UK Onshore Scheme

Environmental Statement

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Chapter 27

Register of Mitigation (Proposed Converter Station)

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ES Reference	**Chapter**	**Chapter Title**	
ES-2-A.01	Ch01	Introduction	
ES-2-A.02	Ch02	Development of the UK Onshore Scheme	
ES-2-A.03	Ch03	The UK Onshore Scheme	
ES-2-A.04	Ch04	Environmental Impact Assessment Methods	
ES-2-B.01	Ch05	The Proposed Underground DC Cable	
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ES-2-B.03	Ch07	Geology & Hydrogeology	
ES-2-B.04	Ch08	Water Resources & Hydrology	
ES-2-B.05	Ch09	Agriculture & Soils	
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Glossary & Abbreviations

Glossary of Terms	
Term	**Meaning**
AC electricity transmission	Electric power transmission in which the voltage varies in a sinusoidal fashion. This is the most common form of electricity transmission and distribution.
base scheme design	The design of the UK Onshore Scheme for the purposes of the planning application.
connection point	The existing Bicker Fen 400 kV Substation; the point on the National Electricity Transmission System (NETS) where Viking Link connects.
the Contractor	Party or parties responsible for the detailed design and construction UK Onshore Scheme.
converter station	Facility containing specialist equipment (some indoors and some potentially outdoors) for the purposes of converting electricity from AC to DC or DC to AC.
DC electricity transmission	Electric power transmission in which the voltage is continuous. This is most commonly used for long distance point to point transmission.
detailed scheme design	The design of the Scheme developed by the Contractor within the Limits of Deviation (AC and DC cables) and Rochdale Envelope (converter station).
landfall	The area between Mean Low Water Springs and Mean High Water Springs where the Onshore and Offshore Schemes meet.
Limits of Deviation	These define the maximum extents of the corridor for which planning permission is sought and within which proposed DC and AC cable routes may be installed.
the Project	Viking Link, from the connection point at Revsing Substation in Denmark to the connection Bicker Fen Substation in Great Britain).
Rochdale Envelope	This defines the parameters of the proposed converter station for which planning permission is sought including its location, layout and dimensions.
the Scheme	UK Onshore Scheme from MLWS to the connection point comprising underground AC and DC cables, converter station and access road.
Transition Joint Pit	Buried concrete pit where onshore and submarine cables are physically jointed together.

List of Abbreviations	
Abbreviation	**Meaning**
AC	Alternating Current
AIL	Abnormal Indivisible Load
ALO	Agricultural Land Officers

List of Abbreviations	
Abbreviation	**Meaning**
AOD	Above Ordnance Datum
BPM	Best Practicable Means
CEMP	Construction Environmental Management Plan
COSHH	Control of Substances Hazardous to Health
CPP	Construction Phase Plan
CTMP	Construction Traffic Management Plan
DC	Direct Current
EA	Environment Agency
EcCOW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
ES	Environmental Statement
ESRP	Emergency Spill Response Plan
FRA	Flood Risk Assessment
GCN	Great Crested Newts
HE	Historic England
HGV	Heavy Goods Vehicle
IDB	Internal Drainage Board
km	kilometre
LGP	Low Ground Pressure
LLFA	Lead Local Flood Authority
LoD	Limit of Deviation
LPA	Local Planning Authority
NE	Natural England
NGVL	National Grid Viking Link Limited
NPPF	National Planning Policy Framework
NRSWA	New Roads and Street Works Act
m	metre
m^3	Cubic metres
OMP	Operational Management Plan
PPG	Pollution Prevention Guidance
PRoW	Public Right of Way
RAMs	Reasonable Avoidance Measures
SFRA	Strategic Flood Risk Assessment

List of Abbreviations	
Abbreviation	**Meaning**
SHDC	South Holland District Council
SHSP	Soil Handling and Storage Protocol
SuDS	Sustainable Drainage System
TCC	Temporary Construction Compound
WAC	Waste Acceptance Criteria
WSI	Written Scheme of Investigation
ZoI	Zone of Influence

1 Introduction

1.1 Introduction

1.1.1 This chapter sets out in once place all of the measures proposed to mitigate the potential environmental impacts of construction and operation of the proposed converter station, and proposed Alternating Current (AC) cable route and proposed permanent access road.

1.2 Approach to Mitigation

1.2.1 As set out in chapter 4 of the Environmental Statement (ES) a standard hierarchal approach to the development of mitigation measures has been followed with the aim of 'designing out' adverse effects as much as possible (avoiding, preventing or reducing adverse effects) as well as seeking opportunities to maximise or enhance beneficial effects. The Environmental Impact Assessment (EIA) has been undertaken in parallel with the development of the UK Onshore Scheme providing opportunities to incorporate mitigation measures into its design or how it will be constructed.

1.2.2 The following approach has been used for developing and categorising mitigation:

- Design Measures: These are measures embedded in the base scheme design or which inform/constrain the Contractor's detailed scheme design.
- Construction Measures: These are measures incorporated into how the Scheme will be constructed by the Contractor.
- Other Measures: These are other measures which have been identified which are neither design nor construction mitigation and will require to be implemented.
- Compensation Measures: These are measures to be implemented in the event that an effect cannot be mitigated.

1.3 Purpose of the Register of Mitigation

The following sections identify all of the mitigation measures identified in the assessment chapters (18 to 26). The purpose of the Register of Mitigation is to set out in one place all of the measures which have been embedded with the design of the Scheme and how it will be constructed such that they can be easily transposed into the relevant construction management plans. For ease mitigation measures have been given a unique reference based on the specialist topic to which they relate. The Register also sets out how mitigation will be delivered for example if it is embedded in the Scheme design or construction. It should be noted that for some topics common mitigation measures have been identified for example pollution prevention measures may apply to water and groundwater resources as well as ecology; for completeness these have been repeated for each specialist topic.

