voltalia

# Volume: 4 Non Technical Summary

Department: ERM
Project: Bowshiel Solar Farm and BESS
Document Code: 0733784

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# INDEX

# PREFACE

An Environmental Impact Assessment (EIA) Report (EIAR) has been prepared by Environmental Resources Management Ltd ('ERM') on behalf of Voltalia UK Ltd (the Applicant) to accompany the Section 36 application for consent to construct and operate Bowshiel Solar Farm and BESS (the Proposed Development). The Proposed Development comprises a ground-mounted solar photovoltaic (PV) development with a generating capacity of up to approximately 165 Megawatts (MW), Battery Energy Storage System (BESS) with a generating capacity of up to approximately 80 MW. In addition, the Proposed Development also includes the necessary infrastructure, access roads, and landscaping to support the operation of the systems.

The EIAR has been prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA regulations). The content of the EIAR aligns with Schedule 4 of the EIA Regulations. The EIAR comprises four volumes as follows:

- Volume 1: Main Report;
- Volume 2: Figures;
- Volume 3: Technical Appendices; and,
- Volume 4: Non-Technical Summary.

Part 5 of the EIA regulations requires that the EIAR be available for public viewing:

> *"…state that the EIA report is available for inspection free of charge and the times and places at which, and the means by which, the EIA report is available for inspection"*

In line with this, the public can view the application at the following public libraries:

- Cockburnspath Village Hall, Callendar Place, Cockburnspath, TD13 5XY (Note: There are no fixed opening times at this venue. To arrange to view the application, please contact: enquiry@copathhall.org)
- Dunbar Public Library, Bleachingfield Centre, Countess Road, Dunbar, EH42 1DX (Opening times: Monday, Tuesday, Thursday and Friday 09:00 to 13:00 and 14:00 to 17:00, Wednesday 10:00 to 17:00, and Saturday 10:00 to 13:00). Please note that the library is closed from 13:00 – 14:00.

The EIA Report and supporting documentation, together with a notice of application, can be viewed on the Bowshiel Solar Farm and BESS project website at: https://bowshielsolarfarm.co.uk/

The application will also be available for public viewing on the Energy Consents Unit website (ECU Reference: ECU00005085) at: https://www.energyconsents.scot/. Members of the public seeking to make representations can email them to: Representations_Mailbox@gov.scot

Hard copies of the application submission may be obtained at a reasonable charge reflecting the cost of making the relevant information available.

To request a copy of the application submission please contact: bowshielsolarfarm@erm.com

# 1 INTRODUCTION

## 1.1 Purpose of Document

1.1.1.1 An Environmental Impact Assessment (EIA) Report (EIAR) has been prepared by Environmental Resources Management Ltd ('ERM') on behalf of Voltalia UK Ltd (hereafter referred to as 'the Applicant'). The Applicant is proposing to submit an application to the Scottish Government Energy Consents Unit (ECU) under Section 36 of the Electricity Act 1989 and deemed planning permission to construct and operate a ground-mounted solar photovoltaic (PV) development with a generating capacity of up to approximately 165 Megawatts (MW), Battery Electric Storage System (BESS) with a generating capacity of up to 80 MW, associated infrastructure, access, and landscaping (hereafter referred to as 'the Proposed Development').

1.1.1.2 The Proposed Development is located in the Scottish Borders on land approximately 2.4 kilometres (km) south of the village of Cockburnspath, at the closest point to the Proposed Development boundary ('the Site').

1.1.1.3 An EIA has been undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations').

1.1.1.4 As required by the EIA Regulations, the EIAR presents the EIA process undertaken for the Proposed Development and presents information on the likely significant environmental effects which may occur as a result of the Proposed Development. The EIAR also informs the reader of the nature of the Proposed Development, assesses any alternatives considered, and details the measures proposed to protect the environment during site preparation, construction, operation, and decommissioning.

1.1.1.5 This Non-Technical Summary (NTS) provides a summary of the EIAR.

## 1.2 The Applicant

1.2.1.1 Founded in 2005, Voltalia is an experienced global renewable energy developer and Independent Power Producer (IPP) developing, constructing, and operating solar, wind, hydro, biomass, and storage projects. Voltalia has assets with 3.3GW of installed capacity, with a 16.6GW pipeline of projects globally and has a long-term commitment to, and experienced of, development in the UK.

1.2.1.2 Voltalia UK Ltd is focused on providing renewable energy schemes to help decarbonise the UK's electricity network and combat the climate crisis by supplying an affordable and renewable source of clean electricity.

1.2.1.3 The Proposed Development is one in a series of renewable energy projects which Voltalia are proposing to construct and operate in Scotland. If consented, international experience and expertise will allow Voltalia to develop their ~600MW of onshore renewables in Scotland to help achieve the current net zero targets and fight the climate crisis.

## 1.3 The Site

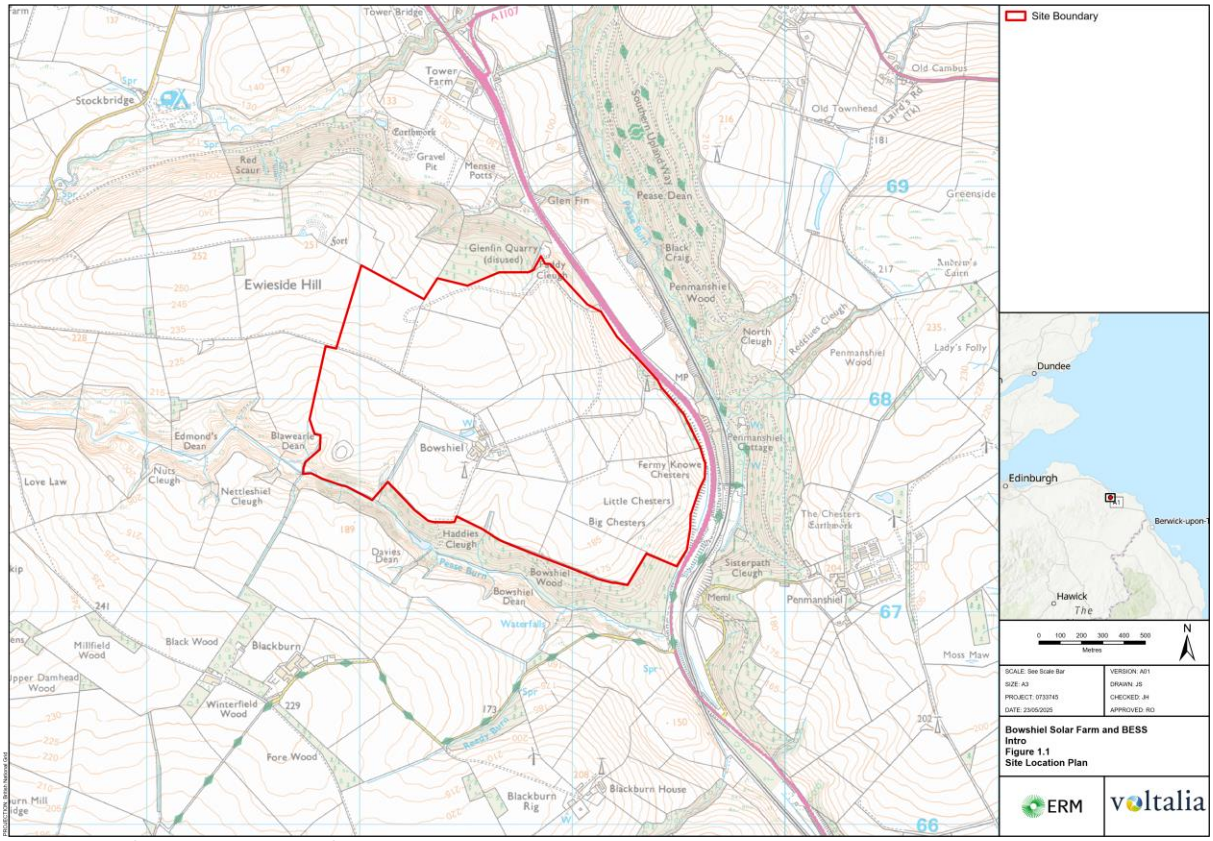
1.3.1.1 The Site is centred on National Grid Reference (NGR) NT 78702 67899 in the administrative area of Scottish Borders Council, with the red-line boundary covering an area of approximately 190 hectares (ha) (see **Figure 1.1: Site Location Plan**).

