RWE

Tween Bridge Solar Farm

Environmental Statement
Chapter 18: Summary

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

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18 Summary

18.1. Introduction

18.1.1. This chapter of the Environmental Statement (ES) provides a summary of the various ES Environmental Aspect Chapters and -associated technical assessments which have been undertaken as part of the EIA (Environmental Impact Assessment) process.

18.1.2. A summary of all the likely significant effects, mitigation and residual effects assessed in the ES Environmental Aspect Chapters of this ES are presented in this chapter within relevant tables for the construction, operation and decommissioning phases. A summary of cumulative effects and in -combination effects is presented at the end of **ES Chapter 17 Cumulative Impacts [REP4-020]** and is not further commented upon in this chapter.

18.1.3. Mitigation measures are identified and described in further detail within the individual ES Environmental Aspect Chapters **(ES Chapters 6 – 16)** of this ES. These mitigation measures have been incorporated into the Scheme and/or control documents, as agreed with the project team and stakeholders (where necessary), to control residual effects.

18.2. Summary of Residual Effects

18.2.1. The residual effects are analysed as part of the Scheme. The residual effects are defined as those effects that remain following the implementation of mitigation measures. Residual effects and mitigation measures are discussed in full in the relevant ES Environmental Aspect Chapters of this ES **(ES Chapters 6 – 16)**.

18.2.2. Each ES Environmental Aspect Chapter contains detailed consideration of both the beneficial and adverse residual effects identified as likely to arise from the Scheme. The general criteria applied to define the significance of residual effects are outlined within **Chapter 4 Approach to EIA [APP-041]** of this ES, with further detail provided within the individual ES Environmental Aspect Chapters.

18.2.3. The residual effects listed within the individual ES Environmental Aspect Chapters of this ES **(ES Chapters 6 – 16)** are described with reference to the scale of effect (i.e., 'moderate' or 'major') and whether this is significant or not, and the nature of the effect (i.e., adverse or beneficial). Residual effects assigned a rating of 'major'

or 'moderate' are considered in general as significant and are identified in this summary chapter.

18.2.4. Where ES Environmental Aspect Chapters have deviated from this standard methodology, this is explained in the respective chapters and justification for the reason provided (for example to align with industry-standard guidance for that discipline). This is pertinent to:

- **ES Chapter 6 Landscape and Visual [REP4-021]** whereby a 'moderate' effect could be considered to be significant, however this is subject to professional judgement.
- **ES Chapter 8 Cultural Heritage [REP4-025]** whereby a 'less than substantial harm' could be considered to be significant, however this is subject to professional judgement.
- **ES Chapter 14 Air Quality and Greenhouse Gases [REP2-025]** denotes any beneficial effects as significant in relation to the greenhouse gas assessment.

18.2.5. The design of the Scheme has been an iterative process and developed in consultation with statutory and non-statutory consultees. The design parameters as set out in **Appendix A: Design Parameters Document [REP3-014]** have been considered in detail by the ES Environmental Aspect Chapter authors and the results of the assessments are reported in the individual ES Environmental Aspect Chapter of the ES. A number of measures have been implemented within the design of the Scheme to reduce adverse environmental effects, including landscape design to create habitat and screen views of the Scheme.

18.2.6. A summary of the identified significant residual effects for each ES Environmental Aspect Chapter are presented in **Table 18-1** for the construction phase, **Table 18-2** for the operational phase and **Table 18-3** for the decommissioning phase. A description of the effect on the resource or receptor, initial significance of effect, proposed mitigation measures and remaining residual effect with mitigation measures implemented is outlined in **Table 18-1** to **18-3**.

18.2.7. After the implementation of mitigation, significant residual effects are anticipated in relation to:

- Landscape and Visual;

- Socio Economics;
- Agricultural Circumstances; and
- Air Quality and Greenhouse Gases.