2 Geology & Hydrogeology

Table 27.1 Register of Mitigation (Geology & Hydrogeology)

Mitigation	Project Component	Reference	Description of Mitigation Measure	How Measures will be Secured
Design	Converter Station	GEO01	All oil containing equipment will be located within bunding to provide containment in the event of leaks or spillages.	Embedded within the design of the proposed converter station.
Design	Converter Station	GEO02	The permanent drainage system will incorporate oil-water interceptors to intercept potentially contaminated runoff prior to release.	Embedded within the design of the proposed converter station and proposed AC cable route.
Design	Converter Station	GEO03	In the event that ethylene glycol is to be used as a coolant control measures will be incorporated into pipework design to prevent leaks such as the use of pipe collars and double integrity pipes.	Embedded within the design of the proposed converter station.
Design	Converter Station	GEO04	All chemical and hazardous substances will be stored in accordance with Environment Agency (EA) Pollution Prevention Guidance (withdrawn but widely considered good practice) and applicable storage regulations.	Embedded within the design of the proposed converter station.
Design	Converter Station	GEO05	Further ground investigation will be undertaken to inform detailed design and inform final adopted foundation solutions, the cut/fill extents, dewatering strategies, the extent to which excavation support is required and also the extent to which ground gas mitigation is required.	Further assessment to be undertaken to inform detailed design.
Design	Converter Station	GEO06	Materials used in buildings and infrastructure would be specified taking due account of the ground conditions such as elevated sulphate or ground gases.	Embedded within the design of the proposed converter station and permanent access road.

Table 27.1 Register of Mitigation (Geology & Hydrogeology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station	GEO07	The assessment methodology set out in BRE Special Digest 1 (2005) will be used to determine the appropriate concrete classification.	Embedded within the design of the proposed converter station.
Construction	Converter Station	GEO08	The initial assessment of ground gas suggests that some low level ground gas mitigation may be required, e.g. gas impermeable membrane, as part of construction. As per GEO05 this should be re-evaluated prior to construction based on further ground investigation.	Further assessment to be undertaken to inform detailed design.
Construction	All	GEO09	Construction Environmental Management Plan (CEMP) will be developed that will contain measures to ensure compliance with relevant standards and legislation.	A detailed CEMP will be prepared by the Contractor prior to the start of construction.
Construction	All	GEO10	Prior to construction, a strategy will be prepared, which will set out how the earthworks stage of the construction phase will be undertaken. Where necessary the strategy will consider what excavated materials can be reused, or are required within the development, and what materials are surplus and require either disposal or onward management to ensure appropriate re-use. The strategy will also define whether any geotechnical improvement may be required, prior to re-use or disposal.	Good construction practice embedded within how the Scheme will be constructed, including details as stated within the Soil Handling and Storage Protocol.
Construction	All	GEO11	To minimise the effects on soil resources during any earthworks, including materials management following foundation construction, high standards of soil handling and management will be employed with a view to minimising where possible the double handling of soils and the extent to which exposed soils will be left vulnerable to erosional processes.	Good construction practice embedded within how the Scheme will be constructed, including details as stated within the Soil Handling and Storage Protocol.

Table 27.1 Register of Mitigation (Geology & Hydrogeology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	GEO12	The re-use of excavated materials during construction will be governed by either a Materials Management Plan developed in accordance with the CL:AIRE Code of Practice, an environmental permit or a relevant exemption	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO13	The disposal of soil waste, contaminated or otherwise to landfill sites would be best mitigated by minimisation of the overall quantities of waste generated during construction and by ensuring that excavated material consigned to landfill cannot, as an alternative, be put to use either on site or on other sites.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO14	Where there is a requirement to dispose of surplus excavated materials off site as waste, the material will be characterised to determine firstly whether it is Hazardous or Non-Hazardous waste in accordance with the EA's Technical Guidance WM3 and then once this is established the appropriate disposal facility will be determined through Waste Acceptance Criteria (WAC) analysis, as required.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO15	Due to shallow groundwater it is expected that groundwater controls will need to be adopted during construction. The water quality testing undertaken as part of the 2016 ground investigation suggests that pre-treatment due to chemical contamination of the groundwater is unlikely to be required prior to disposal.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.1 Register of Mitigation (Geology & Hydrogeology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	GEO16	Where the volume of groundwater requiring dewatering exceeds twenty cubic metres a day then an abstraction permit will be obtained from the EA. Consents will also be obtained where discharging to watercourses including Internal Drainage Board (IDB) managed water courses or public sewer.	The Contractor will obtain the relevant secondary consents.
Construction	All	GEO17	The adopted dewatering techniques will be appropriate to the type of excavation and hydrogeological conditions. The hydraulic conductivity of the ground within each excavation or trench section will be considered to establish the required abstraction volume to achieve the necessary drawdown of groundwater levels. The type of dewatering undertaken may include the use of cut off walls, sump dewatering and potentially well point dewatering with some provision for attenuation capacity to allow for water treatment and/or settlement prior to final discharge.	Embedded within the design of the proposed converter station, permanent access road and proposed AC cable route.
Construction	All	GEO18	Measures contained within the CEMP would be designed to limit the potential for dispersal and accidental releases of potential contaminants, soil derived dusts and uncontrolled run-off to occur during construction.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO19	The CEMP will set out how material is to be excavated and stockpiled to minimise the potential for run-off, soil degradation or wind dispersal of dusts.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO20	The covering of long-term stockpiles with sheeting or the binding of the surface through temporary grass seeding will be specified together with dampening procedures during dry weather.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.1 Register of Mitigation (Geology & Hydrogeology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	GEO21	In the event of uncontrolled releases occurring, the CEMP and the Contractor's own method statements contained in their Construction Phase Plan (CPP) would also set out the measures required to ensure that the extent and impact of any such releases are contained and ultimately remediated.	A detailed CEMP including Emergency Spill Response Plan (ESRP) will be prepared by the Contractor prior to the start of construction.
Construction	All	GEO22	An Emergency Spill Response Plan (ESRP) will be in place prior to the commencement of construction works. The plan will outline key pollution mitigation measures to be adopted including a Control of Substances Hazardous to Health (COSHH)/fuel inventory and key contacts to be notified in the event of a significant pollution incident, which may subsequently lead to the contamination of controlled waters or soils.	A detailed CEMP including ESRP will be prepared by the Contractor prior to the start of construction.
Construction	All	GEO23	Any hazardous materials will be stored in designated locations with specific measures to prevent leakage and the release of their contents. This will include a requirement to position storage areas at least 50 m away from surface water features/drains, on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain at least 110 % of the contents. Valves and trigger guns will be protected from vandalism and kept locked when not in use.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO24	Only well maintained plant will be used during construction to minimise the potential for accidental pollution from leaking machinery or damaged equipment. Static machinery and plant are expected to be stored in hard standing areas when not in use and, where necessary, to make use of drip trays beneath oil tanks/engines/gearboxes/hydraulics.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.1 Register of Mitigation (Geology & Hydrogeology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	GEO25	Spill response kits containing equipment that is appropriate to the types and quantities of materials being used and stored during construction will be maintained on site for the duration of the works.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	GEO26	Potential impacts specific to construction workers during site preparation and construction would be mitigated by the following measures and through working in accordance with CIRIA C692 3rd Edition 'Environmental Good Practice On Site' (2010).	Embedded within the design of the proposed converter station, permanent access road and proposed AC cable route.