1.3.1.2 The Site lies within a wider rural landscape, and occupies 14 agricultural fields, primarily utilised for livestock and crop farming in rotation.

1.3.1.3 The Site slopes northwest from about 125 metres to 230 metres above sea level. Bowshiel Farm, along with several farm buildings and cottages, is located in the centre of the site. The fields are separated by a mix of hedgerows and post-and-wire fencing.

1.3.1.4 The surrounding settlements include Cockburnspath (2.4 km north), Grantshouse (2.2 km southeast), Oldhamstocks (4 km northwest), Innerwick (7.5 km northwest), and Dunbar (13 km northwest). The nearby major road is the A1 Trunk Road, which borders the east of the Site.

FIGURE 1.1 SITE LOCATION PLAN



# 2 SITE DESIGN AND EVOLUTION

## 2.1 Site Selection

2.1.1.1 The process of choosing a site for a commercial solar farm is complex and must consider environmental, technical, social, and commercial factors, as outlined by national planning guidelines. National Planning Framework (NPF4) policies guide key considerations, especially regarding renewable energy development and the protection of prime agricultural land.

2.1.1.2 In 2021, the applicant identified the area around the proposed site as part of a broader search across the UK. This location was selected due to its favourable topography, good sunlight levels, easy access via the A1, and strong potential to connect to the National Grid. A feasibility study, completed after talks with the landowner, confirmed the site's suitability based on its south-facing position, accessibility, and contained layout.

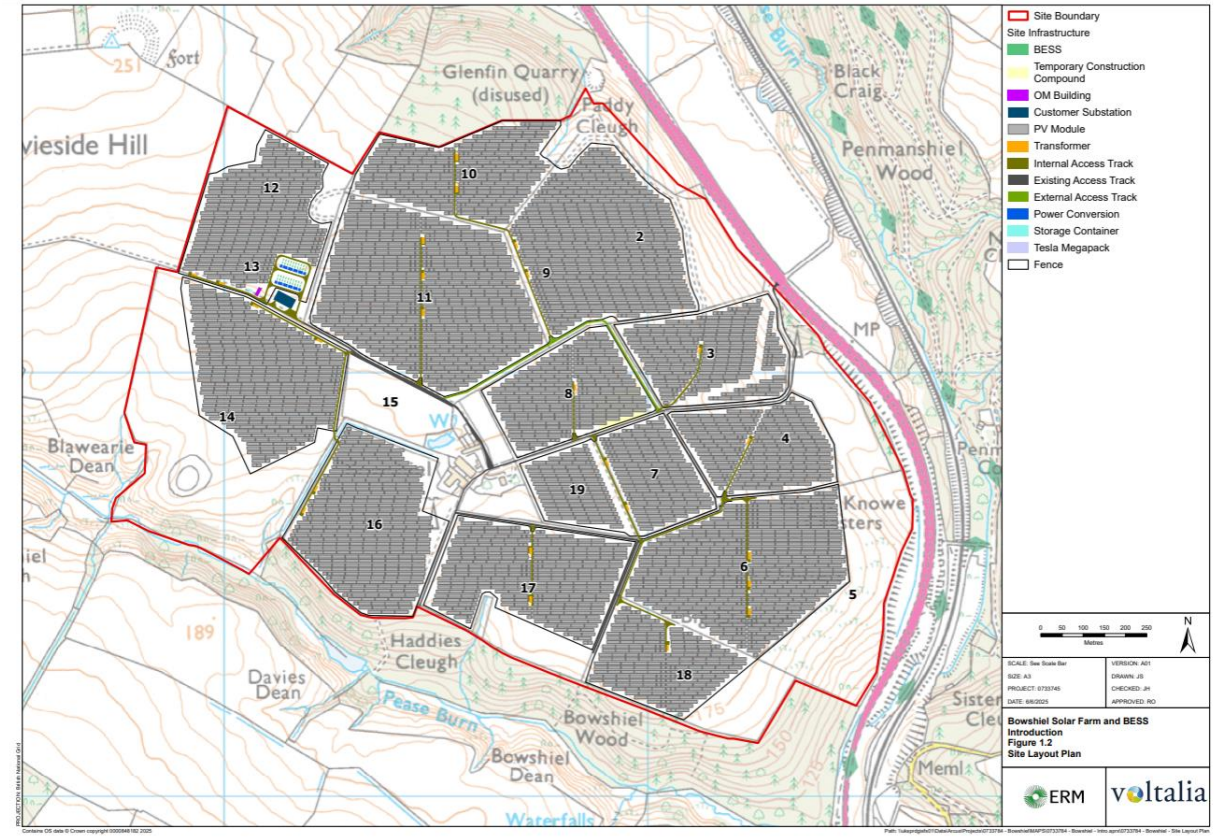
## 2.2 Design Evolution

2.2.1.1 The Proposed Development design underwent two main design changes to reduce negative impacts and reflect feedback from experts and the public.

2.2.1.2 In August 2024, an initial layout was created to maximise energy output while avoiding known environmental and historical features. After receiving formal feedback and carrying out more detailed studies, a revised design in March 2025 adjusted the layout to reduce visual impact on nearby heritage sites and improved access and panel placement.

2.2.1.3 Following a second round of public consultation, a final design in May 2025 (see **Figure 2.1: Site Layout Plan**) further reduced the number of battery storage units and refined the layout to better protect watercourses and noise sensitive areas. This iterative design process demonstrates ongoing efforts to balance progress towards achieving renewable energy and climate targets with environmental, social, and technical considerations.

FIGURE 2.1 SITE LAYOUT PLAN



# 3 DEVELOPMENT DESCRIPTION

## 3.1 Development Components

3.1.1.1 The Proposed Development will generate up to approximately 165 MW of electricity from solar panels and store up to approximately 80 MW using battery units. It includes the construction and operation of solar panels, battery storage, and related infrastructure to support renewable energy production.

