Environmental Impact Assessment Report

Lairdmannoch Energy Park

Chapter 10: Cultural Heritage

Lairdmannoch Energy Park Limited

May 2025

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Glossary of Terms

Term	Definition
The Applicant	Lairdmannoch Energy Park Limited
The Agent	Atmos Consulting Limited
Environmental Advisors and Planning Consultants	Atmos Consulting Limited
Environmental Impact Assessment	Environmental Impact Assessment (EIA) is a means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development.
Environmental Impact Assessment Regulations	Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations')
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations.
The Proposed Development	Lairdmannoch Energy Park
The Proposed Development Site	The full application boundary as per Figure 1-1
Study Area	A core study area of the Proposed Development Site; a 1 km study area around the solar and wind elements of the Proposed Development; a 100 m study area around the Access Track; a 2 km study area around the solar array; a 5 km study area around the wind turbines; a 10 km study area around the Proposed Development Site.
Wind Development	The area of the Proposed Development that contains the Wind Turbines and associated infrastructure. As shown on Maps 1, 2 and 4 of Figure 3-1 Detailed Site Layout.
Solar Development	The area of the Proposed Development that contains the Solar Arrays and associated infrastructure. As shown on Maps 7, 8 and 9 of Figure 3-1 Detailed Site Layout.

List of Abbreviations

Abbreviation	Description
AOD	Above Ordnance Datum
ALGAO	The Association of Local Government Archaeological Officers
ASA	Archaeological Sensitive Area
BGS	British Geological Survey
CIfA	Chartered Institute for Archaeologists
DGC	Dumfries and Galloway Council
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
FLS	Forestry and Land Scotland
GDL	Inventory Gardens and Designed Landscapes
HER	Historic Environment Record
HES	Historic Environment Scotland
HLA	Historic Land-Use Assessment Data for Scotland
LVIA	Landscape and Visuals Impact Assessment
km	Kilometres
m	Metres
OSA	Old Statistical Account
OS	Ordnance Survey
NCAP	National Collection of Aerial Photography
NTS	Non-Technical Summary
NRHE	National Record of the Historic Environment
NSA	New Statistical Account
NSR	Non-Statutory Record
ScARF	Scottish Archaeological Research Framework
SMC	Scheduled Monument Consent
SNH	Scottish Natural Heritage now NatureScot
SPAD	Scottish Palaeoecological Archive Database
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Visibility

10 Cultural Heritage

10.1 Introduction

This chapter of the EIAR presents an assessment of the likely effects arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development upon Cultural Heritage and should be read in conjunction with the following technical appendices and figures in **Volume 3** and **Volume 4**, respectively:

- Technical Appendix 10-1 Gazetteer of Heritage Assets and Events;
- Technical Appendix 10-2 Photographic Plates;
- Technical Appendix 10-3 Settings Assessment;
- Figure 10-1: Viewpoint CH1 - Loch Mannoch, Cairn (SM1033: Asset 1);
- Figure 10-2: Viewpoint CH2 - Loch Mannoch, Stone Circle (SM1033: Asset 1);
- Figure 10-3: Viewpoint CH2 - Loch Mannoch, Stone Circle (SM1033: Asset 1);
- Figure 10-4: Viewpoint CH4 - Loch Mannoch, eastern Loch Shore;
- Figure 10-5: CH5 - Bargatton Farm, Cairn 610m south of (SM1002: Asset 3);
- Figure 10-6: CH6 - Cairntosh Hill, Cairn (SM2237; Asset 128);
- Figure 10-7: Craig Hill, Fort, Laurieston (SM2891; Asset 5);
- Figure 10-8: CH8a - Edgarton Mote, Fort 690m SW of Camelon Bridge (SM1119; Asset 2);
- Figure 10-9: CH9 - Rusco Tower (LB3299: Asset 38);
- Figure 10-10: CH10-10 - Anwoth Old Church Churchyard (LB3309; Asset 30/55);
- Figure 10-11: CH11 - Cally (GDL00079; centred Asset 37);
- Figure 10-12: CH12 - Kirkconnel Farmhouse and Steading (LB17188; Asset 62);
- Figure 10-13: CH13 - Gatehouse of Fleet Conservation Area (centred Asset 139);
- Figure 10-14: Heritage Assets within the Site (Eastern Area);
- Figure 10-15: Heritage Assets within 1 km of the Site (Central Area);
- Figure 10-16: Heritage Assets within the Site (Western Area);
- Figure 10-17: Heritage Assets within the Site (Access Track);
- Figure 10-18: Heritage Assets within the 1km Study Area;
- Figure 10-19: Designated Heritage Assets and Non-designated Assets of Potential National Importance within the 2 km and 5 km Study Areas with Wind Zone of theoretical Visibility (ZTV);
- Figure 10-20: Designated Heritage Assets and Non-designated Assets of Potential National Importance within the 2 km and 5 km Study Areas with Solar Zone of theoretical Visibility (ZTV);
- Figure 10-21: Designated Heritage Assets and Non-designated Assets of Potential National Importance within the 10 km Study Areas with Wind Zone of theoretical Visibility (ZTV);
- Figure 10-22: Designated Heritage Assets and Non-designated Assets of Potential National Importance within the 10 km Study Areas with Solar Zone of theoretical Visibility (ZTV);

- Figure 10-23: Extract from Roy's Map Military of Scotland (1747-52); and
- Figure 10-24: Extract from the Ordnance Survey map published 1852.

The specific objectives of the chapter are to:

- Describe the cultural heritage and archaeology baseline;
- Describe the assessment methodology and significance criteria used in completing the effect assessment;
- Describe the potential effects, including direct physical, settings and cumulative effects;
- Describe the mitigation measures that will be implemented to address likely significant effects; and
- Assess the residual effects remaining following the implementation of mitigation.

This assessment has been carried out in accordance with the standards of professional conduct outlined in the Chartered Institute for Archaeologists (CIfA) Code of Conduct (CIfA, 2019-Updated 2022) and Professional Conduct (CIfA, 2019- Updated 2024), as well as the CIfA Standard and guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment (CIfA, 2014a-Updated 2020); desk- based assessment (CIfA, 2014b-Updated 2020); and other relevant guidance.

The assessment has been carried out by Victoria Oleksy (BA, MA, MCIfA) and Lisa Bird (MA, MSc, ACIfA) of AOC Archaeology Group. Victoria is an Associate Director and Sector Head (Consultancy) at AOC Archaeology Group with 20 years of experience working on EIA Reports across Britain. She has also provided expert witness services, as well as other documentation, and has given evidence at planning hearings and inquiry sessions. Lisa Bird is a Project Officer with nine years of experience working on a range of EIAs, desk-based assessments, and large walkover survey projects.

10.2 Consultation

Table 10-1 provides a summary of the consultation undertaken to date to inform this assessment.

Table 10-1: Consultation undertaken

Consultee	Summary of Consultee Response	Where addressed within this Report
Historic Environment Scotland (HES) Pre-Application Case Reference ID:300047238 Your Ref:20/1837/HLE 19 November 2020	The Pre-Application consultation was based on a previous iteration of the Proposed Development which encompassed a 12 turbine wind farm (up to 150m to tip) within the western most area of the current Proposed Development Site. HES stated for the previous iteration of the Proposed Development that no assets of interest (Scheduled Monuments, Category A Listed Buildings, Inventory Gardens and Designed Landscapes or Inventory Battlefields) were within the development boundary.	Pre-Application advice informed the Scoping Report as well as the data gathering and site visits which were undertaken to inform this assessment.

Consultee	Summary of Consultee Response	Where addressed within this Report
	HES states that the following list, though not exhaustive, were assets of interest whose settings may be impacted when considering the previous iteration of the Proposed Development: • Loch Mannoch, cairn and stone circle N end of (SM1033- Asset 1); • Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2); • Bargatton Farm, cairn 610m S of (SM1002; Asset 3); • Cairntosh Hill, cairn (SM2237; Asset 128); • Trioste Mote, motte (SM1133; Asset 4); • Pulcree Mote, motte (SM1130: Asset 20); • Rusco Tower (LB3299; Asset 38); • Anwoth Old Church Churchyard (LB3309; Assets 30 and 55); and • Cally (GDL00079; centred Asset 37). However, HES did note that there was not enough information about the previous iteration of the Proposed Development at that time for HES to reach a decision as to whether adverse effects would occur. HES noted that the majority of Scheduled Monuments within 10km of the previous iteration of the Proposed Development consisted of burial cairns, hill forts and mottes which have long-distance and local views which are important to understanding their setting. Intervisibility between assets was also noted as being an important element of their settings. HES noted particular concern about the potential impact of the previous iteration of the Proposed Development on the setting of Loch Mannoch, cairn and stone circle (SM1033; Asset 1). HES stated that the previous iteration of the Proposed Development had the potential to dominate the local and more distant landscape and thus "entirely overshadow the monuments".	Following further consultation Trioste Mote, motte (SM1133; Asset 4) and Pulcree Mote, motte (SM1130: Asset 20) have been scoped out of further assessment. The other heritage assets noted by HES have been subject to a detailed settings assessment (**Section 10.6.2**). Further consultation with HES, detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024) confirmed that heritage assets beyond 10km of the Proposed Development Site have been scoped out of further assessment. The impact of the Proposed Development on the setting of Loch Mannoch, cairn and stone circle (SM1033; Asset 1) has been thoroughly considered through the iterative design process which is detailed in **Chapter 3: Description of Development**. **Section 10.7.2** contains a detailed settings assessment informed by site visits, ZTV analysis, visualisations and ongoing consultation with HES.
Senior Planner, Built Heritage Policy, Economy and Development Services, Dumfries and Galloway Council	Pre-Application advice was based on a previous iteration of the Proposed Development which encompassed a wind farm scheme with turbines up to 180m in height within the western area of the Proposed Development Site. The Senior Planner noted that the following assets may be "*visually affected*":	The assets noted in Senior Planner's response are considered in the assessment of potential setting impacts (**Section 10.7.2** and **Technical Appendix 10-3.**)

Consultee	Summary of Consultee Response	Where addressed within this Report
Pre-Application 2 November 2020	• Nearest designated heritage asset, the Category B Listed Kirkconnell House (Asset 62); • Gatehouse of Fleet Conservation Area (centred Asset 139) and Listed Buildings therein; and • Cally Gardens, an Inventory Garden and Designed Landscape (centred Asset 37). The Senior Planner also noted that there may be settings effects on following heritage assets: • Referred to as "2 SAMs on the edge and another close by", which must correlate to Loch Mannoch, cairn and stone circle (SM1033; Asset 1); and Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2); The location of an Archaeological Sensitive Area (ASA) referred to as extending across "… *a large part of the site is an ASA*" likely corresponds to Loch Mannoch Bronze Age Settlement ASA (centred Asset 65). Another ASA, Grobdale, prehistoric landscape ASA (centred Asset 66) is noted in the near vicinity. The Senior Planner identifies the Category B Listed Laurieston Hall (Aset 57) and Designed Landscape (centred Asset 202) as a heritage asset whose cultural significance is associated with it historic interest and a cooperative community in the 1970s. It was also noted that "*woodland screening*" would depend on harvesting cycles and schedules and that only woodland that is not planned on being cut should be included as a screening element in the ZTV.	A bare earth ZTV (**Figures 10-19** to **Figure 10-22**) has been used to inform the assessment.
HES Scoping Response Our Case ID: 300047238 Your Re: ECU00004900 3 October 2023	HES responded to a previous iteration of the Proposed Development which included nine turbines with a maximum blade tip of 180m, hard standing, ground mounted photovoltaic solar panels with a maximum height of 3.2m, battery storage, a substation, access tracks and borrow pits. This previous iteration of the Proposed Development included two elements: a Wind Development and a Solar Development.	**Chapter 3: Description of Development** sets out the design iteration process undertaken to minimise impacts upon the setting of heritage assets.