3 Water Resources & Hydrology

Table 27.2 Register of Mitigation (Water Resources & Hydrology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station	WAT01	A surface water management plan will be prepared by the appointed Contractor outlining the measures to be implemented to ensure the existing run-off rates to the surrounding water environment are maintained at pre development rates at the proposed converter station site.	Embedded within the design of the proposed converter station.
Design	Converter Station	WAT02	The detailed design of the surface water management strategy will be based on a series of infiltration/soakaway tests carried prior to construction out on proposed converter station zone and the worst case attenuation volumes outlined in the Flood Risk Assessment (FRA) (totalling 9,404 m^3). Tests will be undertaken prior to construction and in accordance with the BRE Digest 365 Guidelines. All drainage works will be approved by the Lead Local Flood Authority (LLFA) prior to the commencement of construction.	Further assessment to be undertaken to inform detailed design.

Table 27.2 Register of Mitigation (Water Resources & Hydrology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station Permanent Access Road	WAT03	The proposed converter station will developed on a level profiled to approximately 2.9 m Above Ordinance Datum (mAOD) and the permanent access road developed on a level profiled to approximately 2.7 mAOD, locating the proposed converter station and permanent access road above the 'worst-case' 1 in 1,000 year breach plus climate change established by South Holland District Council (SHDC) Strategic Flood Risk Assessment (SFRA) flood event.	Embedded within the design of the proposed converter station and permanent access road.
Design	Permanent Access Road AC Underground Cable	WAT04	Where watercourses and drains will be crossed by the permanent access road and proposed AC cable route, an appropriately sized culvert pipe will be installed in the watercourse to accommodate the water volumes and flows. Alternatively temporary bridging may be installed. Any temporary access roads will be removed at the end of the construction programme. The construction works will be undertaken in accordance with a methodology for the crossing of watercourses agreed with the EA, LLFA and IDB. This will include measures to ensure that watercourses, including their banks, are reinstated to their previous condition where possible.	Crossing methods and designs will be agreed with the relevant authorities prior to the start of construction.
Design	Permanent Access Road	WAT05	The permanent access road bridge over Hammond Beck will be constructed with a soffit equal to or greater than existing bridge levels with designs produced in consultation with Black Sluice IDB.	Crossing methods and designs will be agreed with the relevant authorities prior to the start of construction.

Table 27.2 Register of Mitigation (Water Resources & Hydrology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Permanent Access Road	WAT06	Detailed design of the permanent access road will, where practicable, incorporate engineering techniques to enable flood water conveyance beneath the permanent access road to ensure existing flood storage capacity is maintained.	Embedded within the design of the permanent access road.
Design	All	WAT07	The detailed design and construction of the proposed converter station, permanent access road and proposed AC cable route will follow Defra/EA Flood Risk Assessment Guidance for New Development, Phase 2 to ensure no greater or altered flood risk extents are caused as a result of construction or permanent footprint.	Embedded within the design of the proposed converter station, permanent access road and proposed AC cable route.
Construction	All	WAT08	Temporary drainage mitigation techniques including, but not limited to, run-off interceptor channels will be installed prior to the construction of the formal drainage scheme to ensure that discharges are controlled in quality and volume. This may include the use of settling tanks and/or ponds to remove sediment, temporary interceptors and hydraulic brakes.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT09	Construction material and/or spoil within Temporary Construction Compound (TCC) will be positioned away from drainage systems or surface watercourses/field drainage and no hazardous substances will be stored within close proximity of the drainage network.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT10	EA guidance will be followed during construction for: discharging to surface water and groundwater, oil storage, pollution prevention (various Pollution Prevention Guidance (PPG) Notes 6 (Working at Construction Sites), 5 (Working in, near or liable to affect watercourses). CIRIA guidance (C741 environmental good practice and C648 control of water pollution) will be followed to prevent pollution incidents.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.2 Register of Mitigation (Water Resources & Hydrology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	WAT11	Procedures and construction practices will be developed to comply with the conditions of the EA and the LLFA, with all staff briefed on the importance of water quality, the location of watercourses and pollution prevention at site induction prior to undertaking works.	Good construction practice embedded within how the Scheme will be constructed, incorporating measures as identified in Planning Conditions.
Construction	All	WAT12	Wheel washers and dust suppression measures will be implemented as appropriate to prevent the migration of pollutants, as well as regular cleaning of roads of any construction waste and dirt to be carried out (as per the CIRIA Sustainable Drainage System (SuDS) Manual).	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT13	Refuelling of machinery will be undertaken within designated areas where spillages can be easily contained. Machinery will be routinely checked to ensure it is in good working condition.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT14	Any tanks and associated pipe work containing substances included in List 1 of the Groundwater Directive will be double skinned and be provided with intermediate leak detection equipment.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT15	Areas with prevalent run-off will be identified prior to earthworks and the drainage actively managed through these areas, e.g. through bunding and/or temporary drainage.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.2 Register of Mitigation (Water Resources & Hydrology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	WAT16	Areas at risk of spillage of a potential pollutant, such as vehicle maintenance areas and hazardous substance stores (including fuel, oils and chemicals) will be bunded and carefully sited to minimise the risk of polluting the drainage system or local watercourses. Additionally the bunded areas will have impermeable bases to limit the potential for migration of contaminants into groundwater following any leakage/spillage. The bunds used to store fuel, oil etc. will have a 110% capacity of the volume of fuel, oil etc. to be stored to ensure no overspill to the surrounding environment.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT17	Where work is required to be undertaken adjacent to watercourses, the area disturbed close to the watercourses will be reduced to the minimum necessary for the work.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT18	Excavated material to be placed away from the banks of watercourses to avoid spillage into the watercourses. Similarly construction materials will be managed and all plant and machinery maintained in good condition to minimise the risk posed to the aquatic environment.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	WAT19	The EA will be consulted throughout the construction period to promote best practice and to implement proposed mitigation measures.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.2 Register of Mitigation (Water Resources & Hydrology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction Operation	All	WAT20	The permanent access road and the converter station will be signed up to the EA's flood warning system (https://www.gov.uk/sign-up-for-flood-warnings) which will give site personnel the opportunity to move to a safe area during an extreme event. A flood evacuation plan will be developed for the construction and operational phases of the permanent access road, with staff training provided, to ensure in the event that the plan is activated all staff are aware of the procedures upon receipt of the flooding warning, together with evacuation routes.	Good construction practice embedded within how the Scheme will be constructed and a flood evacuation plan prepared by the Contractor prior to the commencement of construction.
Operation	All	WAT21	An Operational Management Plan (OMP) will be developed and will incorporate measures to prevent pollution and increased flood risk, to include emergency spill response procedures, clean up and remediation of contaminated water run-off.	A detailed OMP will be prepared prior to the project becoming operational.