18.2.8. After the –implementation of the proposed mitigation measures, significant residual effects are not anticipated in relation to the following topics:

- Water Resources;
- Ecology and Nature Conservation;
- Cultural Heritage and Archaeology;
- Ground Conditions;
- Noise and Vibration;
- Transport and Access; and
- ~~Agricultural Circumstances; and~~
- Other Environmental Topics

Table 18-1 : Summary of Effects for the Construction Phase

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Landscape and Visual and Residential Amenity			
Landscape features- ground cover	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	Embedded design features such as vegetation retained (where possible) and and appropriate standoffs in the design to sensitive landscape features. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**Major-Moderate (adverse) (significant)**
Landscape Character of the Order Limits and Immediate Surroundings			**Major-Moderate (adverse) (significant)**
Thorne and Crowle Moors Landscape Character Area			**Moderate (adverse) (significant)**
Users of publicly accessible BOATs, bridleways and footpaths			
FP19 (Thorne) (Ref DR/Thorne/19)	**ES Chapter 6 Landscape and Visual Impact**	Embedded design features such as vegetation retained	**Major (adverse) (significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Stainforth and Keadby Canal – Between Land Parcel A and Land Parcel C	**[REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	(where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**Major (adverse) (significant)**
Stainforth and Keadby Canal – Between Land Parcel B and Land Parcel E			**Major / Moderate (adverse) (significant)**
FP21 BOAT (Crowle) (Ref NI/Crowle/21)			**Major (adverse) (significant)**
FP21 (Ref NI/Bel/21)			**Major (adverse) (significant)**
Public Right of Way FP15 (Thorne) (Ref: DR/Thorne/15) – Where breaks in the vegetation			**Major (adverse) (significant)**
Public Right of Way: Bridleways 17 and 18 (Crowle) and a section of the			**Major / Moderate (adverse) (significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Peatlands Way (Ref: NI/Crow/17 & 18)			
Public Right of Way Footpaths 39, 40 & 41 (Ref: DR/Hatfield/39,40 & 41) – Footpath 40			**Major / Moderate (adverse) (significant)**
Public Right of Way Footpaths 39, 40 & 41 (Ref: DR/Hatfield/39,40 & 41) – Footpath 41			**Major (adverse) (significant)**
Users of the Transport Network			
A18 High Levels Bank and [Old A18] High Levels Bank – passing adjacent to northern sections of Land Parcels D, C and E	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the	Embedded design features such as vegetation retained (where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**Moderate (adverse) (significant)**
A18 High Levels Bank and [Old A18] High Levels Bank – former line of the A18/High level banks			**Major/ Moderate (adverse) (significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
M180 Motorway	chapter, and therefore residual effects (with mitigation in place) are the only effects identified.		**Moderate (adverse) (significant)**
Low Levels Bank & Sandtoft Road			**Major/ Moderate (adverse) (significant)**
Crow Tree Bank – Moor Lane & High Levels Bank (north south)			**Major/ Moderate (adverse) (significant)**
Moor Edges Road & High Bridge Road – Moor Road & Double Bridges – Clay Bank Road – Green Bank			**Major/ Moderate (adverse) (significant)**
Jaques Bank – Chapel Road – Godnow Road			**Major/ Moderate (adverse) (significant)**
Railways Users			**Moderate (adverse)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
			(significant)
Socio-Economic			
Employment (increase in employment in the construction sector)	Moderate beneficial (significant)	Implementation of enhancement measures such as employment opportunities for locals and partnering with education facilities to develop local skills within the **Outline Supply Chain, Employment and Skills Plan [REP1-038]**	**Major beneficial (significant)**
Contribution to Economic Output	Moderate Beneficial (significant)	None Required	**Moderate Beneficial (significant)**
Agricultural Circumstances			
Agricultural land[1]	Moderate Adverse (significant)	None Required	**Moderate Adverse (significant)**
Ecology and Nature Conservation			

[1] Applying a worst-case assumption that none of the internal access tracks are removed, but are retained by the landowners (at their discretion). If all tracks are removed, no significant adverse effects are anticipated.

