIR QUALITY

APPENDIX 4.1 – SCOPING OUT OF CONSTRUCTION NOISE AND AIR QUALITY

1.1 INTRODUCTION

1.1.1 This section outlines the reasons for scoping the effects of construction on noise and air quality out of the ES and the agreement received from relevant consultees to do so.

1.2 NOISE DURING CONSTRUCTION

1.2.1 Following receipt of the Scoping Opinion and noting the SoS comments in respect to the potential effects of noise during construction, further consultation was undertaken with the Environmental Protection Team at Shropshire Council. Shropshire Council confirmed they were content for noise during construction to be scoped out of the final EIA based on the discussions and confirmation of the following points:

1.2.2 Works restricted to 07:30 – 18:00 Monday to Friday and 08:00 – 13:00 Saturday, with no work on Sundays or bank holidays.

1.2.3 Table 4.1.1 details anticipated plant noise levels for constructing overhead lines:

Table 4.1

Typical Plant Noise Levels for Constructing Overhead Lines

Plant	BS5228 Ref	LAeq at 10m, dB
360 Excavator	C2 14-25	74
Dumper	D3 98 73	73
Tipper Lorries	C8 20	79
Concrete mixer lorry	C4 18-23	73

1.2.4 In discussions, on 30 May 2017, between SP Manweb and Shropshire Council's Environmental Health Officer it was noted that in general there is a 6dBA reduction in noise level for a doubling of distance. Therefore based on the highest noise impact from Table 4.1.1 (Tipper Lories: 79dBA at 10m), this reduces as follows: 20m = 72dBA, 40m = 66dBA, 80m = 60dBA, and 160m = 54dBA. The closest properties to any proposed wood pole location are the small grouping at Rednal Mill, between approximately 67m and 71m from the nearest wood pole and Avondale (near Wem sub-station), approximately 69m from the nearest wood pole. In addition there are only three further properties within 150m of a proposed location for a wood pole. Therefore all residential properties are at such a distance that any noise effects would be well below 65dBA noise threshold noted above.

1.2.5 In the same meeting it was also agreed by Shropshire Council that potential noise effects on other receptors close to the Proposed Development, namely Public Rights of Way (PRoWs), would not be considered significant due to their short-term transient nature.

1.2.6 Therefore the Category A noise level limit of 65 dB LAeq is unlikely to be exceeded given the nature of the works to be undertaken and significant effects are not anticipated. Notwithstanding this there is the potential for further mitigation as outlined below.

1.2.7 The potential for mitigation exists via the ongoing design of the Preferred Line Route and through the micro-siting of the pole structures that may have a marginal effect on the potential for noise effects during construction. General principles for the control of noise during the construction works are presented below:

- Appropriate choice of plant and equipment;
- Regular plant maintenance to keep plant in good working condition and reduce noise from machinery;
- Careful phasing of the proposed operations; and

- Provision of temporary barriers as suggested in Section 8 of BS 5228-1:2009.

1.2.8 Should any unforeseen ground conditions be encountered then specific mitigation measures would be implemented to reduce noise effects, for example temporary noise barriers, which typically reduce noise levels by 5-10dB. These would be set out within activity/location specific method statements following consultation with Shropshire Council.

1.2.9 SP Manweb understands that good stakeholder relations are often the most effective way to manage potential noise impacts on site. Therefore, they would keep local residents and other receptors informed of the progress of the works, including when and where the noisiest activities would be taking place and how long they are expected to last. Any noise complaints would be effectively recorded, investigated and addressed. In addition, the measures to reduce noise impacts would be included within the CEMP which will be submitted as an Appendix to the ES.

1.2.10 In these circumstances SP Manweb propose, with agreement from the Environmental Health Officer at Shropshire Council, not to consider potential effects of noise during the construction of the Proposed Development any further.

1.3 AIR QUALITY DURING CONSTRUCTION

1.3.1 Following receipt of the Scoping Opinion and noting the SoS comments in respect of the potential effects on air quality during construction, further consultation was undertaken with the Environmental Protection Team at Shropshire Council. They confirmed that they were content for effects on air quality during construction to be scoped out of the final EIA based on the discussions and confirmation of the following points:

1.3.2 The area in which the proposed development is located is rural in character. Levels of nitrogen oxide (NO_2) and sulphur dioxide (PM_{10}) and other air pollutants associated with industrial and vehicle pollution are relatively low.