4 Agriculture & Soils

Table 27.3 Register of Mitigation (Agriculture & Soils)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Permanent Access Road AC Underground Cable	AGR01	During detailed design, the alignment of the permanent access road and proposed AC cable route will be along field margins as far as practicably possible to avoid severance of agricultural land.	Embedded within the design of the permanent access road and proposed AC cable route.
Design	AC Underground Cable	AGR02	As a minimum there will be at least 0.9 m minimum depth of cover is achieved over the cables trenches and excavations.	Embedded within the design of the permanent access road and proposed AC cable route.
Construction	All	AGR03	Prior to construction a Soil Handling and Storage Protocol (SHSP) will be prepared detailing the good practice measures that will be incorporated to construction methods. These measures will include, but not be limited to: · Limiting the number of machine movements within the working width to minimise compaction and damage to soil structure. · Avoiding or limiting construction after periods of heavy rainfall or during periods when soils are waterlogged to minimise compaction and damage to soil structure.	A detailed SHSP will be prepared by the Contractor prior to commencement of construction.

Table 27.3 Register of Mitigation (Agriculture & Soils)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	AGR03 (cont.)	· the establishment of vegetative cover, as soon as possible after construction is complete to maintain soil structure and prevent soil loss through erosion. For arable land, areas of bare soil should be seeded with grass or a green manure crop. For pasture land, areas of bare soil should be seeded with grass crop. This will be informed through ongoing discussion between National Grid Viking Link Ltd (NGVL) and landowners/tenant farmers; · Seeding of temporary soil storage mounds to reduce run off and erosion. · Retain physical disaggregation, through the separate handling and storage of top- and sub-soils. Soil removed (excavated) in order of horizons and stored in separate stockpiles based on soil type, near to its original location so it can be replaced/reinstated in a similar location. Soil profile is reinstated. · The avoidance of soil compaction through the use of Low Ground Pressure (LGP) tracked or wheeled tyres to spread the weight of vehicles, limiting the height of soil stockpile mounds, restricting construction traffic to specific areas on the construction working width and tilling the area afterwards using recognised practices and equipment to remove any compaction. · Seeding of soil stockpiles if soil resources are stored for longer than six months to prevent irreversible damage to soil resource quality through factors such as erosion, and enable effective and quick restoration.	

Table 27.3 Register of Mitigation (Agriculture & Soils)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	AGR04	The SHSP will also set out good practice measures to minimise the potential transfer of disease, pathogens, and weeds (biosecurity), as per appropriate guidance (such as Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites). These measures may include, but not be limited to: · Avoiding soil movement from one farm to another via heavy plant movement as far as is practicable in normal working operations, with additional tailored mitigation such as disinfectant spraying being employed should specific pathogens or diseases be identified (e.g. Foot and Mouth).	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	AGR04 (cont.)	· Continued management of the displaced soil (soil storage mounds) with suitable herbicide application should control the weed seed burden in both the top- and sub-soil so as to avoid the increased growth of weeds (e.g. black grass, thistles, ragwort) following soil replacement. Although none of the land within the Zone of Influence (ZoI) has been identified as being organically managed, the use of herbicide will be tailored if required.	
Construction	All	AGR05	Where possible, the period in which excavated soil are temporarily stored will be reduced. For example, the construction of the proposed AC cable route will be undertaken in a phased manor.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.3 Register of Mitigation (Agriculture & Soils)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	AGR06	Site specific (bespoke) mitigation measures will be implemented where required. These measures may include: · changes to the grazing regime to accommodate the loss in working areas; · construction of designated crossing points to minimise disruption to the movement of livestock and machinery; · programming works to avoid specific locations (for example lambing sheds) during sensitive times in the farming calendar (for example lambing). The identification of these measures is the subject of ongoing discussion with the NGVL and Agricultural Land Officers (ALOs); once identified these measures will be incorporated into project documentation (such as the detailed CEMP, site specific method statements or similar).	Good construction practice embedded within how the Scheme will be constructed.

5 Ecology

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	All	ECO01	A range of measures to ensure legal compliance will be implemented for the duration of the construction phase, which will be delivered through the implementation of the CEMP. The measures relating to ecological features are: · Pre-construction surveys will be carried out to ensure baseline data remains up to date. · An appropriately qualified Ecological Clerk of Works (EcCOW) will be appointed. The role of the EcCOW will be set out in the CEMP and the appointed person(s) will be a member of the Chartered Institute of Ecology and Environmental Management or hold equivalent accreditation. · There will be a demarcation of the working areas (including storage areas and accesses), using appropriate fencing, to protect retained habitats and features. · Traps or wildlife exclusion fencing will be installed (and maintained), as required by protected species licences.	A detailed CEMP will be prepared by the Contractor prior to the start of construction.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
		ECO01 (cont.)	· Clearance of trees, hedges, grassland and other habitats will take place under supervision and at the appropriate time of year, as appropriate to the site/species in question. · There will be prompt reinstatement of habitats, *in-situ*, to their former condition, including any measures to enhance species diversity.	
Construction	All	ECO02	The CEMP will also include: · Procedures for designated sites affected by construction activities. · General Method Statements for habitat protection. · Species-specific Method Statements, addressing protected and priority species. · Provisions for tree protection and methods of felling (including pruning, pollarding, replacement tree and hedgerow planting, and use of protective fencing and root protection zones) in accordance with BS5837:2012. · Measures of post-construction monitoring relating to reinstatement and mitigation activity including triggers and details of remedial action.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO03	**Pollution Prevention** · Bunds to catch and divert runoff, drip trays to prevent any oil and fuel spillages spreading and the avoidance of storage of any materials in close proximity to the surrounding drainage network. · Windblown dust will be minimised by using wheel washing and damping down, while net fencing will catch windblown rubbish. · To address the risk of singular accidental events, mitigation measures include provision of spill kits and emergency response procedures. · Pollution prevention measures will also include minimising air pollution from plant emissions, including turning engines off when not in use. These measures will be effective upon commencement of construction.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO04	**Tree Protection** · Measures to protect tress throughout construction will be identified within an Arboricultural Method Statement and will accord to current standards (BS5837:2012 Trees in relation to design, demolition and construction – Recommendations). All tree and hedgerow works will comply with BS3998:2010 'Tree Work – Recommendations'. · To restrict spread of tree pathogens, all equipment and machinery and vehicles used for tree, hedge and shrub removal will be cleaned, disinfected and used in accordance with current Forestry Commission biosecurity guidance and the EcCOW will advise on whether each working area requires 'red' or 'amber' level biosecurity precautions.	An Arboricultural Method Statement will be prepared by the Contractor prior to the commencement of construction.
Construction	All	ECO05	**Reptiles** Reasonable Avoidance Measures (RAMs) will be required for all site clearance works to ensure no killing or injury to individuals.	Legal compliance