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
No significant residual effects on ecology and nature conservation are predicted during construction of the Scheme.			
Water Resources			
No significant residual effects on the water environment or from flood risk are predicted during construction of the Scheme.			
Cultural Heritage and Archaeology			
No significant residual effects on cultural heritage and archaeology are predicted during construction of the Scheme.			
Noise and Vibration			
No significant residual effects to receptors from noise and vibration are predicted during construction of the Scheme.			
Ground Conditions			
No significant residual effects on ground conditions are predicted during construction of the Scheme.			
Transport and Access			
No significant residual effects on receptors of transport and access are predicted during construction of the Scheme.			
Air Quality and Greenhouse Gases			
No significant residual effects on air quality and greenhouse gas receptors are predicted during construction of the Scheme.			
Other Environmental Topics			
No significant residual effects from other environmental topics including vulnerability of the Scheme to risks of major accidents and disasters, waste, and electric, magnetic, and			

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
electromagnetic fields, climate change resilience and adaptation and glint and glare are predicted during the construction of the Scheme.			

Table 18-2: Summary of Effects for the Operational Phase

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Landscape and Visual and Residential Amenity			
Landscape features-hedgerows (Year 1-15)	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	Embedded design features such as vegetation retained (where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-0255]**	**Major-Moderate (beneficial) (significant)**
Landscape Character of the Order Limits and Immediate Surroundings (Year 1-15)			**Major-Moderate (adverse) (significant)**
Thorne and Crowle Moors Landscape Character Area			**Operation Year 1: Major (adverse)**
Residential Receptors			
Buildings Farm	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has	Embedded design features such as vegetation retained (where possible) and new planting. Implementation	**Operation Year 1: Major (adverse)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
	considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**(significant)** **Operation Year 15:** **Moderate** **(adverse)** **(significant)**
Mauds Bridge			**Operation Year 1:** **Moderate/ Major** **(adverse)** **(significant)**
Stoupersgate Farm, Fairview and Stoupersgate Bungalow			**Operation Year 1:** **Moderate** **(adverse)** **(significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Severals Cottage			**Operation Year 1:** **Major** **(adverse)** **(significant)** **Operation Year 15:** **Moderate** **(adverse)** **(significant)**
Severals Farm			**Operation Year 1:** **Moderate** **(adverse)** **(significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Stone Lodge Farm, Jaques Farm and Charity Farm			**Operation Year 1:** **Moderate / Major** **(adverse)** **(significant)**
Belton Grange			**Operation Year 1:** **Major/Moderate** **(adverse)** **(significant)** **Operation Year 15:** **Moderate** **(adverse)** **(significant)**
Users of publicly accessible BOATs, bridleways and footpaths			