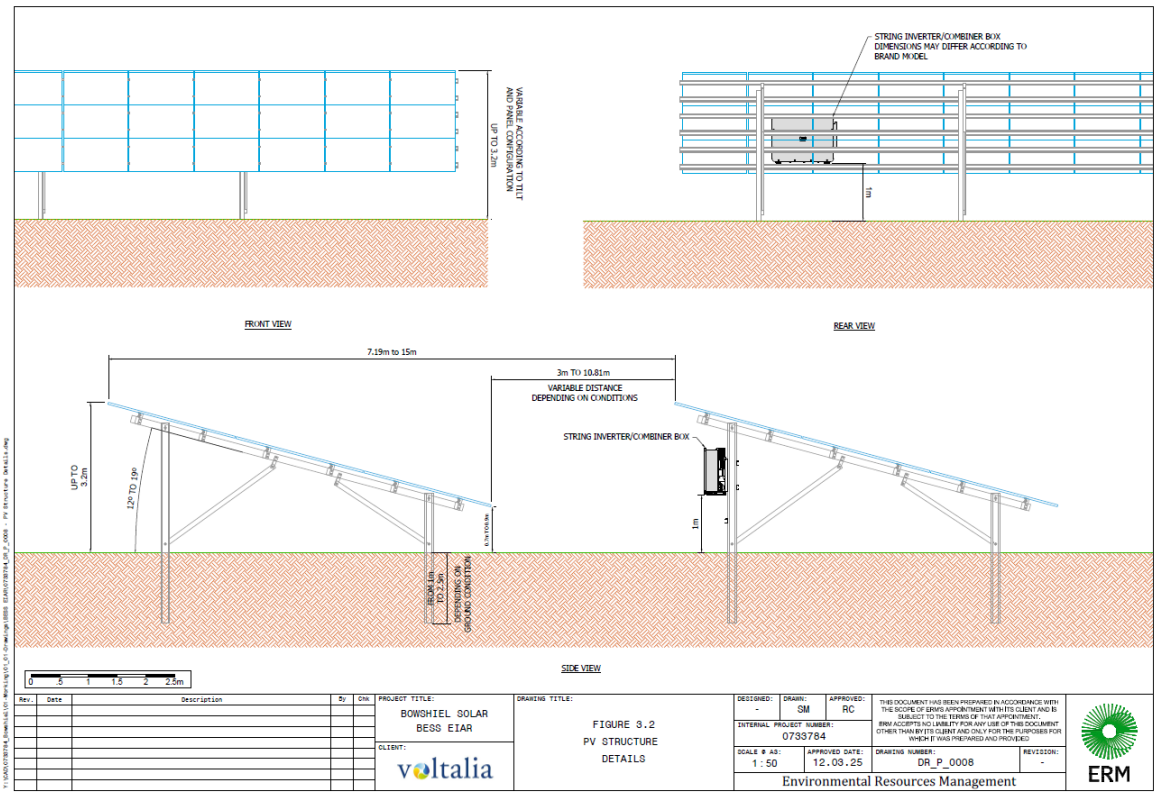
3.1.1.2 The layout of the Proposed Development is shown in **Figure 2.1** of this document and **Figure 3.1** of **Volume 2** of the EIAR.

3.1.1.3 Details of the components within the Proposed Development are provided in **Table 3.1**

TABLE 3.1 DESCRIPTION OF THE PROPOSED DEVELOPMENT COMPONENTS

| ELEMENT | DETAILS |
|---|---|
| Solar PV Array | The Proposed Development will primarily consist of solar panels. The exact number to be installed will depend on the technology available at procurement. Enough panels will be installed to generate up to 165 MW<br><br>Each panel consists of individual photovoltaic (PV) cells mounted on aluminium frames, tilted up to 25 degrees from horizontal. Panels will stand between 0.8 m (lowest edge) to 3.2 m (highest edge) above ground. They will be supported on steel piles driven into the ground. However, where ground conditions or archaeology require, panels may be mounted on surface level concrete footings to reduce underground disturbance. (See **Figure 3.1**, below, for an illustration of the solar PV array infrastructure) |
| Central Inverters | 24 central inverters will be installed across the site to transfer electricity from the solar panels to the substation. Each inverter unit will be up to 2.93 metres high, 12.55 metres long, and 3 metres wide. |
| Battery Energy Storage System | 40 Battery Energy Storage System (BESS) units, each measuring up to 2.4 metres wide, 6 metres long, and 3 metres high, will be placed at approximate NGR 781 682. These units will be installed on six concrete foundations each, which may extend up to 0.2 metres above ground and up to 3 metres below ground. |
| Customer Substation Electrical Infrastructure | An electrical substation will be built at approximately NGR 781 682, within the BESS compound. It will include a 132 kV facility and a 33 kV Electrical Substation. |
| Access Tracks | Access tracks for the construction and operation of the Proposed Development will be 5 m wide, with an additional 1 to 1.5 m of space on either side of the track |

FIGURE 3.1 SOLAR PV ARRAY INFRASTRUCTURE




### 3.1.2 Grid connection

3.1.2.1 The Proposed Development will connect to the Branxton Substation, located about 6.4 km north of the site.

3.1.2.2 The Transmission Network Operator (TSO) will be responsible for designing, assessing and obtaining permission for this connection. The connection is expected to use a combination of overhead lines and underground cables, primarily following public roads.

3.1.2.3 The grid connection does not form part of the application for the Proposed Development, and its environmental effects will be considered as part of any future application for consent to be made by the Transmission Network Operator (TSO)

## 3.2 Construction Phase

3.2.1.1 The construction period for the Proposed Development will last approximately 18 months. The start date will depend on when consent is granted and grid availability. Construction activities will occur between 07:00 and 19:00 on weekdays, and 07:00 to 13:00 on Saturdays, except for emergency working.

3.2.1.2 The construction will be managed by an Infrastructure Contractor appointed by the Applicant, who will oversee environmental management on-site.

3.2.1.3 An outline Construction Environmental Management Plan (oCEMP) has been developed and is presented as **Technical Appendix 3.1**. A detailed CEMP will be finalised prior to the beginning of construction. The CEMP will detail all measures required during construction to avoid and minimise environmental harm. These measures cover aspects such as training, working hours, water and waste management, and noise control.

## 3.3 Operational Phase

3.3.1.1 The Proposed Development is expected to operate for up to 40 years, starting from when the generating infrastructure is fully energised. During this period, qualified contractors will manage the maintenance of the site. This will primarily involve activities such as vegetation control, upkeep of the equipment and infrastructure, replacement of any faulty components, and ongoing monitoring to ensure the system operates efficiently.

## 3.4 Decommissioning Phase

3.4.1.1 At the end of its 40-year operational life, it will be safely decommissioned. All infrastructure, including panels, frames, cables, and inverters, will be removed and either recycled or safely disposed of, following best practices at the time.

3.4.1.2 Decommissioning impacts are expected to be similar to or less than those during construction, as most activities simply reverse the installation process. Materials, such as glass, aluminium, and copper, will be recovered, with over 85% of the panel mass likely to be recycled. Future improvements in recycling technology may further increase recovery rates.

3.4.1.3 Detailed plans for decommissioning will be developed closer to the end of the Proposed Development's life, taking into account the latest regulations and technology. The Proposed Development will be decommissioned in accordance with a decommissioning, restoration and aftercare plan to be agreed with the local authority.

# 4 EIA METHODOLOGY

## 4.1 Introduction

4.1.1.1 An EIA is a formal process used to evaluate how a proposed development might affect the environment. It ensures that decisions about the project are made with full knowledge of its potential environmental impacts. This summary outlines how the EIA was carried out for the Proposed Development, including who was consulted, how the environment was studied, and how potential effects were assessed.