Away from the roads, the current air environment comprises mainly natural sources.

1.3.3 Baseline conditions have been identified through a desk based review. This review was based on analysis of air quality monitoring data published on the UK Air Information Resource website[1] and the Shropshire Council website.

1.3.4 The DEFRA website provides estimated background air pollution data for NO_2 and PM_{10} for each 1km by 1km OS grid square across the UK[2]. This shows that baseline background levels of NO_2 and PM_{10} are below the air quality objective level of 40 µg/m^3 set by DEFRA's 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland[3].

1.3.5 In all instances the main source of NO_2 is road traffic.

1.3.6 Shropshire Council have four Air Quality Management Areas (AQMA);

- Bridgnorth Pound Street;
- Shrewsbury Town Centre;
- Bayston Hill; and
- Heathgates roundabout.

1.3.7 The closest of these AQMA to the Preferred Line Route is Heathgates roundabout, which is over 14km from the Preferred Line Route and therefore none of the AQMA will be affected by the Proposed Development.

1.3.8 The area in which the Proposed Development is located is sparsely populated with most of the population living in scattered farms, hamlets or villages. The main centres of population within approximately 2km of the proposed development are listed below:

- Oswestry, Whittington, Babbinswood, Cockshutt, Loppington and

[1] http://uk-air.defra.gov.uk/

[2] Baseline data is provided on the website for 2013

[3] DEFRA (2007), The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Wem are the larger areas of settlement within 2km of the Proposed Development at its closest point: and

- Middleton, Rednal, Hordley, Lower Hordley, Bagley, Burlton, English Frankton, Noneley and Commonwood, Ruewood, Tilley, Horton are the smaller areas of settlement within 2km of the proposed Development at its closest point.

1.3.9 Sensitive ecological sites are those which have designated features that are sensitive to air pollutants, either directly or indirectly, and could be adversely affected by the effect of air pollution. There are two ecologically designated sites close to the route. Moorfields LWS is approximately 100m from the edge of the Preferred Line Route at its nearest point; and Ruewood SSSI is located 530m away at its closest point. It is anticipated that poles will be micro-sited to lie as far from the LWS and SSSI as is technically feasible. The poles would be located in arable land/field edges where the soil quality means that air pollution (e.g. dust) from placing the wood poles would not be an issue.

Potential for Mitigation for Air Quality

1.3.10 The main air quality impacts that may arise during construction activities are:

- Dust deposition, from pole excavation;
- Elevated PM^{10} concentrations, as a result of dust generating activities on site; and
- An increase in concentrations of airborne particles and NO^2 due to exhaust emissions from diesel powered vehicles and equipment[4] used on site and on the road network.

1.3.11 An indicative construction programme and duration of works is being developed but is as yet incomplete. It is assumed, however, that each wood pole structure is likely to be constructed in a single operation within one to two

[4] In the UK the maximum permitted sulphur content of fuels used in road and off-road applications is 10ppm, and therefore sulphur dioxide is not long a significant pollutant from these sources.

days. Site clearance and reinstatement works would be phased throughout the construction programme, thereby minimising the length of exposure of areas of bare ground and potential for dust generation.

1.3.12 SP Manweb's experience of assessing the exhaust emissions from on-site plant and site traffic suggests that they are unlikely to make a significant impact on local air quality, and do not therefore need to be quantitatively assessed. As requested by Shropshire Council construction traffic will avoid the centre of Wem, thereby not creating a potential air pollution problem in Wem.

1.3.13 Based on the above, there is little potential for significant air quality effects associated with the construction of the Proposed Development. Mitigation measures will however be incorporated within the CEMP which will be submitted as an Appendix to the ES. These will include measures to control traffic movements and dust emissions.

1.3.14 In these circumstances we propose, with agreement from the Environmental Health Officer at Shropshire Council, not to consider potential effects on air quality during the construction of the Proposed Development any further.