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO06	Vegetation will be removed in a staged approach: · Initial strimming of vegetation to 300 mm followed by a later second cut to 150 mm and with both cuts proceeding in one direction will allow reptiles (as well as amphibians and small mammals) to vacate the affected area. · The areas will be left for a period of 24 hours (hrs) after the first and second cuts, after each of which the EcCOW will undertake a hand search to confirm the absence of reptiles (and other fauna). · Following the second cut and hand search, vegetation will be strimmed to ground level, at which point full site clearance and levelling will then be undertaken.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO07	Any animals found during hand searching will be removed to alternative suitable habitat by the EcCOW.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO08	Site clearance affecting suitable reptile hibernation features (identified by the EcCOW) will avoid the hibernation period (November to early March inclusive).	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO09	Smaller excavations within working areas will be covered overnight to prevent entrapment of any individuals. If any open excavations are left uncovered these will be inspected by the EcCOW at the start of each working day to ensure no individuals are present, and to remove any that are trapped to a safe location.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO10	In order to prevent reptiles using subsoil and topsoil piles for refuge or hibernation, the surfaces of the piles will be tamped down and consolidated to prevent access. In addition, stored materials which could be used for refuge or hibernation by reptiles will be stored off the ground on pallets to prevent their access.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO11	**Great Crested Newts (GCN)** Construction elements associated with the ditches and tall ruderal habitat bounding the Bicker Fen Substation which provide high quality GCN habitat (adjacent to Pond 175 and Ditch 611), will be carried out under a Natural England (NE) licence to ensure no detrimental impact on the local GCN population. Construction elements associated with terrestrial habitat likely to be used by GCN within 500 m of Pond 175 and Ditch 611 will also be subject to NE licensing.	Legal compliance.
Construction	All	ECO12	Works are subject to NE licensing but are likely to be undertaken during the breeding season (mid-April to June inclusive) when GCN are likely to be in waterbodies. These works would be undertaken using RAMs and the EcCOW will confirm the absence of amphibians prior to site clearance. Any animals found prior to works commencing will be removed to alternative suitable habitat by the EcCOW. Site clearance during the GCN hibernation period (November to early March inclusive) will be avoided in areas of suitable habitat to prevent disturbing animals.	Legal compliance.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO13	The strategy for retaining, enhancing or replacing GCN habitat will rely on onsite mitigation measures. Waterbodies with confirmed GCN presence may require exclusion fencing and potentially pitfall trapping around their perimeter within a 250 m buffer.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO14	Where GCN exclusion is necessary, works will be implemented under NE licence. Temporary upright and one-way newt fencing of standard design will be installed where required in addition to pitfall traps and/or additional refugia (e.g. carpet tiles) against perimeter fences as appropriate to the objectives of the exclusion. The installation of the fencing will be supervised by a licensed ecologist and will be installed and removed during the months February to October inclusive, provided weather and ground conditions are suitable. On completion of installation of the AC cable route, exclusion fencing and refugia will be removed by or under the supervision of a licensed ecologist. If construction works are completed during the winter, the exclusion fencing will be retained in place until the next appropriate seasonal window.	Legal compliance.
Construction	All	ECO15	Prior to the beginning of construction works a tool box talk will be provided by a licensed ecologist detailing the conditions of the licence. The toolbox talk will include advice on distinguishing GCNs from other amphibians and identification guides will be provided on site for reference.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO16	A site representative will be trained to inspect the fencing for damage. Inspections will occur daily during the construction period in times of amphibian activity (February to October inclusive) and at least fortnightly during winter periods (November to January inclusive). All minor damage to perimeter exclusion fences will be replaced on the same day that the damage is discovered by the site representative. Any substantial damage, requiring disturbance of the fence membrane at ground level (i.e. any works such as removal, reinstatement or replacement of fence membrane) shall be reported to the licensed ecologist on the morning of discovery. Ideally, remedial measures will be implemented on the same day, or at least within 24 hrs of the damage occurring, supervised as appropriate by a licensed ecologist. A record of fence checks and repairs will be kept on site with a copy of the Natural England licence. A copy of the GCN licence will be retained on site.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO17	Where ditches were identified as having 'good' or 'excellent' habitat for amphibians and are being crossed by the proposed AC cable route, these waterbodies will be carefully drained down and a licenced ecologist will attend site to search for any amphibians and translocate them into the same waterbody outside of the Limit of Deviation (LoD).	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO18	Reinstatement of habitats should ensure that functionality and connectivity within the wider landscape is maintained. The existing pond and ditches within the substation should be cleared out and enhanced to maintain the existing GCN population and provide improved habitat for breeding. Hibernacula can be installed within the substation to provide additional refuge habitats.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO19	**Bats** Prior to site clearance, pre-construction surveys (tree climbing inspections and if necessary nocturnal surveys at the appropriate time of year) of all trees requiring works and identified to have moderate or high bat roost potential will be undertaken. This will be carried out in advance of each phase of the works. NE licences will be secured where roosts are identified in trees that require felling.	Legal compliance.
Construction	All	ECO20	Where necessary, lighting of construction areas will be directed away from trees, hedgerows, woodland and watercourses. Lights will be installed at an appropriate height, with directional hoods fitted to minimise spillage.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO21	**Water Vole & Otter** A pre-commencement water vole and otter survey will be carried out at all watercourses/drains to be crossed. No construction activity will commence until all mitigation and licensing requirements, where necessary, are implemented.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO22	Where no water vole burrows are identified during the pre-commencement survey, vegetation control will be undertaken to dissuade water voles from colonising the working area prior to commencement. Vegetation within the ditch and on both banks will be strimmed to bare ground, at least to the top of the bank, and where tall vegetation extends beyond this point, up to 5 m from the top of the bank. Within the ditch, strimming will extend 5 m up and downstream from the working area. Arisings will be removed from the cleared area and stored more than 5 m from the top of the ditch banks.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO23	Any excavations adjacent to watercourses that cannot be boarded or fenced overnight will have ramps installed to allow any otter that may travel through the area to escape, should they become entrapped.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO24	Vegetation clearance within the LoD prior to construction will be undertaken in line with methods described for reptile and GCN legal compliance (above) will dissuade water vole from colonising the area. Fencing to prevent GCN encroaching into the working area (under a NE EPS Licence) will also prevent water vole entering this area. The need for a Class Licence to undertake this work for water voles will be confirmed with NE.	Legal compliance.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO25	**Badger** All construction works within 30 m of a known active badger sett will be carried out under a NE licence, and will comply with the working methods and requirements as detailed in the license. Acceptable working distances from setts will be assessed on a case-by-case basis and will depend on the type and duration of activities.	Legal compliance.
Construction	All	ECO26	Should a main sett be permanently or temporarily lost as a result of development an artificial sett will be constructed six months prior to the start of works to close the existing sett.	Good construction practice embedded within how the Scheme will be constructed.
Construction	Permanent Access Road AC Underground Cable	ECO27	Two-way badger gates will be installed within demarcation fencing along the proposed AC cable route and permanent access route where well used badger paths are severed in order to prevent fragmentation of the badger clan's home range.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO28	Trenches or excavations near badger setts will not be left open overnight and will either be boarded or fenced off at the end of each day or egress ramps will be provided.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO29	Excavated soil will be stored in an area agreed with the EcCOW and will not obstruct existing badger paths or interfere with any active setts.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO30	Pre-construction surveys will be undertaken to determine the presence of any setts that may have been constructed and any changes in extent or level of use during the interim period since surveys were completed. If site conditions change and avoidance is not possible the NE licence will be updated to include these changes with appropriate mitigation applied.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO31	**Breeding Birds** Any tree and scrub vegetation removal, or tall ruderal vegetation removal or any works affecting marginal vegetation of watercourses will be undertaken outside the bird nesting season (March to August inclusive).	Legal compliance.
Construction	All	ECO32	Where this is not possible, all areas to be affected will be checked for evidence of nesting birds a maximum of 24 hrs prior to works taking place. If any active bird nests are discovered these will be given a minimum standoff of 5 m (depending on species/proposed works and location) where no potentially disturbing works will take place until the young have fledged/nest vacated. A second nesting bird check will then be undertaken to ensure the tree/vegetation does not contain any further active nests prior to felling/removal works taking place.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO33	Retained trees and scrub adjacent to working areas will be protected from encroaching traffic using fencing (BS5837:2012).	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO34	Any works affecting previously undisturbed areas of open fields (including any storage of materials, clearance of vegetation, or groundworks) carried out during the breeding bird season (March to August inclusive) will require a nesting bird check immediately prior to works. If active bird nests are located, the nest will be marked and all potentially disturbing works within at least 20 m of the nest location will be stopped until the nest has been vacated. Prior to works in the area commencing a further nesting bird survey will be required to establish that no active bird nests were present within the area.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO35	An ecologist will check any sections of bare ground of more than 0.5 ha for active bird nests if these areas have been left undisturbed (more than 50 m from an active working area) for more than 1 week during the breeding season. If nesting birds are found, measures appropriate to the species, location and proposed works will be implemented as advised by the ecologist to ensure nests are not destroyed or disturbed while active.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO36	These measures will be effective upon commencement of construction.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO37	**Brown Hare** RAMS will be produced and implemented during site clearance works to ensure no killing or injury to brown hare individuals.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO38	A walkover of the construction areas by a suitably qualified ecologist, prior to initial site clearance, will enable leverets (young/ adolescent hares) to be located and flushed out of the area. Any adult hares within the site will also disperse due to the presence of human activity.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO39	The fencing of site compounds will also prevent hares from becoming trapped or entangled in construction materials.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	ECO40	Excavations will be boarded over at night or ramps/mammal ladders used to allow egress from excavations should individuals become trapped.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.4 Register of Mitigation (Ecology)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ECO41	As soon as practicably possible, the majority of habitats disturbed during construction will be reinstated in-situ to their former condition: · Grassland replacement would generally match the use of land prior to construction. Appropriate seed mixes will be determined in consultation with the landowners to seek to replicate current conditions. · Replacement hedgerow planting will follow the existing landscape pattern. Hedgerow planting would include at least five locally appropriate native species. Livestock fencing would be provided to safeguard planted specimens. · Where open-cut crossings of watercourses/drains are undertaken, they will be backfilled and the natural channel form reinstated. As only a short section of watercourses/ditches will be affected, it is intended that the banks will be allowed to re-colonise naturally, in agreement with stakeholders. If bank and soil stabilisation is required, this will be provided by the use of geotextile or coir matting.	Embedded within the design of the proposed converter station, permanent access road and proposed AC cable route.
Operation	All	ECO42	Management will be provided over a 5 year period to ensure reinstatement planting takes place and habitats establish as intended. This assumes hedgerow planting has reached a height of 1.5 m, understorey shrub planting 4-6 m and native tree planting 7-10 m (depending on maintenance).	Good construction practice embedded within how the Scheme will be constructed.