Consultee	Summary of Consultee Response	Where addressed within this Report
	HES indicated that they had concerns with separation of the impacts of two individual elements of the Proposed Development (Wind Development and Solar Development). HES suggested that a holistic assessment of setting impacts should be undertaken to ensure that the full impacts of the proposals are considered and understood. The assessment should take into account the guidance provided in the EIA handbook.	Further consultation with HES, detailed in **Table 10-1** (Consultation with HES Issued 23 January 2024) confirmed that the Proposed Development was being assessed as a whole.
	HES stated that they welcomed that the potential cultural heritage effects are scoped into the assessment. HES considered that the proposals have the potential to affect a number of heritage assets and therefore recommended that any EIA undertaken in support of the proposals should include a full assessment of impacts on the historic environment. This should take into account the guidance provided in the EIA handbook & the Managing Change in the Historic Environment: Setting guidance,	All guidance documents noted by HES have been consulted and form part of the methodology outlined in **Section 10.4.3**, as well as being referred to throughout the assessments detailed in **Section 10.7.2** and **Technical Appendix 10-3**.
	HES confirmed that no World Heritage Sites, Scheduled Monuments, Category A Listed Buildings, Inventory Battlefields, or Inventory Gardens and Designed Landscapes would be directly impacted by the Proposed Development.	The heritage assets noted by HES have been subject to a detailed settings assessment (**Section 10.7.2**).
	HES stated that careful consideration should be given to reducing and avoiding impacts on the setting of heritage assets during the design process. There are a number of historic environment assets within HES' remit whose settings have the potential to be adversely impacted by the current proposals. HES noted that the following list should not be treated as exhaustive, and it is only intended as a reference to those assets which at Scoping appeared most likely to experience significant impacts: • Loch Mannoch, cairn and stone circle N end of (SM1033- Asset 1); • Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2); • Bargatton Farm, cairn 610m S of (SM1002; Asset 3); • Cairntosh Hill, cairn (SM2237; Asset 128);	Further consultation with HES, detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024) confirmed that heritage assets beyond 10km of the Proposed Development Site have been scoped out of further assessment. The impact of the Proposed Development on the setting of Loch Mannoch, cairn and stone circle (SM1033; Asset 1) has been considered through the iterative design process which is detailed in **Chapter 3: Description of Development**. **Section 10.7.2** contains a detailed settings assessment informed by site visits,

Consultee	Summary of Consultee Response	Where addressed within this Report
	• Trioste Mote, motte (SM1133; Asset 4); • Pulcree Mote, motte (SM1130: Asset 20); • Rusco Tower (LB3299; Asset 38); • Anwoth Old Church Churchyard (LB3309; Assets 30 and 55); and • Cally (GDL00079; centred Asset 37). HES noted that they were broadly content with the proposed 10km study area for the Wind Development and a 2km study area for the Solar Development to identify assets with the potential for effects to their setting. HES recommended that assets beyond these distances be considered in the initial assessment and any assets with long distance views which form part of their cultural significance, and which could be affected, also be included. They noted that the potential impacts on the integrity of the setting of Loch Mannoch, cairn and stone circle (Asset 1) were of particular concern. HES noted that "*Impacts on the settings of heritage assets beyond 10 km of the Wind Development*" are to be scoped out. HES disagreed with this as whilst individual assets may not have views of the development, both local and long-distance views towards and away from the assets may play a role in our understanding and appreciation of their setting. HES also noted that reciprocal views between assets may play a role and the encroachment of the development or infrastructure in these views may impact on the assets' settings. HES indicated that a number of heritage assets are located within or near forestry. In line with HES' Managing Change in the Historic Environment: Setting guidance (HES, 2020b), HES stated that any assessment should not rely on forestry and vegetation to screen potential impacts of development on the setting of assets. HES recommended that the potential cumulative impacts of the development as a whole are looked at in combination with other developments in the vicinity. HES recommended that the cumulative assessment should assess the incremental impact or change when the Proposed	ZTV analysis, visualisations and ongoing consultation with HES. AOC undertook a review of designated heritage assets beyond the 10 km study area and concluded that there were no assets beyond 10 km that would be significantly affected by the Proposed Development. No key views were identified. This was detailed in a letter to HES issued 23 January 2024 and was accepted by HES in their response Received 12 February 2024 The settings assessment (**Section 10.7.2**) and **Technical Appendix 10-3** is informed by a bare earth ZTV. Further consultation with HES detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024) confirmed that a bare earth ZTV would be used in the settings assessment. **Section 10.7.4** details the cumulative assessment.

Consultee	Summary of Consultee Response	Where addressed within this Report
	Development is combined with other present and reasonably foreseeable developments. HES disagreed with the Scoping Report which stated that "*designated heritage assets outwith the ZTV*" were to be scoped out. HES noted that a screened ZTV had been used, which incorporates the assumed screening effect provided by current vegetation cover and buildings in that conclusion. HES did not consider this offered a reliable baseline assessment of potential setting impacts on cultural heritage assets. Trees, hedges and other forms of vegetation are vulnerable to changes in land use and farming practice, storms, disease and, as in the case of commercial forestry, can be a crop that will be removed on a specific time cycle. HES stated that this cannot be considered to offer permanent, reliable screening against setting impacts. HES disagreed with scoping out setting impacts from the construction of access tracks. It was stated that although access tracks are more likely to have physical impacts, there is potential for setting impacts as a result of their construction should be considered in the detailed assessment. HES requested clear reasoning be laid out for scoping out certain assets with reference to HES' Managing Change in the Historic Environment: Setting (HES, 2020b). Visualisations were requested for heritage assets where a significant effect was identified. HES indicated that wireframe visualisations could be produced and used to help analyse impacts in the first instance, although where significant impacts were found that photomontages be produced to support assessments. HES requested that wireframes be supplied to them at an early stage for comment and further consultation. HES recommended that visualisations be provided for views broadly north to Loch Mannoch, cairn and stone circle (SM1033; Asset 1); from the land around Loch	The settings assessment takes into account the impact of the access tracks on the settings of intervisible heritage assets. The access track is shown on relevant visualisations. Further consultation with HES, detailed in **Table 10-1** (Consultation with HES Issued 23 January 2024) detailed the reasoning behind the scoping out of certain heritage assets. Further consultation with HES, detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024) included a list of visualisations which inform the assessment in this Chapter. A full list of visualisations is detailed in **Section 10.1.** Further consultation with HES, detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024) confirmed specific additional visualisations to and from Loch Mannoch, cairn and stone circle (SM1033; Asset 1) which inform the assessment in **Section 10.7.2** and **Technical Appendix 10-3.** Further consultation with HES, detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024) confirmed that a wireline visualisation from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119- Asset 2 would be sufficient to inform the assessment in **Section 10.7.2.**

Consultee	Summary of Consultee Response	Where addressed within this Report
	Mannoch which the cairn and stone circle would have overlooked; towards the monument from land around Loch Mannoch and views out from the monument; and from the dam on the east shore of the loch. HES did not accept that no visualisation was required from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119- Asset 2). The Scoping Report had proposed this be scoped out as Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119- Asset 2) would be caught in the same field of view as Bargatton Farm, cairn 610m S of (SM1002= Asset 3) and Craig Hill, fort, Laurieston (SM2891- Asset 5). A visualisation from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119 Asset 2) was requested to be included in any assessment. HES stated that the EIA process should include consideration of mitigation by design to avoid, reduce of offset setting impacts on cultural heritage assets. Loch Mannoch, cairn and stone circle (SM1033- Asset 1) was noted as being of particular concern. HES noted that if impacts on the setting of monuments from turbines in the proposed scheme prove capable of mitigation, this should be taken into account and inform the iterative design process. The applicant may wish to explore design options which change the development layout, turbine heights and number of turbines in order to identify whether significant adverse impacts can be mitigated. HES stated that further consultation may be sought. It was recommended that HES' guidance and technical advice be referred and adhered to in the assessment.	A detailed settings assessment for Loch Mannoch, cairn and stone circle (SM1033- Asset 1) is included in **Section 10.7.2.** HES guidance and technical advice forms part of the methodology outlined in **Section 10.4.3**, as well as being referred to throughout the assessments detailed in **Section 10.7.2** and **Technical Appendix 10-3**.
Consultation with HES Issued 23 January 2024	AOC Archaeology Group sent a letter to HES to request further consultation with the statutory consultee regarding comments in their Scoping Opinion. AOC Archaeology Group confirmed that the previous iteration of the Proposed Development would be assessed as a whole.	

Consultee	Summary of Consultee Response	Where addressed within this Report
	A bare earth ZTV for the two elements of the previous iteration of the Proposed Development was issued to HES to help inform their assessment and further consultation. Whilst HES had stated that they were "broadly content" with the proposed study areas they requested a review of assets beyond the 10km study area. AOC Archaeology Group undertook a review of designated heritage assets within the ZTV beyond 10km. Based on this review, it was recommended that further assessment of assets beyond 10km be scoped out. It was confirmed that the access track would be taken into consideration of the potential impacts upon the setting of designated heritage assets. Draft visualisations, including those requested by HES in the Scoping Opinion were sent to HES. It was noted that a detailed assessment of the impact of the Proposed Development on the setting of the Scheduled Loch Mannoch, cairn and stone circle (SM1033; Asset 1) would be undertaken as part of the assessment. Mitigation including embedded, heritage enhancement and public benefits are also noted as being considered.	
HES response to AOC Consultation on 23 January 2024 Received 12 February 2024	HES noted that the iteration of the Proposed Development as of January 2024 was the same as that seen in the Scoping Report. HES again highlighted that the setting of a number of assets within the remit of HES had the potential to be adversely affected by the Proposed Development. HES confirmed that following further assessment they were content that assets beyond 10km from the Proposed Development be scoped out of further assessment. HES confirmed that a bare earth ZTV would be sufficient to inform the assessment of potential impacts upon the settings of heritage assets.	The impact of the Proposed Development on heritage assets within the ZTV and within the study area outlined in **Section 10.4.1** has been assessed within **Section 10.7.2** and **Technical Appendix 10-3.** Heritage assets beyond 10km of the Proposed Development Site have been scoped out of further assessment.