APPENDIX 4.2
TRAFFIC AND TRANSPORT

APPENDIX 4.2 – TRAFFIC AND TRANSPORT

1.1 INTRODUCTION

1.1.1 The attached technical note outlines the reasons for excluding the effects of the Proposed Development on traffic and transport from of the final Environmental Statement (ES).

1.1.2 Since the Scoping Opinion was published, further work assessing the potential impacts of construction traffic has been undertaken. Details of this work is provided in the Technical Note below, which has been issued to Highways England and Shropshire Council for comment.

1.1.3 Verbally both Highways England and Shropshire Council indicated their agreement that the potential effects on traffic and transport, as a result of the Proposed Development, would be negligible and there would be no need to assess further. Unfortunately however this was not confirmed in writing prior to this PEIR being published. Should the written agreement not be forthcoming then an assessment of the effects on traffic and transport maybe included within the final ES, although it is currently expected that any potential effects would be negligible with no significant effects identified.

1.1.4 Figure 4.3 ‘Construction Routes’ accompanies the attached technical note.

Transport and Highway Technical Note

J210179: Scottish Power Energy Networks (SPEN) North Shropshire Reinforcement Project DRAFT

Title: Identification of Construction Traffic and Access of Overhead Line Reinforcement Project

Date: 26th October 2017

1. Introduction & Background

'ttc' have been instructed by Scottish Power Energy Networks (SPEN) to undertake the Traffic and Transport works as part of their North Shropshire Overhead Line 132kv Reinforcement Project. An Environmental Impact Assessment (EIA) Scoping Report has been produced and has been submitted to the Local Highway Authority (Shropshire County Council) and the Planning Inspectorate (PINS) on 8th March 2017.

As part of the consultation feedback received on the EIA Scoping Report from PINS in April 2017, it was noted that the location of the proposed construction accesses and their respective access routes from the Local Highway Network should be identified, along with the number of associated construction traffic movements. A full copy of the response from PINS on the traffic and transport elements of the EIA Scoping Note is provided within Appendix A.

2. Scope of Technical Note

As a result of feedback from the EIA Scoping Report, this Transport and Highways Technical Note has been prepared with the following objectives;

1. Sets out the assumptions and methodologies used to determine the level of traffic associated with the construction of the overhead line route which have been separated into the following categories;
   a. The level of materials and construction traffic travelling to the compound.
   b. The level of construction traffic travelling to the overhead line route from the compound.
2. Outline the known access locations along the overhead line route from the Local Highway Network; and
3. Identify the proposed routes to be used by construction traffic travelling between the Oswestry Depot and the overhead line route along the strategic.

3. Construction Traffic to Compound

The compound where the materials will be stored and transferred to the overhead line route has been identified as the existing Scottish Power compound in Oswestry situated off Maesbury Road.

Materials required for the construction of the overhead line, such as Poles and cable drums will be sourced from within north-western Europe and delivered to the UK via ports on to the east of England, the materials will then be transported to the existing Scottish Power compound using the Motorway and the strategic highway network which includes the A5 and A483 locally to access the compound.

It should be noted that the plant equipment and machinery is expected to be sourced locally and delivered to the compound where both materials and plant will be stored at the compound and delivered to the various laydown areas over the course of construction, although certain LGV construction vehicles used by contractors will access the various laydown areas independently and will therefore not be required to be stored at the compound.

The delivery of plant equipment and machinery, wooden poles and cable drums is expected to generate extremely low levels of traffic. All plant equipment will be delivered to the compound before the start of construction period and will be stored at the compound for the duration of the construction programme.

Once construction is complete, all plant will then be returned via the strategic highway network. Based on the information presented within Appendix D, the following plant will be delivered to the compound and equates to a total of 8 deliveries:

- Trailer/Wood chipper x 1
- Agricultural tractor/trailer x 1
- Excavator x 1
- HiAb Lorry x 1
- Tipper/Grab Lorry x 1
- Road Sweeper x 1
- Track excavator / low loader x 1
- Winch Tensioner x 1

  TOTAL 8

Wooden poles will be delivered to the compound via articulated lorries which can accommodate up to 40 poles per vehicle. It is estimated that each 1.5km section of the route will require between 8 and 10 poles, which equates to a total of 140 poles for the 21km route, and therefore 4 two-way (8 movements) deliveries to the compound.