6 Landscape & Visual Amenity

Table 27.5 Register of Mitigation (Landscape & Visual Amenity)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station	LV01	The detailed design of the proposed converter station will be carried out in accordance with the Design Code (Document Reference VKL-08-39-G500-012 Design Code), which sets the limits and parameters of the converter station as detailed to minimise the visual impact of the structure.	Embedded within the design of the proposed converter station.

Table 27.5 Register of Mitigation (Landscape & Visual Amenity)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station	LV02	The Design Code includes aspects including architectural form, orientation, façade design and materials and colours, such as: · The enclosed buildings will have simple monolithic forms, avoiding unnecessary complexity, to ensure a clean and unbroken silhouette. · The enclosed buildings will be clad in appropriate material and colours designed to respond to those found in the surrounding context to help integrate the buildings into the landscape and views. · The location and orientation of the proposed converter station zone will be designed to respond to the existing geometric landscape pattern of drains and roads. · Lighting will be direction controlled and designed to minimise light spillage and/or glare.	Embedded within the design of the proposed converter station.
Design	Converter Station	LV03	Woodland and woodland edge planting around the perimeter of the proposed converter station site. This landscape zone will be 30 to 40 m in depth and will consist of a mix of predominantly native species.	Embedded within the design of the proposed converter station.
Design	Converter Station	LV04	Landform embankments will be incorporated into the landscape zone to further enhance the screening effect of proposed planting.	Embedded within the design of the proposed converter station.