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
FP19 (Thorne) (Ref DR/Thorne/19)	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	Embedded design features such as vegetation retained (where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**Operation Year 1:** **Major** **(adverse)** **(significant)** **Operation Year 15:** **Major/Moderate** **(adverse)** **(significant)**
Stainforth and Keadby Canal – Between Land Parcel A and Land Parcel C			**Operation Year 1:** **Major** **(adverse)** **(significant)** **Operation Year 15:**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
			Major/Moderate **(adverse)** **(significant)**
Stainforth and Keadby Canal – Between Land Parcel B and Land Parcel E			**Operation Year 1:** **Major /Moderate** **(adverse)** **(significant)**
FP21 BOAT (Crowle) (Ref NI/Crowle/21)			**Operation Year 1:** **Major** **(adverse)** **(significant)**
FP21 (Ref NI/Bel/21)			**Operation Year 1:** **Major**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
			(adverse) **(significant)** **Operation Year 15:** **Major/Moderate** **(adverse)** **(significant)**
Public Right of Way FP15 (Thorne) (Ref: DR/Thorne/15) – Where breaks in the vegetation			**Operation Year 1:** **Major** **(adverse)** **(significant)**
Public Right of Way: Bridleways 17 and 18 (Crowle) and a section of the			**Operation Year 1:** **Major / Moderate**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Peatlands Way (Ref: NI/Crow/17 & 18)			**(adverse)** **(significant)** **Operation Year 15:** **Major/Moderate** **(adverse)** **(significant)**
Public Right of Way Footpaths 39, 40 & 41 (Ref: DR/Hatfield/39,40 & 41) – Footpath 40			**Operation Year 1:** **Major / Moderate** **(adverse)** **(significant)**
Public Right of Way Footpaths 39, 40 & 41 (Ref:			**Operation Year 1:** **Major**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
DR/Hatfield/39,40 & 41) – Footpath 41			**(adverse)** **(significant)** **Operation Year 15:** **Major/Moderate** **(adverse)** **(significant)**
Users of the Transport Network			
A18 High Levels Bank and [Old A18] High Levels Bank – passing adjacent to northern sections of Land Parcels D, C and E	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and	Embedded design features such as vegetation retained (where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**Operation Year 1:** **Major** **(adverse)** **(significant)**
A18 High Levels Bank and [Old A18] High Levels Bank – former line of the A18/High level banks			**Operation Year 1:** **Major/Moderate**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
	therefore residual effects (with mitigation in place) are the only effects identified.		**(adverse)** **(significant)**
M180 Motorway			**Operation Year 1:** **Moderate** **(adverse)** **(significant)**
Low Levels Bank & Sandtoft Road			**Operation Year 1:** **Major/Moderate** **(adverse)** **(significant)** **Operation Year 15:** **Moderate** **(adverse)** **(significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Crow Tree Bank – Moor Lane & High Levels Bank (north south)			**Operation Year 1:** **Major/Moderate** **(adverse)** **(significant)** **Operation Year 15:** **Moderate** **(adverse)** **(significant)**
Moor Edges Road & High Bridge Road – Moor Road & Double Bridges – Clay Bank Road – Green Bank			**Operation Year 1:** **Major/Moderate** **(adverse)** **(significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
			Operation Year 15: Moderate (adverse) (significant)
Jaques Bank – Chapel Road – Godnow Road			**Operation Year 1: Major/Moderate (adverse) (significant)** **Operation Year 15: Moderate (adverse) (significant)**
Railways Users			**Operation Year 1:**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
			Moderate (adverse) (significant)
Socio-Economic			
Business rates	Major Beneficial (significant)	None Required	**Major Beneficial (significant)**
Air Quality and Greenhouse Gases			
Lifecycle Emissions of GHGs	Beneficial (significant)	Additional measures not required beyond best practice measures designed into Scheme	**Beneficial (significant)**
Ecology and Nature Conservation			
No significant residual effects on ecology and nature conservation are predicted during operation of the Scheme.			
Water Resources			
No significant residual effects on the water environment or from flood risk are predicted during operation of the Scheme.			
Cultural Heritage and Archaeology			
No significant residual effects on cultural heritage and archaeology are predicted during operation of the Scheme.			

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Noise and Vibration			
No significant residual effects to receptors from noise and vibration are predicted during the operation of the Scheme.			
Ground Conditions			
No significant residual effects on ground conditions are predicted during operation of the Scheme.			
Transport and Access			
No significant residual effects on receptors of transport and access are predicted during operation of the Scheme.			
Agricultural Circumstances			
No significant residual effects on land use and agriculture receptors are predicted during operation of the Scheme.			
Other Environmental Topics			
No significant residual effects from other environmental topics including vulnerability of the Scheme to risks of major accidents and disasters, waste, and electric, magnetic, and electromagnetic fields, climate change resilience and adaptation and glint and glare are predicted during the operation of the Scheme.			