It can therefore be seen that the traffic associated with the construction element of the proposals will generate a total of 16 vehicle movements, it is not expected that these deliveries will be undertaken during one day, however for a worst case scenario, if all the deliveries were undertaken on a single day, when distributed throughout the day would equate to approximately 2 vehicle trips every hour.

Given the plant and materials identified will be delivered via the strategic highway network, the proposed delivery numbers will not be noticeable from the existing levels of traffic and therefore considered to be insignificant.

4. Construction Traffic from Compound to Overhead Line

The level of construction traffic required for the reinforcement project was identified in Table 15.2 of the EIA Scoping Report. The table outlined the number of vehicles required for the construction of a 1.5km section of overhead line, broken down by vehicle type and construction stage. A copy of the table has been provided in Appendix C of this technical note.

Based on these figures the amount of construction traffic, which will be distributed along the Local Highway Network to the lay down areas and then to the route within each 1.5km cable section has been determined and is detailed in Appendix D. In summary, the construction of each 1.5km section over overhead cable will generate a maximum of 44 vehicles a week, with each 1.5km section taking approximately 2 weeks to construct. Therefore the weekly maximum vehicle movements associated with the construction period equates to a worst case scenario of 9 vehicles a day (over a five day construction period) or approximately 1 vehicle an hour based on a typical working day.

The impact of 9 vehicles a day, which will be spread over several local access points, are therefore not expected to be significant and will not be discernible by existing users of the Local Highway Network. It should also be noted that this is a worst case scenario and construction periods maybe longer than 5 working days or 9 hour days.

5. Route Access Points

Construction traffic will be required to access the overhead line route to supply materials required for the reinforcement project. The alignment of the 21km route has been fixed and a total of 43 access points (labelled A to AP) from the Local Highway Network have been identified, along with 11 lay down areas to store construction materials. Plans illustrating the location of each access and lay down area are provided in Appendix B.

As a result, it has been possible to define the principal routing options from the construction compound, which would serve this section of the overhead line to the individual access points and lay down areas.

6. Strategic and Local Highway Network Routing

From the compound, it has been possible to determine the route traffic will take from the compound to each lay down area and individual access point to the overhead line route.

For the purposes of this Technical Note the 21km overhead line route has been divided into fourteen 1.5km sections, in keeping with the construction traffic information presented within the EIA Scoping Report, which identified the levels of construction traffic associated for a 1.5km section of the route. Table 1 below provides a breakdown of the sections and a description of the routes to each individual access point and lay down area.

Table 1 – Access Point and Route

Line Section	From	To	Lay Down Area	Accesses	Access Route
1	0.0km	1.5km	1, 2	A, B, C	A483, A5, B5009
2	1.5km	3.0km	2, 3	D, E, F	A483, A5, B5009
3	3.0km	4.5km	3, 4	G, I, H	A483, A5, B5009
4	4.5km	6.0km	5	J	A483, A5, Woodhouse Lane
5	6.0km	7.5km	5	K, L, M, N	A483, A5, Woodhouse Lane
6	7.5km	9.0km	6A, 6B	O, P, Q, R	A483, A5, Woodhouse Lane
7	9.0km	10.5km	7	S, T	A483, A5, B5009, A495, A528
8	10.5km	12.0km	8	U, V	A483, A5, B5009, A495, A528
9	12.0km	13.5km	8	W, X, Y	A483, A5, B5009, A495, A528
10	13.5km	15.0km	8	Z, AA	A483, A5, B4397
11	15.0km	16.5km	9	AB, AC, AD, AE, AF, AG, AH	A483, A5, B4397
12	16.5km	18.0km	9	AI, AJ	A483, A5, B4397, B5063
13	18.0km	19.5km	10	AK, AQ, AL, AM	A483, A5, B4397, B5063
14	19.5km	21.0km	11	AN, AO, AP	A483, A5, B4397, B5063

Following the identification of the routes to the construction line, the level of traffic assigned to each route has been undertaken and is displayed in Appendix D. It can be seen that each section route will experience an uplift of 9 vehicles a day.