Table 27.5 Register of Mitigation (Landscape & Visual Amenity)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station	LV05	Proposed planting will be undertaken in advance of the operation of the proposed converter station, where possible, to help ensure mitigation measures begin to take effect as early as possible during the operation of the converter station.	Embedded within the design of the proposed converter station. Full details of landscape reinstatement are to be provided to the start of construction.
Construction	All	LV06	During construction, the detailed CEMP will identify a number of measures and restrictions on the working areas in order to avoid, reduce or offset environmental effects of the construction works, including those related to the landscape and visual resource.	A detailed CEMP will be prepared by the Contractor prior to the start of construction.
Construction	Permanent Access Road AC Underground Cable	LV07	All vegetation disturbed during construction of the proposed AC cable route and the permanent access road will be reinstated where possible to its previous land use. This includes arable land, hedgerows and road verges. Re-seeding will be with a suitable grass or wildflower seed mix.	Good construction practice embedded within how the Scheme will be constructed.

7 Archaeology & Cultural Heritage

Table 27.6 Register of Mitigation (Archaeology & Cultural Heritage)

Mitigation	Project Component	Reference	Description of Mitigation Measure	How Measures will be Secured
Design	Converter Station	ARCH01	Landscaping and screening around the proposed converter station site will screen the proposed converter station to limit impact to the setting of both designated (3 km) and non-designated receptors (1 km) within the respective zone of influence of the site.	Embedded within the design of the proposed converter station.
Design	Permanent Access Road AC Underground Cable	ARCH02	Detailed design of the permanent access road and proposed AC cable route will ensure that no important relationships between designated heritage receptors will be severed.	Embedded within the design of the permanent access road and proposed AC cable route.
Construction	All	ARCH03	All construction activities will be undertaken in accordance with UK heritage policy as defined in the National Planning Policy Framework (NPPF), and current national guidance for the assessment of the significance of heritage receptors as provided by Historic England (HE) - Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.6 Register of Mitigation (Archaeology & Cultural Heritage)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ARCH04	The potential impact to heritage receptors will be reduced through good working practices on site, such as: · Keeping the working width of the proposed AC cable route to a minimum in all areas and ensuring that all construction areas are kept tidy and in good order. · Screening of key views and the placement of spoil bunds to obscure construction activity where possible (although this may be restricted by the volume of spoil available). · Control of routes for traffic travelling to and from the proposed converter station site. These measures will be included within the CEMP.	A detailed CEMP will be prepared by the Contractor prior to the start of construction.
Construction	Converter Station	ARCH05	The detailed mitigation strategy for archaeology and cultural heritage, impacted by the proposed converter station, is outlined in the Mitigation Strategy (ES-4-C.07, Chapter 23, Appendix 23.5).	A detailed Archaeological Mitigation Strategy of Written Scheme of Investigation (WSI) will be agreed prior to the commencement of construction.

Table 27.6 Register of Mitigation (Archaeology & Cultural Heritage)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	ARCH06	A structured approach will be taken to construction mitigation measures for the proposed converter station site, proposed AC cable route and permanent access road. This approach will comprise three levels of mitigation: · Archaeological Watching Brief · Strip, Map and Sample · Detailed Archaeological Excavation. All records produced during this mitigation will be used to produce a series of reports and site archives which will be deposited with the appropriate local repository, in consultation with the archaeological advisor to the LPA. Following the completion of the reports the finding of the archaeological mitigation will be disseminated to the public in an appropriate manner.	A detailed Archaeological Mitigation Strategy of WSI will be agreed prior to the commencement of construction.
Construction	All	ARCH07	The level of mitigation applied to each of the project components (proposed converter station, permanent access road and proposed AC cable route) will be suitable to the receptors that are anticipated to be present and the impact from construction activity that is anticipated.	A detailed Archaeological Mitigation Strategy of WSI will be agreed prior to the commencement of construction.

Table 27.6 Register of Mitigation (Archaeology & Cultural Heritage)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	Converter Station	ARCH08	The presence of Roman activity (20) and associated roddons and field boundaries (367, 369) will require the northern area of the proposed converter station to be subject to open area excavation. At the southwest of the proposed converter station site, where fewer receptors have been identified, in the location of a possible Roman cropmark (21) and potential for further Roman and Post-medieval activity, a programme of strip, map and sample will be undertaken. Due to the presence of the aforementioned Roman receptors within the proposed converter station site and general archaeological potential of the area, any other area that requires a top and or sub soil strip during construction will be subject to an archaeological watching brief.	A detailed Archaeological Mitigation Strategy of WSI will be agreed prior to the commencement of construction.
Construction	AC Underground Cable	ARCH09	The proposed AC cable route passes through an area of enclosures, field boundaries and trackways (370). This area will be subject to open area excavation. The remaining area of the proposed AC cable route will be subject to a watching brief due to the known presence of previously recorded flood defence ditches (392) at the northern end of the proposed AC cable route and potential for previously unrecorded archaeological remains dating to the Roman and Post-medieval periods.	A detailed Archaeological Mitigation Strategy of WSI will be agreed prior to the commencement of construction.

Table 27.6 Register of Mitigation (Archaeology & Cultural Heritage)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	Permanent Access Road	ARCH10	The undesignated receptor of a demolished 19th century unnamed farm (18) will be impacted by the permanent access road. This will be mitigated through strip map and sample in the known location of the farm. The remaining area of the permanent access road will be subject to a watching brief due to the known presence of a previously recorded boundary ditch and pit (4), the two areas of cropmark activity (457, 458), and the potential for previously unrecorded archaeological remains dating to the Roman and Post-medieval periods.	A detailed Archaeological Mitigation Strategy of WSI will be agreed prior to the commencement of construction.

8 Socio-economics & Tourism

Table 27.7 Register of Mitigation (Socio-economics & Tourism)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	SOC01	The CEMP prepared and adopted by the appointed Contractor will detail the measures adopted to minimise impacts on the amenity of local residents. This will include measures to minimise visual impact, noise, dust and construction traffic.	A detailed CEMP will be prepared by the Contractor prior to the start of construction.
Construction	All	SOC02	Access to Public Rights of Way (PRoW) may be disrupted during construction. Where this is the case, NGVL will work to ensure that disruption is minimised, and appropriate signage is used to clearly identify any temporary diversions that may be necessary and/or temporary closures that may be required. An Outline Access Management Strategy summarising this information will be submitted with the planning application.	A detailed Access Management Plan will be prepared by the Contractor prior to the start of construction setting out details of temporary diversions.