Table 18-3: Summary of Effects for the Decommissioning Phase

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Landscape and Visual and Residential Amenity			
Landscape Character of the Order Limits and Immediate Surroundings	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	Embedded design features such as vegetation retained (where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-055]**	**Moderate (adverse) (significant)**
Users of publicly accessible BOATs, bridleways and footpaths			
FP19 (Thorne) (Ref DR/Thorne/19)	**ES Chapter 6 Landscape and Visual Impact**	Embedded design features such as vegetation retained	**Major (adverse) (significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Stainforth and Keadby Canal – Between Land Parcel A and Land Parcel C	**[REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the chapter, and therefore residual effects (with mitigation in place) are the only effects identified.	(where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-0255]**	**Major (adverse) (significant)**
Stainforth and Keadby Canal – Between Land Parcel B and Land Parcel E			**Major/Moderate (adverse) (significant)**
FP21 BOAT (Crowle) (Ref NI/Crowle/21)			**Major (adverse) (significant)**
FP21 (Ref NI/Bel/21)			**Major (adverse) (significant)**
Public Right of Way FP15 (Thorne) (Ref: DR/Thorne/15) – Where breaks in the vegetation			**Major (adverse) (significant)**
Public Right of Way: Bridleways 17 and 18 (Crowle) and a section of the			**Major/Moderate (adverse) (significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Peatlands Way (Ref: NI/Crow/17 & 18)			
Public Right of Way Footpaths 39, 40 & 41 (Ref: DR/Hatfield/39,40 & 41) – Footpath 40			**Major/Moderate (adverse) (significant)**
Public Right of Way Footpaths 39, 40 & 41 (Ref: DR/Hatfield/39,40 & 41) – Footpath 41			**Major (adverse) (significant)**
Users of the Transport Network			
A18 High Levels Bank and [Old A18] High Levels Bank – passing adjacent to northern sections of Land Parcels D, C and E	**ES Chapter 6 Landscape and Visual Impact [REP4-021]** methodology has considered mitigation and enhancements within the 'Assessment of Likely Effects' section of the	Embedded design features such as vegetation retained (where possible) and new planting. Implementation of the subsequent maintenance of the planting measures is set out within the **Outline Landscape and Ecological Management Plan [REP4-0255]**	**Moderate (adverse) (significant)**
A18 High Levels Bank and [Old A18] High Levels Bank – former line of the A18/High level banks			**Major/Moderate (adverse) (significant)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
M180 Motorway	chapter, and therefore residual effects (with mitigation in place) are the only effects identified.		**Moderate (adverse) (significant)**
Low Levels Bank & Sandtoft Road			**Major/Moderate (adverse) (significant)**
Crow Tree Bank – Moor Lane & High Levels Bank (north south)			**Major/Moderate (adverse) (significant)**
Moor Edges Road & High Bridge Road – Moor Road & Double Bridges – Clay Bank Road – Green Bank			**Major/Moderate (adverse) (significant)**
Jaques Bank – Chapel Road – Godnow Road			**Major/Moderate (adverse) (significant)**
Railways Users			**Moderate (adverse)**

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
			(significant)
Socio-Economic			
Employment (increase in employment in the decommissioning sector)	Moderate beneficial (significant)	Implementation of enhancement measures such as employment opportunities for locals and partnering with education facilities to develop local skills within the **Outline Supply Chain, Employment and Skills Plan [REP1-038]**	**Major beneficial (significant)**
Contribution to Economic Output	Moderate Beneficial (significant)	None Required	**Moderate Beneficial (significant)**
Ecology and Nature Conservation			
No significant residual effects on ecological receptors are predicted during the decommissioning phase of the Scheme.			
Water Resources			
No significant residual effects on the water environment or from flood risk are predicted during the decommissioning phase of the Scheme.			
Cultural Heritage and Archaeology			
No significant residual effects on cultural heritage and archaeology are predicted during the decommissioning phase of the Scheme.			

Receptor/Receiving Environment of Effect	Significance of Effect	Mitigation	Residual Effect
Noise and Vibration			
No significant residual effects to receptors from noise and vibration are predicted during the decommissioning phase of the Scheme.			
Ground Conditions			
No significant residual effects on ground conditions are predicted during the decommissioning phase of the Scheme.			
Transport and Access			
No significant residual effects on receptors of transport and access are predicted during the decommissioning phase of the Scheme.			
Air Quality and Greenhouse Gases			
No significant residual effects on air quality and greenhouse gas receptors are predicted during the decommissioning phase of the Scheme.			
Agricultural Circumstances			
No significant residual effects on land use and agriculture receptors are predicted during the decommissioning phase of the Scheme.			
Other Environmental Topics			
No significant residual effects from other environmental topics including vulnerability of the Scheme to risks of major accidents and disasters, waste, and electric, magnetic, and electromagnetic fields, climate change resilience and adaptation and glint and glare are predicted during the decommissioning phase of the Scheme.			