7. Summary and Conclusions

This Transport and Highways Technical Note has been produced to determine the impact of construction traffic from the North Shropshire Reinforcement project and provides the following summaries;

- Individual access points and lay down areas to the overhead route have been identified;
- The route from the compound to the lay down areas and various access points along the strategic and local highway network has been identified;
- The level of construction traffic identified within the scoping report has been applied to the routes and access to determine the uplift in vehicle traffic as a result of the construction phase; and
- The construction traffic will result in an additional 9 vehicle movements a day, which when broken down will equate to an additional 1 vehicle per hour.

As a result, of the above it has been identified that construction traffic associated with the proposed development will not be significant to have a detrimental impact on the operation or safety of the strategic and local highway network.

George Bailes MSc BSc MCIHT
Director
The Transportation Consultancy
25th October 2017

Supporting Figures & Appendices

Appendix A – Response from PINS
Appendix B – Construction Access Location Plans
Appendix C – Table 15.2 Typical Traffic Generation during Construction of a 132kv OHL
Appendix D – Construction Traffic Flows by 1.5km Cable Section

APPENDIX A

Response from PINS

Traffic and Transport (see Scoping Report Chapter 15)

3.97 The SoS welcomes the development of the assessment of transport impacts in association with the local highways authority and the Highways Agency (HA). The SoS would expect on-going discussions and agreement, where possible, with such bodies.

3.98 Paragraph 15.5.4 of the Scoping Report identifies that approximately 22 local construction accesses would be required for the Proposed Development. Paragraph 3.5.6 notes that an access is required for each pole. The number of poles required is not identified in the Report. This will need to be specified in the ES, and the access for each pole will need to be described and identified on relevant figures.

3.99 The ES should report on traffic movements between the construction compounds and the locations from which materials are to be sourced. The study area for the traffic and transport assessment, including the wider network that will be utilised (paragraph 15.5.2), should be identified on a relevant figure in the ES.

3.100 Paragraph 15.6.3 notes that management of PRoW that intersect the overhead line route may be required during stringing operations, but that significant effects are not anticipated. This conclusion should be justified in the ES.

3.101 Paragraph 15.7.8 of the Scoping Report identifies traffic management as a potential standard mitigation measure. If the Applicant intends to mitigate impacts according to a Construction Traffic Management Plan, information on this should be provided in the ES and the measures should be secured in the DCO.

APPENDIX B

Construction Access Location Plans - See Figure 1.2 'Proposed Project Boundary'

APPENDIX C

Table 15.2 from EIA Scoping Report - Typical Traffic Generation during Construction of 132kv OHL

Table 15.2 Typical Traffic Generation during Construction of a 132kv OHL		
Activity/ Vehicle	**Visits off Highway based on 10 working days (approx.)**	**Purpose**
Pre-construction survey and investigation works		
4 x 4 Pickup	2	Surveyor vehicles
Sub Total	**2**	
Pre-construction enabling works		
4 x 4 Pickup	8	Supervisor/ Project Manager Vehicles
LWB Van	5	Transport for site operatives
Trailer/Wood chipper	2	Tree/ hedgerow felling and removal
Agricultural tractor/ trailer	2	Removal of felled timber from site
Excavator	2	Excavations for accesses and highway entry points
HiAb Lorry	1	Bringing materials to site
Tipper/ Grab Lorry	4	Bringing loose materials to site
Road Sweeper	2	Cleansing road surface after works
Sub Total	**26**	
Pole Erection and Conductor Stringing		
4 x 4 Pickup	10	Supervisor/ Project Manager Vehicles
LWB Van	10	Transport for site operatives
Agricultural tractor / trailer	11	Bringing materials to pole positions
Excavator	2	Foundation excavation and pole erection
HiAb Lorry	4	Bringing materials to site
Tracker Excavator / low loader	3	Bringing materials to pole positions
Winch / Tensioner	4	Installation of conductors
Sub Total	**44**	
Demobilisation		
4 x 4 Pickup	4	Supervisor / Project Manager Vehicles
LWB Van	2	Transport for site operatives
Agricultural tractor / trailer	1	Bringing materials to pole positions
Excavator	2	Foundation excavation and pole erection
HiAb Lorry	2	Bringing materials to site