Consultee	Summary of Consultee Response	Where addressed within this Report
	Draft wirelines from were provided from Trostrie Mote, motte (SM1133; Asset 4) and Pulcree Mote, motte (SM1130; Asset 20) which showed that there was no theoretical visibility between the Proposed Development and these assets. HES noted that they were content for potential impacts upon these assets to be scoped out of further assessment.	Bare earth ZTV is shown on **Figures 10-19** to **10-22.** This bare earth ZTV has been used to inform the settings assessment in **Section 10.7.2** and **Technical Appendix 10-3.**
	HES requested that any further assets scoped out of an assessment of the potential impacts upon settings be presented in the EIAR.	Trioste Mote, motte (SM1133; Asset 4) and Pulcree Mote, motte (SM1130: Asset 20) have been scoped out of further assessment, detailed in **Table 10-1** (HES response to AOC Consultation on 23 January 2024; Received 12 February 2024).
	A draft wireline from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2) was submitted as per HES Scoping Response. HES confirmed that they were content that a wireline from this asset was sufficient to inform the assessment in the EIAR.	**Visualisation 10-8** is from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2) to the Proposed Development.
	HES noted that they were content that wireframe visualisations from the following assets would be sufficient for assessing the potential impacts upon settings of: • Bargatton Farm, cairn 610m S of (SM1002; Asset 3); • Cairntosh Hill, cairn (SM2237; Asset 128 • Craig Hill, fort, Laurieston (SM2891); • Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2); • Rusco Tower (LB3299; Asset 38); • Anworth Old Church Churchyard (LB3309; Asset LB3309; Assets 30 and 55); and • Cally (GDL00079; centred Asset 37).	Visualisations as agreed with HES are detailed in **Section 10.1** and are cross-referenced throughout the settings assessment of the corresponding heritage assets and where relevant throughout **Section 10.7.2** and **Technical Appendix 10-3**.
	HES further welcomed the inclusion of visualisations from Loch Mannoch cairn and stone circle N end of (SM1033; Asset 1) and indicated that photomontages should be provided from similar locations to the wirelines presented as CH1a-c in the consultation. In particular they noted that photomontages should be provided from: • The centre of the stone circle at SM1033, looking towards the cairn at an angle of about 300 degrees; • From the centre of the cairn SM1033 looking toward the solar panels at an	A detailed settings assessment for Loch Mannoch, cairn and stone circle (SM1033- Asset 1) is included in **Section 10.7.2.** The assessment is informed by the visualisations agreed with HES.

Consultee	Summary of Consultee Response	Where addressed within this Report
	angel of about 120 degrees; • From the dam on the east shore of Loch Mannoch looking towards the cairn and stone circle (SM1033) at an angle of about 325 degrees; and • From a location to the south-east on the opposite loch shore in alignment with the north-west/south-east orientation of the cairn and stone circle.	
AOC Letter to Andrew Nicholson. Archaeologist at the Archaeology Service, Dumfries and Galloway Dated 18 February 2025	AOC Archaeology Group on behalf of the Applicant sent a letter directly to the Archaeologist at the Archaeology Service, Dumfries and Galloway. No scoping response had been received from the Archaeologist at the Scoping stage. The letter outlined the work AOC Archaeology Group had undertaken to date in regard to the cultural heritage and archaeological assessment. The letter included the list of proposed visualisations for agreement with the Archaeologist at the Archaeology Service, Dumfries and Galloway.	Andrew Nicholson. responded to the letter by email on 18 February 2025, detailed in **Table 10.1,** Response dated 18 February 2025.
Andrew Nicholson, Archaeologist at the Archaeology Service, Dumfries and Galloway Response 18 February 2025	The Archaeologist at the Archaeology Service, Dumfries and Galloway stated that there was no Scoping response due to workload. The Archaeologist requested a viewpoint from Barstobrick Fell (hill fort and Nielson's monument) (Assets 144 & 145).	A visualisation from Barstobrick Fell (**Figure VP3b**) has been undertaken for the LVIA assessment and has informed the assessment of the impact of the Proposed Development on the potentially prehistoric fort (Asset 145) and Neilson's Monument (Asset 144).
HES meeting 20 February 2025	The Applicant and AOC Archaeology Group met remotely with HES to discuss the development proposals inclusive of the wind and solar elements. The impact of the Proposed Development on the Scheduled Loch Mannoch, cairn and stone circle (SM1033; Asset 1) was discussed. HES reiterated concerns regarding potential impacts upon the setting of the Scheduled Loch Mannoch, cairn and stone circle (SM1033; Asset 1). They also flagged the request in their letter dated February 2024 for a further	HES comments on the Scheduled Loch Mannoch, cairn and stone circle (SM1033; Asset 1) are noted and an assessment of impacts and effects upon the setting of this asset are included in **Section 10.7.2.** The visualisation for Scheduled Loch Mannoch, cairn and stone circle (SM1033; Asset 1) taken from the eastern side of Loch Mannoch is presented in Figure 10-4.

Consultee	Summary of Consultee Response	Where addressed within this Report
	visualisation from Loch Mannoch to be taken from eastern side of the Loch. HES further noted that they had not yet agreed visualisations for the solar element of the development and noted that visualisations should be considered from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2) and Bargatton Farm, cairn 610m S of (SM1002; Asset 3) which would include the proposed solar panels.	Annotations showing the solar elements will be included on visualisations from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2) and Bargatton Farm, cairn 610m S of (SM1002; Asset 3).
HES Response to Gate Check 1 Report 27 February 2025 Our case ID: 300047238 Your ref: ECU00004900	Gate Check 1 was based on a Proposed Development consisting of 9 turbines with a maximum blade tip height of up to 180m, hard standings, ground mounted photovoltaic solar panels with a maximum height of 3.2m, battery energy storage, a substation, access tracks and borrow pits. HES state that they are broadly content with the Gate Check report. HES identified some discrepancies. One of which highlighted that whilst HES were broadly content that previously agreed wireframe visualisations would be "sufficient for assessing the potential impacts of the proposed turbines". HES note that proposed visualisations should reflect the solar PV elements. HES suggested that additional visualisations should be considered focusing on the solar PV element.	Annotations showing the solar elements will be included on visualisations from Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2) and Bargatton Farm, cairn 610m S of (SM1002; Asset 3).

10.3 Legislation, Planning Policy and Guidance

10.3.1 Legislation

Legislation relevant to this assessment comprises:

- Ancient Monuments and Archaeological Areas Act 1979;
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997;
- Historic Environment (Amendment) (Scotland) Act 2011;
- Historic Environment (Scotland) Act 2014;
- Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017; and
- Historic Environment Policy for Scotland, including Designation Policy and Selection Guidance.

10.3.2 Planning Policy

Planning policy relevant to this assessment comprises:

- National Policy Framework 4 (Scottish Government, 2023);
- Dumfries and Galloway Council Local Development Plan 2 (Dumfries and Galloway Council (DGC), 2019):
  - Policy HE1: Listed Buildings;
  - Policy HE2: Conservation Areas;
  - Policy HE3: Archaeology;
  - Policy HE4: Archaeologically Sensitive Areas;
  - Policy HE6: Gardens and Designed Landscapes;
  - Policy IN1: Renewable Energy; and
  - Policy IN2: Wind Energy.
- Whilst not strictly planning policy it should be noted that Historic Environment Policy for Scotland (HES, 2019a), including Designation Policy and Selection Guidance (HES, 2020a) are relevant to this assessment.

10.3.3 Guidance

The following guidance documents have been used during the preparation of this assessment:

- Planning Advice Note 2/2011: Planning and archaeology (Scottish Government, 2011);
- Managing Change in the Historic Environment: Setting (HES, 2020);
- NatureScot and HES published guidance contained within 'Environmental Impact Assessment Handbook v5' (SNH, 2012);
- HES Our Past, Our Future (HES, 2023);
- CIfA Code of Conduct: professional ethics in archaeology (CIfA, 2019-Updated 2022);
- CIfA Regulations for professional conduct (CIfA, 2019- Updated 2024);
- CIfA Standard and guidance for historic environment desk-based assessment (CIfA, 2014b-Updated 2020);
- CIfA Standard and guidance for commissioning work or providing advice on archaeology and the historic environment (CIfA, 2014a- Updated 2020); and
- Dumfries and Galloway Supplementary Guidance:
  - Historic Built Environment – supplementary guidance (DGC, 2020),
  - Gatehouse of Fleet Conservation Area Character Appraisal (DGC, 2020b), and
  - Kirkcudbright Conservation Area Character Appraisal (DGC, 2020c).

10.4 Methodology

10.4.1 Study Area

In order to assess the potential for effects on cultural heritage assets resulting from the Proposed Development, the following study areas have been identified and agreed with consultees:

- A core study area (the Proposed Development Site), which includes all land within the Proposed Development Site, which will be subject to assessment for potential direct effects. This study area has been subject to a detailed walkover survey and cultural heritage assets which may be directly impacted by the Proposed Development have been identified;
- A 1km study area around the central Proposed Development Site for the identification of all known heritage assets and known previous archaeological interventions in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the Proposed Development Site and thus be impacted by the Proposed Development;
- A 100m study area around the southwestern area of the Proposed Development Site which includes the extent of the Access Track, for the identification of all known heritage assets and known previous archaeological interventions in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the Proposed Development Site and thus be impacted by the Proposed Development;
- A 2km study area around the Solar Development for the assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments, all Listed Buildings, Inventoried Gardens and Designed Landscapes and Battlefields, Conservation Areas, and non-designated assets deemed to be of National Significance in the Historic Environment Record (HER);
- A 5km study area around the turbine and solar elements of the Proposed Development for the assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments, all Listed Buildings, Inventoried Gardens and Designed Landscapes and Battlefields, Conservation Areas, and non-designated assets deemed to be of National Significance in the HER; and
- A 10km study area around the wind turbine and solar elements of the Proposed Development for the assessment of potential effects on the setting of all nationally important heritage assets including Scheduled Monuments, Category A Listed Buildings, Inventoried Gardens and Designed Landscapes and Battlefields and non-designated assets deemed to be of National Significance in HER.

All heritage assets identified have been given a unique 'Asset No.' and all previous archaeological investigations have been given a unique 'Event No.' number. These are recorded in **Technical Appendix 10.1 Gazetteer of Heritage Assets and Events**. Numbers within Appendix 10.1 are not concurrent due to the iterative process of the assessment. These Asset/Event numbers are referred to in the text, figures (**Figures 10-14** to **Figure 10-22**) and accompanying Technical Appendices; **Technical Appendix 10.2 Photographic Plates** (crossed referenced within the Chapter as "Plates") and **Technical Appendix 10.3 Settings Assessment**.