18.3. Residual Effects Conclusions

18.3.1. The residual effects (i.e., those that remain following implementation of mitigation measures), which are generally categorised as 'moderate' or 'major' and therefore considered to be 'likely significant environmental effects' are summarised below.

18.3.2. A number of environmental impact avoidance, design and mitigation measures have been identified to mitigate and control environmental effects during construction, operation and decommissioning of the Scheme. It is proposed that these are secured through requirements within the DCO application.

Construction Phase

18.3.3. For the construction phase, significant effects relating to landscape and visual and residential amenity receptors, agricultural receptors and socio-economic receptors are identified.

18.3.4. In terms of landscape and visual amenity effects on landscape features (ground cover), landscape character of the Order Limits and immediate surroundings, Thorne and Crowle Moors Landscape Character Area and some residential receptors and users of some sections of the local PRoW and transport network, these residual adverse significant effects during the construction phase will be temporary, due to the transient nature of the construction works. The construction phase residual effects are due to the changes in surface landform, landcover, presence of construction machinery and the associated activity which is required to implement the Scheme.

18.3.5. In terms of agricultural effects, if the worst case scenario is delivered whereby the internal access tracks are left in situ (at the landowners discretion), this could lead to a permanent loss of 9.1ha of best and most versatile land, resulting in a moderate adverse effect, which is significant. In farming terms, the implications are minimal, as the tracks mostly follow field edges and will be of operational benefit.

18.3.6. In terms of socio-economic residual construction effects, it is anticipated that significant beneficial effects are expected through increase in local employment from the construction phase of the Scheme, and in turn increase in economic output to the local economy from increased employment.

Operational Phase

18.3.7. For the operational phase, significant effects relating to landscape and visual receptors, climate change (greenhouse gas effects) and socio-economic receptors are identified.

18.3.8. In terms of landscape and visual amenity effects on landscape features (hedgerows), a beneficial residual effect is anticipated by year 15 with the design features of retention of hedgerows (where possible) and additional hedgerows as illustrated on **ES Figure 6.4 Landscape and Visual Mitigation Strategy, (Landscape Masterplan) [REP4-042]**. In total over 50km of new hedgerow is proposed across the Order Limits. Landscape character at the Order Limits and surrounding area would change from the baseline conditions of a predominantly agricultural landscape influenced in part by the nearby energy generation infrastructure at the Tween Bridge Wind Farm to that of solar farm infrastructure. Effects would reduce from Major-Moderate adverse (significant) in Year 1 of operation to Moderate adverse (significant) in Year 15 of operation as retained and created vegetation matures. The majority of residential receptors in the settlements of Thorne and Moorends to the west and Crowle to the east are highly limited in potential views of the Scheme. Some users of some sections of the local PRoW and transport network will experience views of the Scheme, however as created and retained vegetation matures by Year 15 the visual effects are reduced.

18.3.9. During the operational phase of the Scheme, a beneficial effect on the global climate is anticipated through the net GHG emission savings due to the nature of the Scheme producing renewable energy and therefore displacing the need for other forms of conventional energy generation that would emit greenhouse gas emissions.

18.3.10. During the operational phase of the Scheme, a significant beneficial effect is anticipated on the increased business rates revenue as an important economic contributor to the area. It is anticipated for the intended 40-year lifespan of the Scheme, business rates generated could total around £19.8 million (present value).

Decommissioning Phase

18.3.11. For the decommissioning phase, significant effects relating to landscape and visual receptors and socio-economic receptors are identified.

18.3.12. Similar to the construction phase, the presence of site plant and machinery during the decommissioning phase will have significant adverse effects on the landscape character of the Order Limits and immediate surroundings, and some PRoW users

and transport receptors, albeit this phase is expected to be broadly similar if not slightly quicker than the construction phase, and therefore temporary.

18.3.13. The decommissioning of the Scheme is expected to result in similar socio-economic residual effects. An increase in local employment and in turn increase in economic output to the local economy is expected during the decommissioning phase of the Scheme.