## 4.2 Assessment Methodology

4.2.1.1 The EIA followed a structured and step-by-step approach. It began with selecting the site and determining whether an EIA was needed. This was followed by consultations, environmental studies, and identifying possible impacts. The design of the project was adjusted throughout to reduce negative effects, as discussed in **Section 2: Site Design and Evolution**. The process also included considering future conditions, assessing the significance of impacts, and preparing a formal report, the EIAR. The assessment process for most topics involved using information on baseline conditions (from desk-based studies and field surveys) to evaluate the sensitivity of receptors. The magnitude of the impacts of the Proposed Development on the identified receptors was then analysed to determine the level of environmental effect and its significance in the context of the EIA regulations.

4.2.1.2 Where adverse environmental effects were identified, additional mitigation measures were applied, where possible, to avoid or reduce adverse effects. The level of residual effect, following the application of additional mitigation, was then stated.

4.2.1.3 Cumulative effects of the Proposed Development interacting with other developments, as well as in-combination effects of the Proposed Development on single receptors, were also assessed. The assessment was carried out in line with the EIA Regulations and other applicable legislation, policy and good practice guidance.

## 4.3 Consultation

4.3.1.1 Consultation was a key part of the EIA. It involved discussions with local authorities, government bodies, environmental agencies, and the public. Early feedback helped shape the scope of the assessment. Technical consultations were held with organisations such as Historic Environment Scotland and SEPA to refine the methods and focus areas. Public consultation events and meetings with local stakeholders ensured local views were considered in the design and assessment of the Proposed Development.

## 4.4 Technical Assessment

4.4.1.1 Specialist studies were carried out on topics such as noise, ecology, water, landscape, and traffic. Each study followed a clear method to understand current conditions and predict how the Proposed Development might change them. The assessments considered short-term effects during construction and long-term effects during operation. They also looked at how different environmental factors might combine to create larger impacts. Where

possible, the project design was adjusted to avoid or reduce negative effects and good practice measures adopted (called “embedded mitigation”).

## 4.5 The EIAR

4.5.1.1 The EIAR brings together all the findings of the EIA. It includes detailed chapters on each environmental topic, explains how the assessment was done, and outlines the legal and policy background. The EIAR was prepared in line with the EIA Regulations and other applicable legislation, policy and good practice guidance.

## 4.6 Assumptions and Limitations of EIA

4.6.1.1 Some assumptions had to be made, such as expecting nearby land use to stay the same unless development had already been approved. The EIA also relied on the best available data at the time, which may change. Limitations include the fact that environmental conditions can shift over time, and that the assessment of cumulative effects depends on the availability of information about other developments.

# 5 POLICY AND LEGISLATIVE CONTEXT

5.1.1.1 Applications for consent for the construction and operation of an electricity generating station with a capacity exceeding 50 MW must be submitted to the Scottish Ministers under Section 36 of the Electricity Act 1989 for determination. If Scottish Ministers grant consent under Section 36 of the Electricity Act 1989, deemed planning permission may also be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

5.1.1.2 The Proposed Development is located within the Scottish Borders Council's administrative area. Scottish Ministers will take the Council's response into account when determining Section 36 applications.

5.1.1.3 **Volume 1: Chapter 5: Policy and Legislative Context** sets out the climate change legislation and policies relevant to the Proposed Development. Specifically, this includes those related to renewable energy generation targets, greenhouse gas emissions reductions, and addressing the global climate and nature crisis. These will be material considerations in the decision-making process.

5.1.1.4 National Planning Framework 4 (NPF4) sets out national planning policies. Scottish Borders Local Development Plan 2 contains local planning policies. Whilst the Council is not the decision-making body, it is an important consultee and its opinion on an application, based on these policies, will be taken into account by Scottish Ministers when deciding whether to grant or refuse consent for the Proposed Development.

5.1.1.5 **Volume 1: Chapter 5** does not include an assessment of the Proposed Development against relevant policy, as this is included under the Planning Statement and is separate from this EIAR.

# 6 LANDSCAPE AND VISUAL

6.1.1.1 **Volume 1: Chapter 6: Landscape and Visual Impact Assessment (LVIA)** describes the existing landscape and views and considers the significance of the landscape and visual effects arising from the Proposed Development.

6.1.1.2 The design of the Proposed Development has taken account of development management advice provided in Scottish Borders Council policy and planning guidance. Development on the steeper east and south slopes will be avoided to reduce visibility and avoid the Proposed Development appearing incongruous in landscape character terms, which will also reduce visibility from the A1 and longer distance recreational routes to the east. The Proposed Development has been located away from prominent landmarks or important viewpoints, as well as small-scale fields that are important to landscape character. Reinforcement and management of existing hedgerows, along with new hedgerows, will over time increase the degree of screening and break up the massing of the Proposed Development. Improvements to existing hedgerows will provide a long-term enhancement to the landscape fabric of the Application Site. Native species are proposed for the hedgerows as set out in the outline Landscape and Biodiversity Management Plan.

6.1.1.3 The Proposed Development will be located within a transitional area between the Landscape Character Type (LCT – distinct types of landscape that share similar combinations of features) 117 Pastoral Upland Fringe Valley to the east and LCT 100 Plateau Farmland – Borders to the west. Although most of the Application Site is within the valley LCT, the upper slopes of Ewieside Hill have more in common with the larger scale open farmland of the LCT to the west. Changes to character will arise within the site and in elevated areas to the east, south and west where there are views across valleys over the Application Site, which will give rise to a sense of proximity to the Proposed Development. Limited visibility in the valleys will mean that effects in the central valley floor part of LCT 117 will be Negligible. Overall, the effects on these host landscape character types are Moderate to Moderate/minor and are considered to be **Not Significant** in the context of the EIA regulations.

6.1.1.4 The most affected visual receptors will be users of the right of way which passes through the Site and users of the Southern Upland Way and local road to the south of the Site. There will be close views of the solar panels from the path through the Site, some solar areas will become screened by existing and proposed hedgerows as they mature but open views into some panel areas will remain throughout the life of the Proposed Development – in both cases enclosing some of the presently open views. Northbound walkers will also see the solar farm ahead of them as they walk towards the Proposed Development from the local road to the south. Overall, the effects on users of the right of way which passes through the Site are Major/moderate and are considered to be **Significant** in the context of the EIA regulations.

6.1.1.5 From most of the Southern Upland Way (and users of the other routes within the forestry at Penmanshiel Wood), views towards the Proposed Development will be screened by trees (or terrain from the valley) except when felling opens up views. The most open views will be from the local road to the south of the Site, where the Proposed Development will be seen looking across the valley at distances of 0.5 - 1.2 km. Overall, the effects on users of the Southern Upland Way and local road to the south of the Site are Major/moderate and are considered to be **Significant** in the context of the EIA regulations.

6.1.1.6 Users of the Laird's Hill Core Path between Grantshouse and the A1107 will experience changes to views where the route passes the Application Site at Greenside Hill and the Proposed Development will be seen looking west across the valley. Overall, the effects on these visual receptors are Moderate and are considered to be **Not Significant** in the context of the EIA regulations.