10.4.2 Baseline Data Collection

Desk Study

Data on known assets and events in the Proposed Development Site and in the study areas have been collated from the following sources:

- The National Record for the Historic Environment (NRHE) as held by HES;
- The HER as supplied by the Dumfries and Galloway Archaeology Service, archaeological advisors to Dumfries and Galloway Council;
- National Library of Scotland (NLS) for published historic and Ordnance Survey maps;
- National Collection of Aerial Photography (NCAP), as held by HES, for vertical and oblique aerial photographs;
- Published archival sources;
- Scottish Palaeoecological Archive Database (SPAD) for information regarding the palaeoecological and paleoenvironmental potential of the Proposed Development Site and surrounding landscape;
- Historic Land-Use Assessment Data for Scotland (HLAMap);
- Available client supplied data about the Proposed Development Site, including peat survey data;
- Regional Archaeological Research Framework for Argyll (RARFA); and
- LiDAR for Scotland Phase 3 data and imagery as downloaded from the Scottish Remote Sensing Portal and processed by AOC Archaeology Group using Relief Visualization Toolbox 2.2.1 and SAGA GIS.

Site Visits

For reference throughout this Chapter, the Proposed Development Site has been divided into three areas;

- the western area, occupied by undulating moorland, west of the Anstool Burn (**Figure 10-16**);
- the central area between the Anstool Burn and a north-south aligned stone wall centred NX 266612 561616 (**Figure 10-15**);
- the eastern area, between the north-south aligned stone wall centred NX 266612 561616 and the A762 (**Figure 10-14**); and
- the southwestern area which includes the Access Track (**Figure 10-17**).

Walkover surveys of the Proposed Development Site were undertaken on the 23 September 2020, 25-26 September 2023 and 18 March 2025. A walkover of the western, central and eastern area was undertaken on the 23 September 2020. The central and eastern areas of the Proposed Development Site were subject to a further walkover survey between the 25-26 September 2023. In response to further iterations in the design process, the access route was surveyed on the 18 March 2025.

A walkover of the western area was undertaken on the 23 September 2020. This area was found to be located, in general, on undulating westward sloping and undulating moorland, interspersed with minor burns. Photographs of the general terrain and land use were taken, and archaeological remains were also recorded by AOC Archaeology Group surveyors using a GPS enabled tablet and the Field Maps app. Newly recorded

assets are detailed in the **Technical Appendix 10-1** Gazetteer of Heritage Assets and Events.

The central and eastern areas of the Proposed Development Site were subject to a walkover survey between the 25-26 September 2023. Photographs of the general terrain and land use were taken, and archaeological remains were also recorded using a GPS enabled tablet and the Field Maps app. Newly recorded assets are detailed in the **Technical Appendix 10-1**.

The central area of the Proposed Development Site was found to occupy semi-improved pastureland between the Anstool Burn to the west, Loch Mannoch to the south, plantation forestry to the north and a north-south aligned dry stone boundary wall to the east. The land within this area was generally found to slope upwards from south to north (**Technical Appendix 10-2: Photographic Plates**- Plates 10.10 & 10.11). Vegetation within the central area ranged in height from ankle to thigh high grasses and ferns, and it is considered that the taller vegetation could have obscured more ephemeral archaeological remains. The walkover survey in this area was also determined by the presence of cows and young calves, which were avoided by the survey team and thus a systematic survey was not possible for health and safety reasons.

The eastern area of the Proposed Development Site was found to occupy generally undulating, improved, enclosed grass land. This area is partially bound to the south by the Tarff Water, which is located in a steep V-shaped valley. Within the north-eastern area lies further agricultural land which, in general, slopes downhill to the north. This area is bound to the east by the A762.

In response to further iterations in the design process, the access route was surveyed on the 18 March 2025. The access track within FLS land north of the B727 was not subject to a walkover survey. A full assessment of this part of the access track has thus not been possible due to access restrictions; however it is noted the access here comprises an existing track which is generally the running width of typical wind farm access tracks. The proposed access track south of the FLS land comprised an existing farm track running through agricultural land. The proposed access track to the west of the FLS land which turns north to join the turbine area was found to occupy, semi-improved rough grazing.

Site visits to designated heritage assets within up to 10 km of the Proposed Development Site were undertaken between the 27-28 September and 2-6 October 2023.

10.4.3 Assessment Methodology

The assessment distinguishes between the term 'impact' and 'effect'. An impact is defined as a physical change to a heritage asset or its setting, whereas an effect refers to the significance of this impact. The first stage of the assessment involves establishing the importance of the heritage asset and assessing the sensitivity of the asset to change (impact). Using the proposed design for the Proposed Development, an assessment of the impact magnitude is made and a judgement regarding the level and significance of effect is arrived at.

Criteria for Assessing Sensitivity of Heritage Assets

The definition of cultural significance is readily accepted by heritage professionals both in the UK and internationally and was first fully outlined in the Burra Charter, which states in Article One that 'cultural significance' or 'cultural heritage value' means aesthetic, historic, scientific, social or spiritual value for past, present or future generations (ICOMOS 2013, Article 1.2). This definition has since been adopted by heritage organisations around the world, including HES.

HEPS notes that to have cultural significance an asset must have a particular "aesthetic, historic, scientific or social value for past, present and future generations" (HES 2019a). Heritage assets also have value in the sense that they "...create spaces for recreation, leisure, tourism, and education, or places for nature to thrive" and "can be a source of identity, a resource for learning, or a spark for creativity" (HES 2023, 10).

All heritage assets have significance; however, some heritage assets are judged to be more important than others. The level of that importance is, from a cultural resource management perspective, determined by establishing the asset's capacity to contribute to our understanding or appreciation of the past (HES 2019b). In the case of many heritage assets their importance has already been established through the designation (i.e. Scheduling, Listing and Inventory) processes applied by HES.

The rating of importance of heritage assets is, first and foremost, made in reference to their designation. For non-designated assets importance is assigned based on professional judgement and guided by the criteria presented in **Table 10-2**; which itself relates to the criteria for designations as set out in Designation Policy and Selection Guidance (HES 2020) and Scotland's Listed Buildings (HES 2021).

Table 10-2: Criteria for Establishing Importance of Heritage Assets

Importance	Receptors
Very High	World Heritage Sites (as protected by NPF4 (Scottish Government, 2023)); Other designated or non-designated heritage assets with demonstrable Outstanding Universal Value.
High	Scheduled Monuments (as protected by the Ancient Monuments and Archaeological Areas Act 1979 (the '1979 Act')); Category A Listed Buildings (as protected by the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997) (the '1997 Act'); Inventory Gardens and Designed Landscapes (as protected by the 1979 Act, as amended by the Historic Environment (Amendment) (Scotland) Act 2011 (the '2011 Act')); Inventory Battlefields (as protected by the 1979 Act, as amended by the 2011 Act); Outstanding examples of some period, style or type; Non-designated assets and/or Locally Listed assets considered to meet the criteria for the designations as set

Importance	Receptors
	out above (as protected by NPF4, 2023).
Medium	Category B and C Listed Buildings (as protected by the 1997 Act); Conservation Areas (as protected by the 1997 Act); Major or representative examples of some period, style or type; or Non-designated assets and/or Locally Listed assets considered to meet the criteria for the designations as set out above (as protected by NPF4, 2023).
Low	Locally Listed assets; Examples of any period, style or type which contribute to our understanding of the historic environment at the local level.
Negligible	Relatively numerous types of features; Findspots of artefacts that have no definite archaeological remains known in their context; The above non-designated features are protected by Policy 7o of NPF4 (Scottish Ministers, 2023).

Determining cultural heritage significance can be made with reference to the intrinsic, contextual and associative characteristics of an asset as set out in HEPS (HES 2019a) and its accompanying Designation Policy and Selection Guidance (HES 2020a). The Designation Policy and Selection Guidance (2020a) indicates that the relationship of an asset to its setting or the landscape makes up part of its contextual characteristics.

HES's Managing Change Guidance (HES, 2020b), in defining what factors need to be considered in assessing the impact of a change on the setting of a historic asset or place, states that the magnitude of the proposed change should be considered "*relative to the sensitivity of the setting of an asset*" (HES 2020b, 11), thereby making clear that assets vary in their sensitivity to changes in setting and thus have a relative sensitivity.

The EIA Handbook suggests that cultural significance aligns with sensitivity but also states that "*the relationship between value and sensitivity should be clearly articulated in the assessment*" (HES and SNH 2018, 184). It is therefore recognised (ibid) that the importance of an asset is not the same as its sensitivity to changes to its setting. Elements of setting may make a positive, neutral or negative contribution to the significance of an asset. Thus, in determining the nature and significance of effects upon assets and their settings by the development, the contribution that setting makes to an asset's significance and thus its sensitivity to changes to setting need to be considered.

This approach recognises the importance of avoiding significant adverse impacts on the integrity of the setting of an asset in the context of the contribution that setting makes to the experience, understanding and appreciation of a given asset. It recognises that setting is a key characteristic in understanding and appreciating some,

but by no means all, assets. Indeed, assets of High or Very High importance do not necessarily have high sensitivity to changes to their settings (e.g. do not necessarily have a high relative sensitivity).

An asset's relative sensitivity to alterations to its setting refers to its capacity to retain its ability to contribute to an understanding and appreciation of the past in the face of changes to its setting. The ability of an asset's setting to contribute to an understanding, appreciation and experience of it and its significance also has a bearing on the sensitivity of that asset to changes to its setting. While heritage assets of High or Very High importance are likely to be sensitive to direct impacts, not all will have a similar sensitivity to impacts on their setting; this would be true where setting does not appreciably contribute to their significance.

HES's guidance on setting makes clear that the significance of effect may relate to "*the ability of the setting* [of an asset] *to absorb new development without eroding its key characteristics*" (2020, 11). Assets with Very High or High relative sensitivity to settings impacts may be vulnerable to any changes that affect their settings, and even slight changes may erode their key characteristics or the ability of their settings to contribute to the understanding, appreciation and experience of them.

Assets whose relative sensitivity to changes to their setting is lower may be able to accommodate greater changes to their settings without having key characteristics eroded.

The criteria used for establishing an asset's relative sensitivity to changes to its setting is detailed in **Table 10-3**. This table has been developed based on AOC's professional judgement and experience in assessing setting effects. It has been developed with reference to the policy and guidance noted above including NPF4 (Scottish Government 2023), HEPS (HES 2019a) and its Designation Policy and Selection Guidance (HES 2020a), the Xi'an Declaration (ICOMOS 2005), the EIA Handbook (SNH & HES 2018) and HES's guidance on the setting of heritage assets (HES 2020).