Tipper / Grab Lorry	2	Bringing materials to/ from site
Road Sweeper	2	Cleansing road surface after works
Sub Total	**15**	
Total movements	**87**	
Average Movements per day	**9**	

APPENDIX D

Construction Traffic Flows by 1.5km Route See Figure 4.3 'Construction Routes'

TRIPS PER WEEK

Line Section	From	To	Lay Down Areas	Accesses	Access Route	Main Access Roads	WEEKS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	0.0km	1.5km	1,2	A, B, C	Blue	A5, B5009	44	43																										
2	1.5km	3.0km	2,3	D, E, F	Blue	A5, B5009			44	43																								
3	3.0km	4.5km	3, 4	G, I, H	Blue	A5, B5009					44	43																						
4	4.5km	6.0km	5	J	Red	A5, Woodhouse Lane							44	43																				
5	6.0km	7.5km	5	K, L, M, N	Red	A5, Woodhouse Lane									44	43																
6	7.5km	9.0km	6A, 6B	O, P, Q, R	Red	A5, Woodhouse Lane											44	43														
7	9.0km	10.5km	7	S, T	Green	A5, B5009, A495, A528													44	43												
8	10.5km	12.0km	8	U, V	Green	A5, B5009, A495, A528															44	43										
9	12.0km	13.5km	8	W, X, Y,	Green	A5, B5009, A495, A528																	44	43								
10	13.5km	15.0km	8	Z, AA,	Yellow	A5, B4397																			44	43						
11	15.0km	16.5km	9	AB, AC, AD, AE, AF, AG, AH	Yellow	A5, B4397																					44	43				
12	16.5km	18.0km	9	AI, AJ	Orange	A5, B4397, B5063																							44	43			
13	18.0km	19.5km	10	AK, AQ, AL, AM	Orange	A5, B4397, B5063																									44	43	
14	19.5km	21.0km	11	AN, AO, AP	Orange	A5, B4397, B5063																											44	43
							0 - 4.5km						4.5km - 9.0km						9.0km - 13.5km						13.5km - 16.5km				18.0km - 21.0km					

TRIPS PER DAY **Ref: Appendix B**

Line Section	From	To	Lay Down Areas	Accesses	Access Route	Main Access Roads	WEEKS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	0.0km	1.5km	1,2	A, B, C	Blue	A5, B5009	9	9																										
2	1.5km	3.0km	2,3	D, E, F	Blue	A5, B5009			9	9																								
3	3.0km	4.5km	3, 4	G, I, H	Blue	A5, B5009					9	9																						
4	4.5km	6.0km	5	J	Red	A5, Woodhouse Lane							9	9																				
5	6.0km	7.5km	5	K, L, M, N	Red	A5, Woodhouse Lane									9	9																
6	7.5km	9.0km	6A, 6B	O, P, Q, R	Red	A5, Woodhouse Lane											9	9														
7	9.0km	10.5km	7	S, T	Green	A5, B5009, A495, A528													9	9												
8	10.5km	12.0km	8	U, V	Green	A5, B5009, A495, A528															9	9										
9	12.0km	13.5km	8	W, X, Y,	Green	A5, B5009, A495, A528																	9	9								
10	13.5km	15.0km	8	Z, AA,	Yellow	A5, B4397																			9	9						
11	15.0km	16.5km	9	AB, AC, AD, AE, AH, AG	Yellow	A5, B4397																					9	9				
12	16.5km	18.0km	9	AI, AJ	Orange	A5, B4397, B5063																							9	9			
13	18.0km	19.5km	10	AK, AQ, AL, AM	Orange	A5, B4397, B5063																									9	9	
14	19.5km	21.0km	11	AN, AO, AP	Orange	A5, B4397, B5063																											9	9
							0 - 4.5km						4.5km - 9.0km						9.0km - 13.5km						13.5km - 16.5km				18.0km - 21.0km					