6.1.1.7 Users of the local road and paths south of Ecclaw will experience non-significant effects where the routes pass over Ecclaw Hill, arising from views of the solar farm across the valley. Overall, the effects on these visual receptors are Moderate/minor and are considered to be **Not Significant** in the context of the EIA regulations.

6.1.1.8 **Figure 6.1**, below, provides an illustrative photomontage for a view of the Proposed Development, at year 1 following construction, from Greenside Hill looking west.

6.1.1.9 No designated landscapes have been identified as requiring detailed consideration within this assessment. No significant cumulative effects with other developments have been identified.

FIGURE 6.1 PHOTOMONTAGE (YEAR 1) PROPOSED DEVELOPMENT FROM GREENSIDE HILL LOOKING WEST

# 7 ARCHAEOLOGY AND CULTURAL HERITAGE

7.1.1.1 **Volume 1: Chapter 7: Archaeology and Cultural Heritage** describes the existing historic baseline of the Proposed Development and its surroundings. The assessment describes Direct/Indirect and Setting Impacts predicted to result from the Proposed Development as well as embedded mitigation intended to reduce any such impacts and their effects. Direct impacts occur where an asset is removed or damaged as a direct result of a development activity, whilst indirect impacts are subsequent effects of an activity on an asset and setting impacts are generally visual and affect the cultural significance of an asset. The assessment considers the significance of the effects on archaeology and cultural heritage arising from the Proposed Development.

7.1.1.2 The design of the Proposed Development has taken account of the known heritage resource as well as the potential for additional, currently unknown heritage assets within the Site. Where possible, Direct/Indirect Physical Impacts have been avoided through changes to site layout and/or foundation design. Where impacts or the potential for impacts are predicted, embedded mitigation is intended to reduce the magnitude of impact and effect to levels that are not considered to be significant in terms of EIA regulations. In relation to Setting Impacts, the Proposed Development has taken into account how individual assets derive cultural significance, and where setting contributes to cultural significance, and how to avoid or limit impacts to key views to and from assets. In relation to designated assets the opinions of Historic Environment Scotland and Scottish Borders Council have been sought.

7.1.1.3 The assessment identified 16 non-designated assets within the site boundary, consisting of 14 assets identified within the Scottish Borders Historic Environment Record (HER) data and two further assets identified through geophysical survey. These assets date from the Later Prehistoric period through to the Modern period. The assessment identified a high potential for further unknown Late Prehistoric assets and Post-Medieval assets to be present within the site boundary. The potential for all other periods is considered low or negligible. The assessment has identified locally important but substantive archaeological remains containing a Late Prehistoric enclosed settlement, forts and a cairn. The site of a crashed WWII aeroplane is also recorded. Any groundworks within 100 m of the WWII crash site would require an MOD license to proceed. Embedded mitigation includes provision for:

- The use of non-intrusive foundations, such as concrete or ballast bases;
- The use of suspended cabling / above ground cable trays, as opposed to buried cabling, negating the need for cable trenching;
- Re-routing of any access tracks or other infrastructure to avoid these areas; and
- The installation of the above non-intrusive infrastructure, and (at point of decommission) its removal, in accordance with a sensitive installation and decommissioning strategy.

7.1.1.4 Following the implementation of embedded mitigation, Direct/Indirect Physical Impacts across the Site would be **Not Significant** in terms of EIA regulations.

7.1.1.5 The assessment identified a single designated asset (Scheduled Monument SM369 Ewieside Hill, fort) for a detailed assessment of Setting Impacts. With regard to non-designated assets, Scottish Borders Council, in their Scoping Response, identified a series of assets around Penmanshiel/Greenside Hill, c. 1 km east of the Site and east of the Pease

Burn valley and A1 carriageway, as well as Ecclaw Hill to Blackburn Rig, 1 km south-west and south of the Site and south of the Pease Burn that may be sensitive to changes in Setting introduced by the Proposed Development. With regard to the Penmanshiel non-designated assets, these chiefly comprise a cluster of Late Prehistoric cairns (often surviving as above ground remains) and subsurface settlement, the most notable of which is 'Andrew's Cairn'. Following a review of these assets no non-designated assets were identified as warranting assessment.

7.1.1.6 In relation to Scheduled Monument SM369, and following consultation with Historic Environment Scotland, infrastructure has been repositioned, in order to keep the height of panels and the BESS to below the 230 m AOD contour line and limit Setting Impacts in key views towards the fort. The residual effects following this embedded mitigation would be **Not Significant** in the context of EIA regulations. Setting Impacts will persist throughout the lifetime of the Proposed Development but will be fully reversible following decommissioning. Cumulative effects relating to Setting Impacts are not predicted to be significant in the context of EIA regulations, with no change to the predicted magnitude of impact to Scheduled SM369 resulting from the Proposed Development in isolation.

7.1.1.7 **Figure 7.1**, below, provides an illustrative photomontage for a view of the Proposed Development, at year 1 following construction, from Ewieside Hillfort looking southeast.

7.1.1.8 Overall, all Archaeology and Cultural Heritage effects are considered **Not Significant** in the context of EIA regulations. Direct and Indirect Physical Impacts to heritage assets would be avoided through embedded mitigation, or where impacts cannot be avoided, the significance of effect would be reduced through a programme of archaeological fieldwork undertaken by a qualified and approved contractor, with any disturbed heritage assets preserved by record and the results of the archaeological fieldwork made available to the public. Embedded Mitigation relating to Setting Impacts have limited the significance of effect to a level where these are considered **not significant**. Residual Effects relating to the Setting would be reversible upon decommissioning of the Site.

FIGURE 7.1 PHOTOMONTAGE (YEAR 1) PROPOSED DEVELOPMENT FROM EWIESIDE HILLFORT LOOKING SOUTHEAST

# 8 ECOLOGY AND NATURE CONSERVATION

8.1.1.1 **Volume 1: Chapter 8**: **Ecology and Nature Conservation** considers effects on sites, habitats and species recognised as Important Ecological Features (IEFs). Following the completion of ecological surveys and a desk study, badger, breeding birds and quail were considered IEFs and scoped into the assessment of effects.

8.1.1.2 A Habitat Regulations Appraisal (HRA) follows NatureScot guidance to assess whether the Proposed Development could harm protected European nature sites. A HRA was carried out in respect of the following designated sites:

- Firth of Forth Special Protection Area (SPA);
- Firth of Forth Ramsar;
- Greenlaw Moor SPA;
- Greenlaw Moor Ramsar;
- Outer Firth of Forth and St. Andrew's Bay Complex Bay SPA;
- St. Abb's Head to Fast Castle SPA; and,
- St. Abb's Head to Fast Castle Special Area of Conservation (SAC).

8.1.1.3 The HRA determined that likely significant effects upon these designated sites because of the Proposed Development can be ruled out.

8.1.1.4 Habitats within the Site are dominated by farmland habitats such as grazing pasture and arable fields. Hedgerows and trees are present, but these will be avoided by the Proposed Development. The landscape design of the Proposed Development includes a total of 167.32 ha of wildflower meadow, and 4.86 km of new hedgerow. These habitats will replace existing farmland habitats and will benefit badger and breeding birds; as well as other species such as bats. This means that during operation the Proposed Development will provide a permanent, **Significant beneficial** effect at the Site level in respect of Ecology and Ornithology and will provide a net positive for biodiversity in accordance with National Planning Framework (NPF) 4.