Table 10-3: Criteria for Establishing Relative Sensitivity of a Heritage Asset to Changes to its Setting

Relative Sensitivity	Criteria
Very High	An asset, the setting of which is critical to an understanding, appreciation and experience of it, should be thought of as having Very High Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements thereof, make an essential direct contribution to their cultural significance.
High	An asset, the setting of which makes a major contribution to an understanding, appreciation and experience of it, should be thought of as having High Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements thereof, contribute substantially to their cultural significance.
Medium	An asset, the setting of which makes a moderate contribution to an understanding, appreciation and experience of it, should be thought of as having Medium Sensitivity to changes to its setting. This could be an asset for which setting makes a contribution to significance but whereby its value is derived mainly from its other characteristics (see HES 2020a for discussion of intrinsic, contextual and associative characteristics which may contribute to overall cultural significance).
Low	An asset, the setting of which makes some contribution to an understanding, appreciation and experience of it, should generally be thought of as having Low Sensitivity to changes to its setting. This may be an asset whose value is

Relative Sensitivity	Criteria
	predominantly derived from its other characteristics (see HES 2020a for discussion of intrinsic, contextual and associative characteristics which may contribute to overall cultural significance).
Negligible	An asset whose setting makes minimal contribution to an understanding, appreciation and experience of it should generally be thought of as having Negligible Sensitivity to changes to its setting.

The determination of a heritage asset's relative sensitivity to changes to its setting is, first and foremost, reliant upon the determination of its setting and the key characteristics of setting which contribute to its cultural significance and an understanding and appreciation of that cultural significance.

This aligns with Stage 2 of the HES guidance on setting (2020b, 9). The criteria set out in Table 10.3 are intended as a guide. Assessment of individual heritage assets is informed by knowledge of the asset itself; of the asset type if applicable and by site visits to establish the current setting of the assets. This allows for the use of professional judgement and each asset is assessed on an individual basis.

Criteria for Assessing Magnitude of Impact

Potential impacts, that is the physical change to known heritage assets, and unknown buried archaeological remains, or changes to their settings, in the case of the Proposed Development relate to the possibility of disturbing, removing or destroying in situ remains and artefacts during the construction phase or the placement of new features within their setting during the operational phase.

The EIA Handbook notes that "*In the context of cultural heritage impact assessment, the receptors are the heritage assets and impacts will be considered in terms of the change in their cultural significance*" (SNH & HES 2018, 181). Direct physical changes to assets during the construction phase will relate to the physical removal or damage (in part or whole) to a heritage asset and will therefore likely be adverse. However, the EIA Handbook states that "*When considering setting impacts, visual change should not be equated directly with adverse impact. Rather the impact should be assessed with reference to the degree that the proposal affects those aspects of setting that contribute to the asset's cultural significance*" (ibid).

It further indicates that magnitude of impact should largely be regarded in the context of impacts to "*elements of the fabric or setting of the heritage asset that contribute to its cultural significance*" (ibid, 184). It is further of note that the EIA handbook states that "*Change in the setting of an asset may be entirely neutral in terms of the resultant change in the asset's cultural significance, but this will rarely be the case where the actual fabric is affected*" (ibid).

On this basis, the magnitude of the impacts upon heritage assets caused by the Proposed Development is rated using the classifications and criteria outlined in **Table 10-4.** These criteria consider the extent of change which could be anticipated as a result of the Proposed Development in the context of the significance of the asset, including any contribution made by setting.

Table 10-4: Criteria for Classifying Magnitude of Impact

Magnitude of Impact	Criteria
High	Substantial loss of information content resulting from total or large-scale removal of deposits from an asset to the extent that it would result in a substantial loss of cultural significance; Major alteration of an asset's baseline setting, which materially compromises the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset and erodes the key characteristics (HES 2020) of the setting to the extent that it would result in substantial loss of cultural significance.
Medium	Loss of information content resulting from material alteration of the baseline conditions by removal of part of an asset that would lead to some loss of cultural significance; Alteration of an asset's baseline setting that affects the ability to understand, appreciate and experience the contribution that setting makes to the significance of the asset to a degree but whereby the cultural significance of the monument in its current setting remains legible. The key characteristics of the setting (HES 2020) may be partially eroded; there would be some loss of cultural significance.
Low	Detectable impacts leading to minor alteration to baseline conditions by removal of a small proportion of the asset, which would lead to slight loss of cultural significance; Alterations to the asset's baseline setting, which do not affect the ability to understand, appreciate and experience the contribution that setting makes to the asset's overall significance and would only lead to slight loss of cultural significance. Key characteristics would not be eroded.
Negligible	Loss of a small percentage of the area of an asset's peripheral deposits/fabric that would leave cultural significance unchanged; A reversible alteration to the fabric of the asset; A marginal alteration to the asset's baseline setting that would leave cultural significance of the asset unchanged.
None	No impact predicted

In line with HES guidance on setting (2020b) factors which will be considered in coming to a judgement regarding magnitude of impact will include, but not be limited to:

- "*whether key views to or from the historic asset or place are interrupted;*
- *whether the proposed change would dominate or detract in a way that affects our ability to understand and appreciate the historic asset;*
- *the visual impact of the proposed change relative to the scale of the historic asset or place and its setting;*
- *the visual impact of the proposed change relative to the current place of the historic asset in the landscape;*
- *the presence, extent, character and scale of the existing built environment within the surroundings of the historic asset or place and how the proposed development compares to this;*
- *the magnitude of the proposed change relative to the sensitivity of the setting of an asset;*

- *sometimes relatively small changes, or a series of small changes, can have a major impact on our ability to appreciate and understand a historic asset or place. Points to consider include:*
  - *the ability of the setting to absorb new development without eroding its key characteristics;*
  - *the effect of the proposed change on qualities of the existing setting such as sense of remoteness, current noise levels, evocation of the historical past, sense of place, cultural identity, associated spiritual responses; and*
  - *cumulative impacts: individual developments may not cause significant impacts on their own, but may do so when they are combined*" (ibid; 10-11).

Criteria for Assessing Significance

The significance of effect is judged to be the interaction of the asset's importance or relative sensitivity (**Table 10-2** and **Table 10-3**) and the magnitude of the impact (**Table 10-4**). In order to provide a level of consistency, the assessment of importance and relative sensitivity, the prediction of magnitude of impact and the assessment of significance of effect will be guided by pre-defined criteria.

The predicted significance of effect on each heritage asset is then determined by considering the asset's importance and/or relative sensitivity in conjunction with the predicted magnitude of the impact. The method of deriving the significance of effect is provided in **Table 10-5**.

Table 10-5: Significance of effect based on Inter-Relationship between the Importance and/or Sensitivity of a Heritage Asset and/or its Setting and the Magnitude of Impact

Magnitude of Impact	Importance and/or Sensitivity on an asset to changes to its setting				
	Negligible	Low	Medium	High	Very High
High	Minor	**Moderate**	**Moderate**	**Major**	**Major**
Medium	Negligible/ Neutral	Minor	**Moderate**	**Moderate**	**Major**
Low	Negligible/ Neutral	Negligible/ Neutral	Minor	Minor	**Moderate**
Negligible	Negligible/ Neutral	Negligible/ Neutral	Negligible/ Neutral	Minor	Minor

Whilst the tables are used to ensure a consistent approach, it is noted that the EIA Handbook states that where matrices "*are used, care must be taken to ensure that they are not applied in a mechanistic fashion or in a way that obscures the reasoning behind the assessment*" (SNH & HES 2018, 185). The EIA Handbook further states that "*Generally, a narrative approach will allow the assessor to set out their reasoning more clearly than a tabulated approach*" (ibid, 184). As such a qualitative descriptive narrative is provided for each asset to summarise and explain each of the professional value judgements that have been made in establishing sensitivity and magnitude of impact for each individual asset.

Where a neutral significance of effect is indicated in the table above this primarily relates to potential setting effects where the Proposed Development would be perceptible and thus result in a change to the baseline setting, but whereby the Proposed Development would not result in an adverse effect on the setting of the asset. This is in line with page 181 of the EIA Handbook (SNH & HES 2018), quoted above, which indicates that visual changes should not necessarily be considered to have an adverse impact upon setting.

Using professional judgment and with reference to the Guidelines for Environmental Impact Assessment (as updated) (IEMA 2017), and the EIA Handbook (SNH & HES 2018) the assessment considers moderate and greater effects to be significant (**bold** in **Table 10-5**), while minor and lesser effects are considered not significant.

Integrity of Setting

NPF4 indicates that development proposals affecting Scheduled Monuments will only be supported where "*significant adverse impacts on the integrity of setting of a scheduled monument are avoided*" (Scottish Government 2023, Policy 7h(ii), 46). Significant adverse impacts on integrity of setting are judged here to relate to whether a change would adversely affect the asset's key attributes or elements of setting which contribute to an asset's significance.

It is considered that a significant impact upon the integrity of the setting of an asset will only occur where the degree of change that will be represented by the Proposed Development would adversely alter those factors of the monument's setting that contribute to cultural significance such that the understanding, appreciation and experience of an asset are not adequately retained. In terms of effects upon the setting of heritage assets, it is considered that only those effects identified as '**significant'** in EIA terms will have the potential to significantly adversely impact upon integrity of setting.

Where no EIA significant effect is found it is considered that there would be no significant impact upon the integrity of an asset's setting. This is because for many assets, setting may make a limited contribution to their significance and as such changes would not significantly impact the integrity of their settings. Additionally, as set out in **Table 10-3**, lower ratings of magnitude of change relate to changes that would not obscure or erode key characteristics of setting.

Where EIA significant effects are found, a detailed assessment of adverse impacts upon integrity of setting is made. Whilst non-significant effects are unlikely to significantly impact integrity of setting, the reverse is not always true. That is, the assessment of an effect as being '**significant'** in EIA terms does not necessarily mean that the adverse effect to the asset's setting will significantly impact its integrity. The assessment of adverse impact upon the integrity of an asset's setting, where required, is a qualitative one, and largely depends upon whether the impact predicted would result in a major impediment to the ability to understand or appreciate the heritage asset.

Assessment of Cumulative Effect Significance

It is necessary to consider the effects arising from the addition of the Proposed Development to other cumulative developments. Consideration has been given to whether this would result in an additional cumulative change upon heritage assets, beyond the levels predicted for the Proposed Development alone.

The cumulative assessment has regard to the guidance on cumulative effects upon heritage assets as set out in EIA Handbook (HES & SNH, 2018) and utilises the criteria used in determining effects from the Proposed Development as outlined in **Tables 10.2 to 10.5**. The assessment of cumulative effects considers whether there would be an increased impact, either additive or synergistic, upon the setting of heritage assets as a result of adding the Proposed Development to a baseline, which may include operational, under construction, consented or proposed developments.

It is necessary to consider whether the effects of other schemes in conjunction with the Proposed Development will result in an additional cumulative change upon heritage assets, beyond the levels predicted for the Proposed Development alone.