9 Traffic & Transport

Table 27.8 Register of Mitigation (Traffic & Transport)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station AC Underground Cable	TRA01	A new permanent access road will be designed and constructed for Heavy Goods Vehicles (HGVs) and Abnormal Indivisible Loads (AILs) to facilitate construction of the proposed converter station and proposed AC cable route to avoid the use of local and minor roads.	Embedded within the design of the proposed converter station and permanent access road.
Design	All	TRA02	Highway improvements will be made to the A52 to facilitate construction of the converter station and reduce impacts to the local road network whilst construction is being undertaken. These include a right turn ghost island and acceleration lanes.	Embedded within the design of the proposed converter station and permanent access road.
Design	All	TRA03	So far as practicable material will be retained on site including the retention of all soils and spoils, therefore minimising the need to move material on and off the site.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.8 Register of Mitigation (Traffic & Transport)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	TRA04	A Construction Traffic Management Plan (CTMP) will be prepared and implemented by the appointed Contractor. This will include all mitigation identified in the ES related to the movement of construction traffic associated with the Project, including but not limited to: · Site locations and the entry/exit arrangements. · Traffic routeing plans – defining the routes to be taken by HGVs to the site. Included within these plans will be the prioritisation of the use of A and B-roads as far as practicably possible, avoidance of Langrick Bridge and avoidance of other sensitive locations. · Construction hours and delivery times. · Strategy for traffic management and measures for informing construction traffic of local access routes, road restrictions, timing restrictions and where access is prohibited. · Measures to protect the public highway (e.g. wheel wash facilities). · Measures for the monitoring of the CTMP to ensure compliance from drivers and appropriate actions in the event of non-compliance.	A detailed CTMP will be prepared by the Contractor prior to the start of construction.

Table 27.8 Register of Mitigation (Traffic & Transport)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	TRA04 (cont.)	· Mechanism for responding to traffic management issues arising during the works (including concerns raised from the public) including a joint consultation approach with relevant highways authorities. · Details of traffic management requirements. · Strategy for traffic management and measures for informing construction traffic of local access routes, road restrictions (statutory limits: width, height, axle loading and gross weight), timing restrictions (if applicable) and where access is prohibited.	

Table 27.8 Register of Mitigation (Traffic & Transport)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	TRA05	Other control measures implemented to limit the impact of HGV construction traffic on the local road network during construction include: · All construction traffic to adhere to the Traffic Route Plans included in the CTMP. · All vehicles will be able to access and egress the site in a forward gear, with sufficient room off the public highway to allow them to wait without blocking the main carriageway; · Welfare facilities will be provided so as to minimise the need for off-site trips by staff during the working day. · At all site accesses, suitable supervision will be provided as required to ensure that traffic is controlled at access points during construction (for example banksman checking road traffic and controlling construction vehicle movements) and mud deposits on the roads are minimised. Specifically, at the access to the public highway at the A52 banksmen will be utilised to manage the movement of HGVs on and off the public highway. Appropriate warning signage will also be provided at approaches and access junction. · Where required, traffic signals (in accordance with New Roads and Street Works Act (NRSWA), or stop-go boards will be used to control road traffic. Road signs will conform to Chapter 8 (Traffic Signs Manual) and NRSWA.	A detailed CTMP will be prepared by the Contractor prior to the start of construction.

Table 27.8 Register of Mitigation (Traffic & Transport)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	Converter Station	TRA06	A Travel Plan will be introduced in order to encourage sustainable travel to the proposed converter station site. The Travel Plan would include measures such as; encouragement of car sharing and public transport usage, better marketing of information and implementation of a Travel Plan Co-ordinator. Where appropriate, a shuttle bus to transport workers to key interchange locations could be introduced.	Good construction practice embedded within how the Scheme will be constructed.

10 Noise & Vibration

Table 27.9 Register of Mitigation (Noise & Vibration)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Design	Converter Station	NOI01	The equipment specification for detailed design incentivises the minimisation of any noise of tonal or impulsive character (as described under BS 4142:2014) emitted from the converter station; these being acoustic characteristics which may increase the intrusiveness of any sound emitted. This design specification is set to ensure the Local Planning Authority (LPA) criterion is not exceeded.	Embedded within the design of the proposed converter station.
Construction	All	NOI02	Construction will be undertaken in accordance with a CEMP which will include mitigation measures with respect to reducing the impact of construction related noise and vibration.	A detailed CTMP will be prepared by the Contractor prior to the start of construction.

Table 27.9 Register of Mitigation (Noise & Vibration)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	NOI03	The utilisation of Best Practicable Means (BPM) as far as reasonably practicable. BPM will include, but not be limited to: · The use of quieter alternative methods, plant and/or equipment; · The use of site hoardings, enclosures, acoustic barriers, portable screens and/or screening nosier items of plant; · Maintaining and operating all vehicles, plant and equipment in an appropriate manner, to ensure that extraneous sound from mechanical vibration, creaking and squeaking is kept to a minimum; · Siting all ancillary plant such as generators, compressors and pumps so as to cause minimum noise disturbance; · Machines in intermittent use will be shut down during periods of inactivity or throttled down to a minimum; and · using designated routes for construction related traffic.	Good construction practice embedded within how the Scheme will be constructed.

Table 27.9 Register of Mitigation (Noise & Vibration)				
Mitigation	**Project Component**	**Reference**	**Description of Mitigation Measure**	**How Measures will be Secured**
Construction	All	NOI04	To minimise adverse vibration as far as is reasonably practicable, the following mitigation measures will be considered. · Low vibration working methods will be employed. Plant will be carefully selected to minimise the potential for vibration. · Vibration will be controlled at source and the spread of vibration will be limited. · Where processes could potentially give rise to significant levels of vibration, on-site vibration levels will be monitored regularly by a suitably qualified person appointed specifically for the purpose. · Plant and/or methods of working likely to cause significant levels of vibration at sensitive receptors will be replaced by other less intrusive plant and/or methods of working.	Good construction practice embedded within how the Scheme will be constructed.
Construction	All	NOI05	A written scheme for noise management measures will be agreed with the LPAs prior to the start of construction and incorporated into the CEMP.	A detailed CEMP will be prepared by the Contractor prior to the start of construction.

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