8.1.1.5 It has been assessed that effects of the Proposed Development upon IEFs will be negligible and **Not Significant** regarding the EIA Regulations following the provision of embedded mitigation measures including:

- Development within 5 m of hedgerows, 10 m of watercourses, 15 m of ancient woodland and the Root Protection Zones of retained trees will be avoided;
- Development will avoid all areas of woodland;
- Mammal gates will be added to the periphery fence line to maintain badger passage within the Site;
- Lighting proposals will be designed to minimise potential for disruption to nocturnal animals, such as bats and badger, e.g., motion sensitive lighting, direction lighting and use of shields;

- A suitably qualified Ecological Clerk of Works (ECoW) to provide ecological advice and support to Principal Contractor throughout construction;

- Pre-construction surveys to be undertaken for protected and priority species to inform the scope of any supporting Species Protection Plans (SPPs) or Precautionary Methods of Works (PMoW) that will form part of a Construction Environment Management Plan (CEMP); and

- During the construction phase, avoidance and mitigation measures for IEFs will be implemented via a CEMP, which will be developed by the Principal Contractor.

8.1.1.6 A net positive approach for biodiversity has been considered within the design, and enhancements incorporated into the design of the landscaping for the Proposed Development. This is captured within the outline Landscape and Biodiversity Management Plan (oLBMP) **(Technical Appendix 3.2: oLBMP**).

8.1.1.7 Overall, adverse effects on Ecology and nature Conservation receptors are considered **Not Significant** in the context of the EIA Regulations, while biodiversity enhancements embedded within the design are considered to be **Significant beneficial** at the Site level.

# 9 WATER RESOURCES AND FLOOD RISK

9.1.1.1 **Volume 1: Chapter 9: Water Resources and Flood Risk** identifies and evaluates the potential effects of the Proposed Development on water resources and flood risk during the construction and operational phases of the project. The assessment considers effects on watercourses and surface water features, groundwater protected areas (hydrogeology), flood risk, private water supplies, public water assets, protected bathing water areas, and designated sites. The assessment has been based on both desk-top studies and site survey.

9.1.1.2 The main potential effects associated with the Proposed Development relate to the construction phase, which would involve the installation of the solar panels, construction of the substation foundations, and placement of the BESS units. Such activities could result in changes to the quantity of surface water and groundwater; pollution of surface water, groundwater, and bathing waters; changes to flooding within and downstream of the Site; and water quality and quantity changes to private and public water supplies.

9.1.1.3 The design of the Proposed Development has sought to avoid impacts to water resources and flood risk via embedded mitigation. This includes locating infrastructure at set distances from watercourses, locating infrastructure out of flood risk areas, and maintenance of on-Site vegetation. **Chapter 9: Water Resources and Flood Risk** sets out mitigation which will be needed during construction and operation such as further private water supply surveys and adherence to specific environmental protection measures in line with established good practice guidance.

9.1.1.4 When accounting for this embedded mitigation, the assessment for water resources and flood risk concluded there would be **No Significant** effects during the construction and operational phases of the Proposed Development.

9.1.1.5 There are no other developments within the same catchment area as the watercourses on-Site. Therefore, there are no cumulative impacts to water resources and flood risk.

# 10 GEOLOGY AND SOILS

10.1.1.1 **Volume 1: Chapter 10: Geology and Soils** presents an assessment of potential significant impacts to the geology and soils environment associated with the construction, operation and decommissioning of the Proposed Development. This assessment has been based on detailed desk studies and information from the UK Habitat Classification site surveys (detailed in **Volume 1: Chapter 8** and **Technical Appendix 8.1: Habitat Survey Report**) to confirm the absence of peat-forming vegetation across the Proposed Development.

10.1.1.2 This Chapter assesses the potential effects relating to the loss and compaction of soils, soils as a waste material, potential effects relating to solid geology and potential effects relating to the disturbance of contaminated land associated with former land uses. A Phase 1 Contaminated Land Report has been undertaken as part of this assessment, focused on the northwest and central areas of the Proposed Development where potential sources of contamination were identified. Due to the absence of mapped Class 1 and 2 priority peatland across the Proposed Development, and results from the UK Habitat Classification surveys that confirmed no peat-forming vegetation across the Proposed Development, peat has not been identified as a sensitive receptor within this assessment.

10.1.1.3 Mitigation measures relating to the soils and geology environment, during construction and operational phases, are embedded through the design and adoption of good practice measures during construction to ensure that disturbance of geology and soils is avoided or minimised. Detailed embedded mitigation measures and good practice methods and guidelines are set out in **Volume 1: Chapter 3** and **Technical Appendix 3.1: outline Construction Environmental Management Plan (oCEMP)**.

10.1.1.4 Following the implementation of these mitigation measures, contaminated land was identified as the only residual effect with a classification of Minor. The remainder of the other effects relating to geology and soils were considered Negligible. In the context of the EIA regulations, the potential effects on geology and soils are considered **Not Significant**.

# 11 TRAFFIC AND TRANSPORT

11.1.1.1 **Volume 1: Chapter 11: Traffic and Transport** assessed the traffic impacts associated with the construction of the Proposed Development on the surrounding road network. It is anticipated that construction of the Proposed Development will run for approximately 18 months.

11.1.1.2 The main approach considered in the assessment assumes that solar panels, battery energy storage containers and supporting infrastructure, along with the material required for construction, including concrete, components, will be transported by Heavy Goods Vehicles. In addition, it is expected that a small number of components will be transported to the Site as abnormal loads. The Study Area for the Transport Statement is mainly the A1(T) between Cockburnspath in the north to Penmanshiel Wood in the south and a private road (Bowshiel Farm Road) which doubles as a Public Right of Way. **Figure 11.1**, below, provides a plan showing the proposed route to site for construction traffic.

11.1.1.3 Baseline traffic flow information was obtained from data published from the Department for Transport for the A1(T) at Cockburnspath.

11.1.1.4 Access to the Site will be via the existing A1(T) / Bowshiel Farm Road junction, which will have to be upgraded to accommodate the minor intensification of the temporary increase in traffic during the construction phase. The proposed Site Entrance junction has been assessed for visibility against the Design Manual for Roads and Bridges standard, and a swept path analysis has been undertaken, which demonstrates that the Site can be accessed in forward gear.

11.1.1.5 The construction of the Proposed Development would lead to a temporary increase in traffic volumes on the Study Area road network during the construction phase. The maximum traffic impact during the construction period is predicted to occur in Month 12 where approximately 75 two-way vehicle movements consisting of 47 car/van movements and 27 HGV movements on average will be made to the Site. Traffic volumes would decrease considerably outside the peak period of construction. This short-term increase in traffic flow is considered to be **Not Significant** in terms of the existing traffic flow and capacity on routes approaching the Site.