In determining the degree to which a cumulative effect may occur as a result of the addition of the Proposed Development into the cumulative baseline, a number of factors are taken into consideration including:

- the distance between cumulative developments;
- the interrelationship between their ZTVs (i.e. theoretical visibility);
- the overall character of the asset and its sensitivity;
- the siting, scale and design of the cumulative developments themselves;
- the way in which the asset is experienced; and
- the placing of the cumulative development(s) in relation to both the Proposed Development being assessed and the heritage asset under consideration.

The contribution of the cumulative baseline schemes to the significance of the effect, excluding the individual proposal being assessed, upon the setting of the heritage asset under consideration. A cumulative assessment is based upon a list of operational, under construction or consented developments, along with developments where planning permission has been applied for.

No cumulative developments have been identified for this assessment and as such no cumulative assessment has been included here.

Requirements for Mitigation

National and local planning policies and planning guidance outlined in **Section 10-3** of this report require a mitigation response that is designed to take cognisance of the possible impacts upon heritage assets by a proposed development and avoid, minimise, or offset any such impacts as appropriate. The planning policies and guidance express a general presumption in favour of preserving heritage remains in situ wherever possible.

Their 'preservation by record' (i.e. through excavation and recording, followed by analysis and publication by qualified archaeologists) is a less desirable alternative. NPF4 notes that the policy intent is for the protection and enhancement of historic environment assets (Scottish Government 2023, 45). Policies related to designated assets (Policies 7a to 7j and 7l) prefer avoidance of impact and where this is not possible require that any impacts are minimised.

Policy 7o, relating to non-designated assets, states that these assets and their settings "*should be protected and preserved in situ wherever feasible [. . .] Where impacts cannot be avoided they should be minimised. Where it has been demonstrated that avoidance or retention is not possible, excavation, recording, analysis, archiving, publication and activities to provide public benefit may be required through the use of conditions or legal/planning obligations*" (ibid, 46-47).

Assessment of Residual Effect Significance

The residual effect is what remains following the application of mitigation and management measures. The level of residual effect is defined using criteria outlined in **Tables 10-2 to 10-5**. No direct mitigation is possible for setting effects (beyond embedded mitigation by design) and therefore residual operational phase effects on the setting of heritage assets would be the same as potential (pre-mitigation) effects.

10.4.4 Difficulties and Uncertainties

This assessment is based upon data obtained from publicly accessible archives as described in the Data Sources (**Section 10.4.2**) as well as a walkover survey and site visits to assets subject to setting assessment. HER data was received in July 2023 and for the access track in April 2025 and designated heritage asset and NRHE data was initially downloaded from HES in July 2023 and checked in January 2025.

The scope of the baseline data gathering, including study areas and sources, was agreed with consultees through pre-application consultation and the assessment adheres to relevant policy and guidance for undertaking assessment of archaeological and cultural heritage effects. The identification of the historic environment baseline provides an appropriate level of interrogation of known heritage assets and allows for a robust assessment of potential impacts.

The access track within FLS land north of the B727 was not subject to a walkover survey. A full assessment of this part of the access track has thus not been possible due to access restrictions; however it is noted the access here comprises an existing commercial forestry track which is of a width typical of wind farm access tracks and would require only minor upgrades for the Proposed Development.

10.5 Baseline Conditions

Landscape Character Assessment

The Historic Landscape Assessment Map (HLAMap, 2025) characterises the land within the western and central area of the Proposed Development Site as "*Rough Grazing*" land. This is described as "*Hill ground or lower-lying land that shows no evidence of recent agricultural improvement* [that] *can be used for rough grazing*". The type of land is considered to have evolved over the past 6000 years as a result of woodland clearance, grazing and episodic farming often pre-dating the 19th century. Archaeological remains from the prehistoric period have been identified in this type of land.

Part of the central area of the Proposed Development Site is located on land characterised as "*Plantation*", an area of densely packed coniferous species located within a clearly defined area. More recently, mixed species planting has been encouraged. Another area of "*Plantation*" is recorded within the southwestern area of the Proposed Development Site around Disdow Wood. Based on historic mapping this area appears to have been woodland in the late 19th century and is now occupied by commercial forestry.

The eastern area of the Proposed Development Site is located on land characterised as "*Rectilinear Fields and Farms*" an area typified as including field boundaries and associated farm steadings and other buildings typical of agricultural improvements since the 1700s with evidence of modern field amalgamation.

The land within the Proposed Development Site in the southwestern most area, north of the Gatehouse of Fleet is also characterised as "*Rectilinear Fields and Farms*".

An area described as being previously characterised as "*Later Prehistoric Settlement and Agriculture*" is located within the northwestern area, of the western area of the Proposed Development Site. This type of land characterisation is described as "*settlements and associated field systems dating from c. 1600BC to AD402*" which

survive either as "*upstanding remains in area of rough grazing and moorland or beneath the plough soils*". Burnt mounds are common assets identified in the vicinity of watercourses in this type of land.

Several areas within the western area of the Proposed Development Site have been previously characterised as "*Medieval/Post-medieval Settlement and Agriculture*". This type of land is described as including evidence of settlements and field systems which date to the pre-18th and 19th century agricultural improvements. Remains include head dykes, curvilinear boundaries and rig and furrow cultivation.

Geology and Topography

The British Geological Survey BGS (2025) records the bedrock underlying the western and central area of the Proposed Development Site as Cairnharrow Formation – Wacke a sedimentary bedrock formed between 443.8 and 433.4 million years ago during the Silurian period (**Figure 8.5)**.

The bedrock underlying the eastern and southwestern areas of the Proposed Development is recorded as Kirkmaiden Formation, Wacke a sedimentary bedrock formed between 443.8 and 433.4 million years ago during the Silurian period (BGS, 2025) (**Figure 8.5)**.

Mapping of the extent of superficial geological deposits by the BGS is not always accurate due to the discontinuity in distribution of these deposits and difficulties in accessing below ground data. The BGS (2025) has identified areas of peat within the north-western area of the Proposed Development Site; patches of Glaciofluvial Deposits, composed of gravel, sand and silt formed between 2.588 million years ago and the present around Loch Mannoch; and alluvial deposits composed of silt, sand and gravel, formed between 11.8 thousand years ago and the present around Loch Mannoch and the Tarff Water (**Figure 8.3)**.

Till, Devensian, a sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period is recorded as superficial deposit in the southwestern area of the Proposed Development Site (**Figure 8.3)**.

Paleoenvironmental Potential

The BGS (2025) notes the presence of peat and alluvial deposits within the Proposed Development Site (as shown on **Figure 8.3**)

Peatland classification undertaken for this assessment (**Chapter 8**) indicates that Class 1-5 Peat is recorded within the Proposed Development Site (**Figure 8.4)**. Deep peat may survive within Classes 1-3 and 5, which is recorded underlying the wind development and the southeastern extent of the Proposed Development Site which is not proposed for development.

The documentary record for Asset 68, within the northwestern area of the Proposed Development Site notes the location of the asset on the edge of an extensive area of "deep peat". Indeed, peat probing has recorded peat depths in excess of 1 m to the south and north of Asset 68.

A comprehensive programme of peat probing (detailed in **Chapter 8**) undertaken for this assessment identified:

- The most extensive peat deposits lie in the northwest of the Proposed Development Site, below the Wind Development;

- Much of the Proposed Development Site lacks peat, with probed depths <0.5 m;
- Almost no peat was recorded east of the proposed borrow pit and no peat is present within the Solar Development area;

The Proposed Development Site has been extensively drained in its western half with artificial drainage cut into both peat and organic soils and as such any underlying archaeological remains and/or paleoenvironmental deposits may have been truncated, damaged or even destroyed. Paleoenvironmental and archaeological remains are also known to survive buried in peat deposits and buried within and beneath alluvial deposits. Historic and modern research in Scotland suggests that paleoenvironmental remains can survive beneath such deposits and that this can help to better our understanding of vegetational and landscape development and thus anthropogenic activity in the region.

As such, there is the potential for archaeological and paleoenvironmental remains to survive in the Proposed Development Site, especially within areas of >1 m deep peat within the northwestern area of the Proposed Development Site. It should be noted the Applicant has avoided infrastructure on areas of deep peat greater than 1m depth.

Archaeological and Historical Background

The following sections have been divided by period, broadly defined based on the National Framework of the Scottish Archaeological Research Framework (ScARF, 2025), The South West Scotland Archaeological Research Framework, which would be pertinent to the Proposed Development Site, is currently being written.

Prehistoric (-AD400)

The Archaeologically Sensitive Area (ASA) known as Loch Mannoch (centred Asset 65) extends across the central area of the Proposed Development Site. The ASA has been designated on the basis of the Bronze Age settlement remains therein. Within the ASA a number of prehistoric remains have been previously identified including cairns, burnt mounds and a Scheduled cairn and stone circle (Asset 1) (see below).

Assets associated with the ASA within and recorded as extending into the Proposed Development Site include; eight burnt mounds (Assets 82 & 86-93) recorded along a ridge of high land; cairnfields (centred Assets 69, 74 & 79); and multi-asset sites including earthwork banks, possible buildings, enclosures, and burnt mounds (centred Assets 71, 72, 70-82, 84, 96 & 97). The exact function of burnt mounds is often debated, although these assets are often found by water channels, such as Anstool Burn to the west and an unnamed north-south aligned burn to the east and are thought to date from the prehistoric period. Assets within the multi-asset sites (centred Assets 71, 84 & 96) within the ASA date from later periods suggesting a long duration of activity in the area.

Within the centre northern area of the Proposed Development Site, to the north of the ASA, another four burnt mounds (Assets 75-78) have been recorded.

Within the western portion of the Proposed Development Site two stone walled hut circles (Assets 67 & 137) are recorded. Hut circles are often considered examples of Bronze Age and Iron Age domestic settlement, although their use may extend into the Early Historic period. Mr Phil McMenemy, a local artist noted that they believed there to be the potential for further settlement remains to be buried within the peat in western area of the Proposed Development Site (per comms 2023).

ScARF does note that it is not always possible to identify Iron Age hut circles without excavation and that hut circles can be degraded by subsequent agricultural activities and survive only as platforms or flat areas of ground (ScARF, N.d.). A number of cairns are also recorded in this area; however, it is unclear if all of these cairns are prehistoric in origin or if they are examples of later clearance or shelter cairns.

A number of cairns have been recorded within the eastern area of the Proposed Development Site, which are detailed in **Technical Appendix 10-1** and shown on **Figure 10-14**. Based on available records these do not appear to be prehistoric in origin and given their locations within improved land they appear unlikely to be examples of burial cairns and are thought to likely be later clearance cairns. However, a prehistoric origin cannot be wholly discounted, based on visual inspection alone.

The Scheduled Loch Mannoch cairn & stone circle N end of (Asset 1) probably dates to the Neolithic period and extends within 0.80 km of the Proposed Development Site. The cairn, composed of unworked stone, is located atop a natural knoll in a hollow.