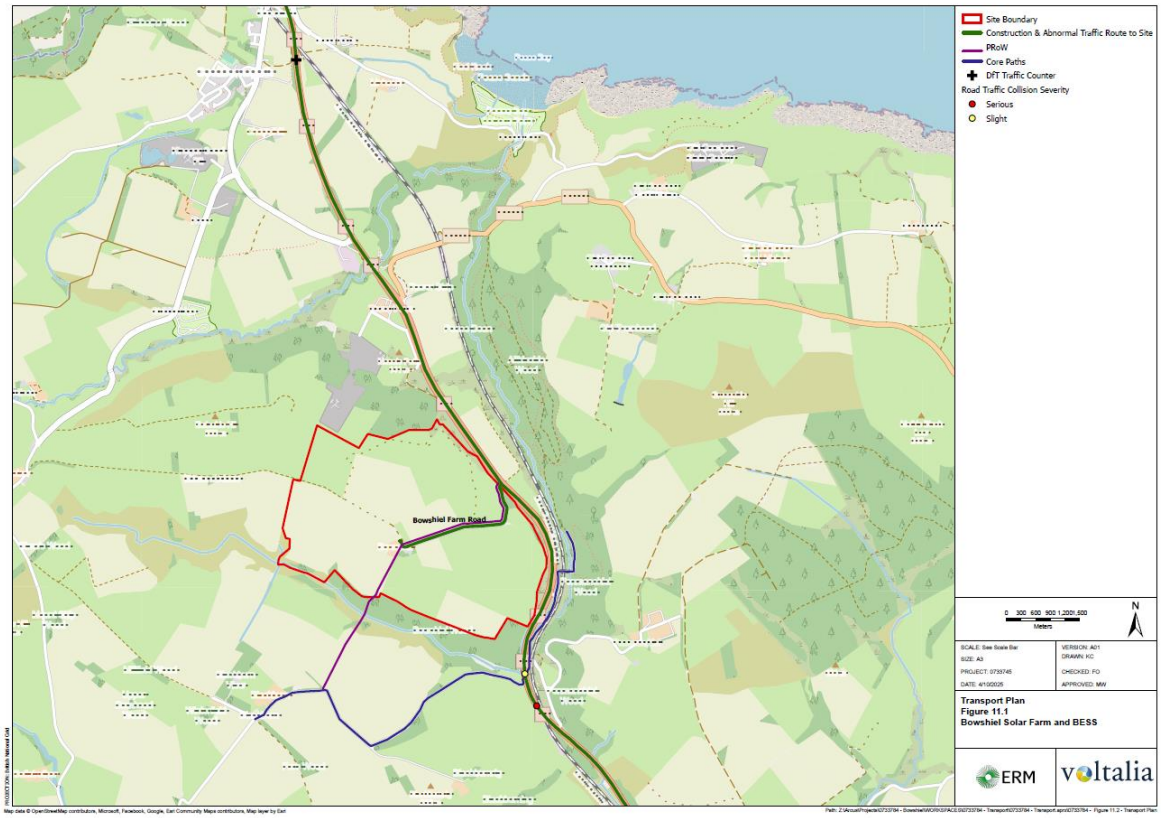
11.1.1.6 Traffic management measures have been proposed to help minimise and offset any potential impact of the temporary increase in traffic flows and to ensure the safe operation of the approach to Site during construction. The mitigation measures will be included as part of a Construction Traffic Management Plan (CTMP) for the Site which will be prepared and submitted to Scottish Borders Council and Transport Scotland for approval prior to the commencement of construction works. Central to this is the implementation of a delivery management system to ensure that the deliveries are spread out across the week and across the day to minimise any potential disruption. Hauliers will be required to contact the relevant Site representative (e.g., banksman) to give an indicative delivery time to ensure that the delivery space and banksmen (if required) are ready for their arrival on Site.

11.1.1.7 Impacts from the operation and maintenance phase of the Proposed Development consisting of between 10 - 15 Light Goods Vehicles per year is considered minimal (significantly less than the construction phase) and therefore a detailed assessment has not been undertaken.

11.1.1.8 Impacts during decommissioning are anticipated to be similar to those during construction, however, prior to decommissioning of the Proposed Development, a traffic assessment would be undertaken with the relevant consultees to agree the mitigation implemented via a Decommissioning Traffic Management Plan, when baseline environment (including traffic levels) for that time can be more accurately defined.

11.1.1.9 Overall, the level of traffic associated with the Proposed Development will not have significant effects on the surrounding road network, given its temporary nature, low volume relative to existing flows, and the implementation of appropriate traffic management measures.

FIGURE 11.1 PROPOSED ROUTE TO SITE FOR CONSTRUCTION VEHICLES



# 12 NOISE AND VIBRATION

12.1.1.1 **Volume 1: Chapter 12: Noise and Vibration** assesses the potential for significant noise and vibration effects arising from the construction, operation and decommissioning of the Proposed Development in accordance with relevant local and national policy, guidance and standards. These are reported in**.**

12.1.1.2 No significant vibration generating equipment is expected to be required during operation. Traffic movements to and from the Site during operation are expected to be minimal. Therefore, detailed assessment of these aspects of the Proposed Development have been scoped out. In addition, noise and vibration effects during decommissioning are expected to be no greater than those generated during the construction phase.

12.1.1.3 The potential for significant construction noise and vibration effects has been assessed in accordance with established standards (BS 5228 – Code of Practice for noise and vibration control on construction and open sites).

12.1.1.4 Noise Sensitive Receptors (NSRs) were identified using Ordnance Survey data and baseline noise monitoring was carried out at four representative monitoring locations that were agreed with the Council's Environmental Health Officer (EHO). Noise modelling was then carried out to determine the noise effects of the Proposed Development upon the NSRs.

12.1.1.5 The results of the modelling show construction noise effects are considered to be Negligible and **Not Significant**, except at NSR 5 (Bowshiel Farm Cottages) and NSR 6 (Bowshiel Farmhouse). At these properties, the results show Minor adverse effects during the foundations and civils phase of construction, which are considered to be **Not Significant**.

12.1.1.6 Construction vibration impacts predicted at NSR 5 and NSR 6 are considered minor and **Not Significant**.

12.1.1.7 Construction traffic noise effects are considered to be negligible and **Not Significant** on all roads.

12.1.1.8 The potential for significant operational noise effects has been assessed in accordance with BS 4142 (Methods for rating and assessing industrial and commercial sound). Noise modelling has been carried out using a 3D software modelling package (SoundPLAN). The results of the modelling show operational noise effects are considered to be Negligible and **Not Significant**, except at NSR 4 (Blackburn Farm Cottages), NSR 5 (Bowshiel Farm Cottages), and NSR 6 (Bowshiel Farmhouse). At these properties, the adverse effects are considered to be Minor and **Not Significant**.

12.1.1.9 The potential for cumulative noise effects has also been considered, for developments within 1 km of the Proposed Development. The potential for significant effects is considered unlikely for cumulative developments beyond this distance. As there are no cumulative developments within this distance, no significant cumulative noise effects are expected.

12.1.1.10 Overall, the effects from Noise and Vibration are considered to be **Not Significant** in context of the EIA regulations.

# 13 SOCIO-ECONOMICS, LAND USE, TOURISM AND RECREATION

13.1.1.1 **Volume 1: Chapter 13: Socio-Economics, Land Use, Tourism and Recreation** provides a socio-economic, land use, tourism and recreation baseline for defined study areas and assesses the likely significant effects arising from the construction, operation and maintenance, and decommissioning phases of the Proposed Development.

13.1.1.2 The construction, operation and decommissioning of the Proposed Development will create employment and will contribute to productivity, measured by Gross Value Added (GVA), both directly and within the supply chain, benefiting the local economy within the Scottish Borders. While operational employment would be minor, the jobs created would be for the duration of the operational phase, i.e. 40 years, and would therefore be a long-term benefit to the local economy. These effects are considered to be Minor beneficial and therefore **Not Significant** in the context of the EIA regulations.