The NRHE record for the cairn suggest that it has been previously investigated sometime before 1911, and that its current condition does not truly reflect its original form. There is no record of any cist or chamber being identified during historic excavations. The stone circle is currently located on a terrace immediately above Loch Mannoch, although before the creation of the Loch the circle was likely located on land above wetlands.

The circle reportedly consists of 13 stones, including a central stone, although as of 1968 only eleven stones were visible and this was confirmed during a site visit in September 2023. Peat around the stone circle has been recorded as being 0.3 m in depth suggesting that it is unlikely that stones have been lost within deep peat. It is possible that stones were lost or removed during the creation of Loch Mannoch in the modern era.

Other prehistoric remains within the Loch Mannoch ASA (centred Asset 65), but to the south of the Proposed Development Site include numerous burnt mounds (Assets 73,95, 101-106), two cairns of unknown date, possibly of prehistoric origin (Assets 107 & 111), and a possible stone circle (Asset 108) or outer circle to the Scheduled stone circle (Asset 1) recorded in 1895.

However, the NRHE records that no trace of a stone circle or outer circle was identified in 1959 or 1968 during subsequent surveys. The NHRE notes that a small hollow, possibly the remains of a bothy was identified at Asset 108 in 1959, although it cannot be certain whether the remains were those observed and misinterpreted in 1895. It is possible that the construction of Loch Mannoch had an adverse impact on any remains of a second circle or outer circle of Asset 1.

Within the 1 km study area, there is one other Scheduled Monument, Edgarton Mote, fort 690m SW of Camelon Bridge (Asset 2), c. 0.97 km northeast of the Proposed Development Site. The fort is described as a small walled settlement or fort on the summit of a knoll, which appears to have enhanced natural features for defences. Another non-designated fort (Asset 144) is recorded c. 1 km east of the Proposed Development Site on the summit of Barstobrick Hill; the fort is known as "Giants Dike", although there are limited above ground remains of the fort, and it's possible that the construction of the nearby 19th century monument (Asset 154) had an adverse impact on any prehistoric remains that may have been present.

There are a number of non-designated burnt mounds and cairns recorded within the 1 km study area. Some of the cairns may be of later date although some may be prehistoric burial cairns.

The ASA known as Grobdale (centred Asset 66) extends within the 1 km study area to the west of the Proposed Development Site. Whilst there are no prehistoric remains within the ASA and the 1 km study area, there are a number of prehistoric assets, including hut circles, burnt mounds and cairns recorded within the wider ASA and Grobdale valley.

Within the 2 km and 5 km study area lies the Scheduled Bargatton Farm, cairn 610m S of (Asset 3). The cairn survives as a large round cairn, which appears to have been robbed for stone in the past. The NRHE record for Asset 3 indicates that it may have been historically investigated as it is noted no cist or chamber had been exposed. During discussions with the farmer, they noted that their grandfather had used cleared stone from the adjacent field to fill in holes in the cairn (Per comms, 2023).

It is possible that the nearby stone field boundaries are constructed partially of material robbed from Asset 3 over time. The HER and NHRE also record a possible four cairns (Assets 221, 246, 253 & 306) and two burnt mounds (Assets 305 & 310) within the 2 km study area.

There is one other prehistoric Scheduled Monument within the 5 km study area, Craig Hill, fort, Laurieston (Asset 5). This fort or dun occupies a rocky summit of a hill, which has partially been planted with commercial forestry. Stone from the fort may have been repurposed as the local stone field boundary. The HER also records a number of non-designated cairns, forts and burnt mounds of potential national importance within the 5 km study area (**Technical Appendix 10-1**; **Figure 10-19**).

Within 10 km of the Proposed Development Site there are eleven prehistoric Scheduled Monuments (Assets 7-9, 12, 15, 17, 19, 21-23, & 25) largely characterised as forts, likely of Iron Age date. There is also a Scheduled cup and ring mark stone (Asset 15) and a cairn (Asset 9).

The Proposed Development Site appears to have been located within an active prehistoric landscape with evidence of activity from the Neolithic period onwards. There is considered to be a High potential for prehistoric, specifically Bronze Age, remains within the central and western areas of the Proposed Development Site.

Roman Scotland (AD c.50-AD 400)

The Iron Age period in Scotland is often referred to as a period ending in AD 400. Concurrently to this period, is a period of Roman activity and engagement in Scotland, usually termed the period between AD 77 and AD 211, although this is limited to direct Roman military occupation and periods of control of southern Scotland.

There is limited evidence for Roman activity within the Proposed Development Site or within close proximity. A Scheduled fortlet (Asset 31) is located c. 6.19 km to the northeast of the Proposed Development Site. The fortlet was excavated in the 1960s and records indicate that a rampart, two ditches, a northeastern gate, an oven and a number of post holes were identified. No interior structures were found although several were surmised to have been present. Pottery recovered dated the fort to sometime around AD81, during the Agricola campaigns. The fortlet is thought to be located on

the Roman road between Glenlochar – Gatehouse Of Fleet – Loch Ryan (NRHE NX55NE 24).

Another Roman fort with at least five camps, an annex and a section of road (Asset 33) is located c. 6.56 km northeast of the Proposed Development Site. The remains have been identified as crop marks from aerial photography. The Scheduled extent also encompass the remains of at least two barrows tentatively dated to the Bronze Age.

There is a paucity of evidence from the Roman period in the area in close proximity to the Proposed Development Site. As such there is considered to be a Low potential for remains of the Roman period to survive on the Proposed Development Site. The presence of individual finds cannot be wholly discounted.

Early Historic (AD400-AD1100)

The Early Historic period encompasses the time following the end of the Iron Age and the Norse period in Scotland.

It is possible that hut circles (Assets 67 & 137) recorded within the western area of the Proposed Development Site may have been in use into the Early Historic period, however they may also have been abandoned by that period. Indeed, there are no confidently dated Early Historic remains within the Proposed Development Site or within the 1 km study area. This may indicate that land use and settlement practises did not undergo any great changes in this period compared to the earlier periods. It may also reflect a change in land use and a distinctive change in activities which moved activity away from the Proposed Development Site.

Ramparts are noted as being added in the 6th and 7th centuries to the Iron Age fort on Trusty's Hill (Asset 19) c. 7.53 km southwest of the Proposed Development Site. A group of Class I Pictish stones are also noted as being cut onto rock by the fort entrance. This indicates that the fort likely continued to be used into the Early Historic period.

It is s possible that the likely Iron Age forts in the study areas also continued to be used in this period. Whilst there is a paucity of Early Historic remains recorded within the study areas, it is likely that activity continued in this period. There is judged to be a Low potential for remains of this date to survive on the Proposed Development Site, although the presence of any such remains cannot be wholly discounted.

Medieval (AD1100-1600)

There are no confidently dated medieval remains recorded within the Proposed Development Site. Patches of rig cultivation, including that centred Asset 375, recorded within the Proposed Development Site, are often attributed to the medieval period, although this type of agricultural practice did continue into the post-medieval period. The HLA suggests that agricultural activities began in at least the eastern area of the Proposed Development Site from the medieval period.

Two areas of Archaeological Interest which identify potential medieval rig and furrow, associated with earthworks and a building (centred Assets 71 & 83) extend into the central area of the Proposed Development Site within the Loch Mannoch ASA (centred Asset 65).

St Connels Chapel (Asset 141) is believed to have been a possible medieval chapel. The chapel remains were recorded in close proximity to the post-medieval and Category B Listed Kirkconnell Farmhouse (Asset 62) and immediately south of the eastern area of the Proposed Development Site. No remains of the chapel have been recorded since the 1960s. It is possible that the chapel indicates an earlier antecedent of Kirkconnel Farmhouse.

Within the 1 km study area the medieval period is identified via the presence of agricultural remains, including areas of rig and rig and furrow cultivation, banks, clearance cairns and enclosures (Asset 112, 150, 157. 381). Two such assets (Assets 112 & 381) are located in areas of Archaeological Interest to the south of the Proposed Development Site. The records for these assets, from the NRHE and HER are not conclusive and these agricultural remains may be of medieval or later origin, although an earlier origin is hypothesised.

Indeed based on the land use depicted in the early post-medieval period and the HLAMap, the relatively lower lying areas around the Proposed Development Site were dominated by agriculture and it is likely that some of the activity originated in the medieval period; and may be earlier in date. There are other post-medieval agrarian remains recorded within the 1 km study area (**Technical Appendix 10-1** and **Figure 10-14** to **Figure 10-17**) which may have medieval origins or antecedents.

The building of castles is a tradition that was imported into Scotland in the early 12th century. Castle and motte sites have been found to occupy earlier Iron Age forts. Motte's, or mounds of earth, artificial hills or flattened natural summits, usually with timber defences and structures and sometimes associated with outer bailies, are common to this period. Within 5 km from the Proposed Development Site there are two the Scheduled motte sites; Kirkcormack, motte, Mayfield (Asset 28) aka "Carse Mote" and Trostrie Mote, motte (Asset 4).

Based on the NRHE description, the Kirkcormack, motte, Mayfield (Asset 28) is believed to also be the location of an earlier fort. A chapel (Asset 259) is reportedly associated with the motte which is thought to have been dedicated to St Cormac, a 10th century saint at one time associated with Iona. Trostrie Mote, motte (Asset 4) occupies the summit of a natural summit and is surrounded by a well defined ditch.

Within the 10 km study area HES records six Scheduled castles or castle sites (Assets 6, 13, 14, 32, 193 & 250) and six mottes (Assets 7, 16, 20, 24, 27 & 29). Other medieval Scheduled Monuments within the 10 km study area include fishponds (Asset 11), a moated homestead (Asset 26) thought to be associated with the Abbots and later Bishops of Galloway, and the 12th century Anworth Church (Asset 30).

The Category A Listed Rusco Tower (Asset 38) is an early 16th century rectangular tower house located c. 5.76 km to the west of the Proposed Development Site.

Possible medieval non-designated assets of potential national importance within the 10 km study area include ecclesiastical and defensive structures, as well as possible settlement and agricultural remains.

There is a paucity of distinctive medieval assets within the Proposed Development Site, although the Proposed Development Site was likely in agricultural use in the medieval period. There is judged to be a Medium potential for remains of this date to survive, although the presence of any such remains is likely to be limited to buried cultivation remains.

Post-Medieval (AD1600-1900)

Early maps encompassing the Proposed Development Site tend to be schematic and lack detail, although these maps can give some idea of the nature of settlement patterns and land use. Pont's map dated 1654 (not illustrated) annotated "Kirkconnell" in the southern portion of the eastern area of the Proposed Development Site with a pictogram of a church, indicating that the chapel (Asset 141) may have still be in use at that time or indeed present. To the north is a place annotated as "*Laermannoch*" likely Lairdmannoch (either Asset 168 or 169).