13.1.1.3 There would be a temporary loss of agricultural land within the site boundary for a period of 40 years, however, this would be reversible after decommissioning. The effect on food production and the wider agricultural sector is considered to be Minor and **Not Significant** in the context of the EIA regulations. There may be opportunities for some grazing to continue around the solar array during the lifespan of the Proposed Development.

13.1.1.4 There would also be minor adverse effects on amenity for users of core paths and the Southern Uplands Way. These would not be significant and there would be no significant adverse effect on the tourism sector as a whole, including as a result of additional demand from construction workers for tourist accommodation.

13.1.1.5 There is the potential for socio-cultural effects associated with the temporary changes in demographics, additional demand for services during construction and changes in local identity and sense of place associated with changes in land use, impacts on traditional local industries and environmental effects during construction and operation. However, the assessment has concluded that these effects would be considered **Not Significant**.

13.1.1.6 Overall, the effects on Socio-economics, Land Use, Tourism and Recreation are considered **Not Significant** in the context of the EIA regulations

# 14 GREENHOUSE GAS

14.1.1.1 **Chapter 14: Greenhouse Gas** comprises a GHG assessment for the Proposed Development.

14.1.1.2 The Proposed Development will provide renewable energy which when operational will support the decarbonisation of the UK electricity generation and the UK Government's net zero ambitions by avoiding or displacing the combustion of GHG emissions from other forms of more GHG intensive grid-connected electricity in the UK (such as gas-fired combined-cycle gas turbine (CCGT) power stations).

**14.1.1.3** To understand the impact of the GHG emissions associated with the Proposed Development a GHG assessment was completed. This involved the assessment of the GHG emissions from the construction, operation and decommissioning of the Proposed Development alongside the GHG emissions avoided by the generation of renewable electricity.

14.1.1.4 The GHG assessment highlights that during the life cycle of the Proposed Development i.e. construction, operation and decommissioning, emissions will be generated by the Proposed Development. When compared with the relevant UK Carbon Budgets, these emissions would not impact the UK climate targets and Carbon Budgets. Therefore, it was concluded that the likely impact of the Proposed Development's construction, operation and decommissioning on the climate is consistent with the IEMA definition '**negligible'** and **Not Significant.**

14.1.1.5 The GHG assessment also identified that over the Proposed Development's 40-year lifetime it would avoid around 2,500,000 $tCO_2e$ by displacing or reducing GHG emissions from the equivalent UK grid generation. The GHG assessment concluded that the Proposed Development would provide a net climate benefit, by offsetting around 1,958,000 $tCO_2e$, consistent with the IEMA definition '**beneficial**' and **Significant**.

# 15 OTHER ISSUES

15.1.1.1 The Other Issues Chapter (**Volume 1: Chapter 15**) includes assessments on glint and glare, and major accidents and disasters.

15.1.1.2 Each has been assessed in line with relevant guidance and industry good practice, and findings indicate that none of these topics present significant environmental risks, either in isolation or cumulatively with other developments.

15.1.1.3 A glint and glare assessment (see **Volume 3: Technical Appendix 15.1**) was undertaken by SLR Consulting Ltd to determine potential effects on ground-based and aviation receptors. Ground-based receptors included roads, railway lines, residential dwellings, and commercial premises within a 5 km radius. Although the site lies within 10 km of aviation receptors, no aviation receptors were identified within the study area and therefore no further aviation-related assessment was required. The assessment found that the effects of glint and glare from the PV panels on road and railway users, including users of the A1 (Great North Road), would be **Negligible**. This conclusion is based on factors such as short glare durations, low glare intensity, existing vegetation, and the orientation of the panels relative to receptors. Among fixed receptors, only one location (OP5) experienced short-duration yellow glare during summer evenings, but this was determined to have a negligible impact due to distance and visual screening. The remaining receptors experienced only minimal levels of green glare, which is unlikely to cause adverse health or safety effects. Overall, the study concluded that the Proposed Development will not result in significant glint and glare effects, and therefore no specific mitigation measures are required.

15.1.1.4 No human receptors are located within 15 metres of any EMF-emitting infrastructure associated with the Proposed Development. Furthermore, there are no overhead high-voltage electricity transmission lines present on-site. Based on this, it has been concluded that there is no credible pathway for adverse health effects due to EMF exposure. Consequently, EMF-related impacts were scoped out of the EIAR, and no further assessment or mitigation is deemed necessary.

15.1.1.5 The assessment of Major Accidents and Disasters considered the potential for major industrial accidents, battery fire or explosion risks associated with the Battery Energy Storage System (BESS), accidental detonation of unexploded ordnance (UXO) present on site, and damage to existing utility infrastructure.

15.1.1.6 For major industrial accidents, the assessment found that with the inclusion of mitigation (i.e. embedded measures including emergency response procedures and fire suppression systems) there is no significant risk to ecological or human receptors.

15.1.1.7 With respect to the BESS, potential fire and explosion hazards were considered, including thermal runaway triggered by lightning strikes, electrical faults, or conventional fires. With the inclusion of robust embedded mitigation such as buffer zones, container separation, fire suppression systems, and health and safety procedures including detailed Battery Safety Management Plan (BSMP), no significant effects are anticipated

15.1.1.8 A pre-construction geophysical survey will be carried out to confirm the presence or absence of unexploded ordnance. In the event UXO is detected, established safety protocols would be followed and with these measures in place, the likelihood of impact from UXO detonation is not significant.

15.1.1.9 Potential damage to existing utility assets was also assessed. This includes risks associated with physical damage during construction and operation, which could affect on-site infrastructure or the National Grid. These risks will be mitigated through pre-construction utility surveys, consultation with relevant stakeholders, adherence to construction good practice, and the use of exclusion zones and signage. Consequently, the risk of significant impacts from utility-related hazards is not significant.

15.1.1.10 The assessments undertaken for glint and glare, and major accidents and disasters demonstrate that no significant effects from the Proposed Development's construction, operation and decommissioning are anticipated,

# 16 IN-COMBINATION EFFECTS

16.1.1.1 **Volume 1: Chapter 16: In-combination Effects** assesses the combined effects of the Proposed Development on environmental receptors. While individual effects assessed in earlier chapters may not be significant on their own, this chapter identifies where multiple effects may interact simultaneously or across different phases, potentially resulting in significant combined impacts. This assessment fulfils the requirements of Schedule 4 Regulation 5(e) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

16.1.1.2 The assessment identifies people living near or using the area around the Proposed Development as the main receptors potentially affected by changes related to landscape, noise, traffic, and visual impacts. Other affected receptors, such as wildlife and water resources, are assessed separately in relevant technical chapters.

16.1.1.3 During construction, properties within the site boundary may experience minor noise and visual effects, but these impacts are temporary and reversible, and no significant new combined effects are expected.

16.1.1.4 In operation, some residents close to the site may notice moderate visual changes and minor noise effects; however, these impacts are not expected to combine significantly, especially as planned landscape mitigation matures over time.

16.1.1.5 Road users, including drivers and non-motorised users, are unlikely to experience significant combined impacts from traffic, noise, or visual changes during construction or operation.

16.1.1.6 Overall, this assessment concludes that **No Significant** in-combination effects on human or environmental receptors are expected from the Proposed Development.