The land between these two place names, the Proposed Development Site, varies from east to west, with a river system, the Tarff Water, depicted to the east, and uplands to the west. Moll's map of 1745 (not illustrated) similarly depicts the Proposed

Development Site occupying the land to the west of the Tarff Water and characterised as uplands.

Roy's Military map of Scotland (1747-55- **Figure 10-23**) depicts the Proposed Development Site to the west of the Tarff Water. A number of buildings within a polygonal enclosure and associated three enclosures are depicted in the vicinity of the eastern area of the Proposed Development Site.

These likely represent the late 18th century Category B Listed Kirkconnel Farmhouse and steading (Asset 62), along with other ancillary agricultural buildings and associated agricultural land. Two annotations to the north "*Lairg Mannoch*" and "*Nether Lairg Mannoch*" are illustrated within arable land. These buildings are likely antecedents to the later Upper Lairdmannoch (Asset 168) and Laig Laidmannoch (Asset 169) within the northern boundary of the eastern area of the Proposed Development Site.

The centre and western area of the Proposed Development Site are depicted in an upland landscape. A northeast, southwest curvilinear road is depicted as extending across the western area of the Proposed Development Site. This road appears to extend to Laurieston to the northeast but appears to end around "Lochwhonion" or Loch Whinyeon to the west. "Hillheart", likely Hillhead (Asset 421) is depicted within cultivated land within the southwestern area of the Proposed Development Site.

The Proposed Development Site was located within the Parish of Twynholm. The main landowner in the parish is noted as being the Earl of Selkirk. The Old Statistical Account of Scotland (OSA) published in 1795 notes that whilst crops were produced in the area the majority of the land was in use for grazing. The land is described as having "*rocky and gravelly knolls*" (Scott, 1795).

Ainslie's map dated 1820 (not illustrated) annotates the location of Kirkconnell (Asset 62) and Lairdmannoch (likely Asset 168), to the west of the Tarff Water in the vicinity of the eastern area of the Proposed Development Site. The land within the centre and western areas of the Proposed Development Site appears to be crossed by water courses. Neither Lairdmannoch (Asset 169) and Upper Lairdmannoch (Asset 168) are annotated separately on Thomson's 1821 map (not illustrated). The southwestern area of the Proposed Development Site appears to cross land occupied by hills. Hillhead (Asset 421) is annotated at the southern-most end of the Proposed Development Site.

The New Statistical Account (NSA) of Scotland notes that large areas of the parish were occupied by woodland by the 1840s. Some of the woodland is noted as being planted for aesthetic reasons such as that along the River Dee, and that within local estates such as Barwhinnock (centred Asset 195). Arable land is noted as occupying double the amount of space as pasture land by this period. Land drainage is noted as providing more useable land in the parish, although the extent of this work is noted as being limited by farmers' finances (Gordon, 1845).

The Ordnance Survey (OS) map published in 1852 (**Figure 10-24**) depicts the eastern area of the Proposed Development Site within enclosed land. The southeastern area is annotated "*Liable to floods*" and is depicted as being crossed in a north-south alignment by the Tarff Water.

The Category B Listed Kirkconnell Farmstead (Asset 62) is depicted within the southern boundary of the eastern area of the Proposed Development Site, with associated north-west, south-east aligned rectangular buildings, likely ancillary buildings. The land within the eastern area of the Proposed Development Site was likely associated with

the Farm (Asset 62). To the west of the Farm a "*mill lead*" and "*Mill dam*" are annotated. Kirkconnell Farm (Asset 62) is recorded in the OS Name Book (1848-51) as a "*large, neat farmhouse with extensive out offices and …about 2000 acres of land attached, half of which is moorland. There are three different farms …in the 2000 acres*".

A chapel (Asset 141) is noted in the vicinity as being "*dedicated to St Connell*" (OS, 1851). An area of "*stones*", recorded by the HER as a clearance cairn (Asset 210), a gravel pit (Asset 412) and a bridge (Asset 387) are annotated within the southern portion of the eastern area of the Proposed Development Site.

Within the northeastern corner of the eastern area of the Proposed Development Site Upper Lairdmannoch (Asset 168) is depicted as an L-shaped structure associated with other smaller ancillary buildings, including some annotated as "*Ruins*". "*Laig Lairdmannoch*" (Asset 169) is annotated within the eastern area of the Proposed Development Site to the south and is also annotated as "*Ruins*". Upper and Laig Lairdmannoch are likely the other two farmhouses noted in the OS Name book entry for Kirkconnell (Asset 62).

The OS Name Book record for Upper Lairdmannoch (Asset 168) states that it is a "*dwelling house… formerly a farm house and is now occupied as a cot house… it is in the estate of Hiral Stewart Murray esq of Broughton*". Laig Lairdmannoch is documented as "*a cot house… formerly a farmhouse in the land of Kirkconnell*" (OS1851b). A cot house or cothouse is a small cottage often occupied by farm labourers in the past. The western portion of the eastern area of the Proposed Development Site is depicted as a large, enclosed field. Two old fences and a "*Quarry*" (Asset 414) are annotated within this area.

The central area of the Proposed Development Site is depicted within unimproved, wet ground to the east of the Anstool Burn. Another north-south aligned burn, to the east and parallel to the Anstool Burn is also depicted within this area as is a cairn, annotated as a "*Shepherds*" (Asset 79), suggesting that it was believed to be of a relatively modern date when recorded.

The western area of the Proposed Development Site is depicted within land to the west of the Anstool Burn in undulating and rising land. The eastern half appears to have been in part enclosed, with field boundaries depicted. The western half comparatively does not have any field boundaries and was likely unenclosed land. The southern portion of the of the western area of the Proposed Development Site is illustrated as being occupied by wetlands. A number of cairns, also annotated as "*Shepherds*" (Assets 100, 130/340 & 138), an Old Sheep Ree (centred Asset 67) and a quarry (Asset 386) are recorded on this map (**Figure 10-24**).

The southwestern area of the Proposed Development Site is depicted generally as being occupied at its northern end by unenclosed moorland, although former fence lines and enclosures (Assets 419, 430, 432 & 434) are recorded to the west of Glengap indicating that discrete areas were improved. Enclosed fields and agricultural buildings (Assets 425, 427 & 428) and quarries (Assets 423, 424 & 429) are depicted at the southern extent, as is Disdow Wood. Hillhead (Asset 421) and associated kennels (Assets 437) and quarry (Asset 436) are depicted north of the Gatehouse of Fleet, as is an old drain (Asset 422).

A plan of the Myefield Estate dated 1878 (not illustrated) indicates that the central portion of the western area of the Proposed Development Site was located within that

Estate. This map also records the western extent of the western area of the Proposed Development Site belonging to "*H.G. Murray Stewart Esq*", this may be the same Stewart as recorded as owning Upper Lairdmannoch (Asset 168) in 1851.

The map suggests that the land to the east, within the central area of the Proposed Development Site, was within the "*Lands of Cally*". The estate of Cally, centred on the Inventory Garden and Designed Landscape (Asset 37) and Cally House (Asset 48), was owned by the Murray family in the 19th century. The familial name "*Murray Stewart*" indicates the Cally estate, which now extends c. 6.3 km southwest of the Proposed Development Site once extended within the Proposed Development Site.

The OS maps published in 1894-5 (not illustrated) do not record any changes to the Proposed Development Site in the late 19th century.

Heritage assets within the 1 km study area can be largely characterised by agricultural, land management and residential related post-medieval remains, mainly recorded from historic OS cartography. Full details of these assets are within **Technical Appendix 10-1** and they are identified on **Figure 10-14** to **Figure 10-18.** Numerous cairns recorded as undated in **Technical Appendix 10-1,** may date from the post-medieval period and relate to field clearance activities and land improvement as suggested by the NSA.

In addition to the agricultural and residential remains of the post-medieval period, two 19th century commemorative monuments are recorded within the 1 km study area; Kirkconnell Moor (Asset 143) to the south; and Barstobrick Hill, Neilson's Monument (Asset 144) to the east of the Proposed Development Site.

Kirkconnell Moor (Asset 143) marks the grave of a martyr and the place of death of four other Covenanters slain in the late 17th century. Barstobrick Hill, Neilson's Monument (Asset 144) is a monument to James Beaumont Neilson, who once owned the Quenshills Estate in which the monument stands. Neilson invented the hot-blast process of iron-making, increasing the efficiency of smelting iron. The monument was erected in 1883 by Neilson's son. In the modern era the monument is a landmark for walkers (SoS, 2025).

There are numerous post-medieval Listed Buildings within the 5 km study area. These are shown on **Figure 10-19, Figure 10-20** and detailed in **Technical Appendix 10-1.** Argrennan House (Asset 51) is a Category A Listed Building, associated with two Category B Listed Buildings (Assets 176 & 178) set within an 18th century landscape park (centred Asset 208) to the southeast of the Proposed Development Site.

Laurieston Hall (Asset 57) is a Category B Listed Building associated with a Category C Listed Stables (Asset 59) set within an 18th century landscape (centred Asset 202) located to the north of the Proposed Development Site. Another Category B Listed House, Dildawn House and Walled Garden (Asset 174), set within a non-inventory garden and designed landscape (centred Asset 207), is located to the east of the Proposed Development Site.

Other Category B Listed Buildings within the 5 km study area include bridges (Assets 175 & 177), a farmhouse (Asset 58), and village residential properties (Assets 60 & 61). Another a non-inventory garden and designed landscape, Balmaghie House (centred 206) extends into the 5 km study area to the east of the Proposed Development Site.

Category C Listed Buildings within the 5 km study area include a memorial (Asset 63) and Windhover and Lilac Grove (Asset 64). Post-medieval non-designated assets of potential national importance within the 5 km study area can be characterised as commemorative memorial sites and agricultural related remains.

There are 23 post-medieval Category A Listed Buildings (Assets 39-50, 52-56, 179-185) between 5 km and 10 km from the Proposed Development Site; one of which Cally House Hotel, formerly Cally House (Asset 48) is located within Cally Inventory Garden and Designed Landscape (centred Asset 37); and six of which (Assets 39, 40, 41, 45, 50) are located within non-inventory garden and designed landscapes (centre Assets 194, 198, 205, 211).

In general, the Category A Listed Buildings can be characterised as manor houses within formalised landscapes dating from the 17th and 18th centuries, ecclesiastical and commemorative buildings and bridges (**Technical Appendix 10-1**). Four of the Category A Listed Buildings (Assets 179-183) are located within the Conservation Area of Kirkcudbright (centred 140), with 12 High Street (Asset 180) also located within the Inventory Garden and Designed Landscape of Broughton House (centred Asset 186).

Notwithstanding the non-inventory garden and designed landscapes (centred Assets 195-197, 199-204, 207 & 209) previously mentioned there are another nine between 5 km and 10 km from the Proposed Development Site dating from the post-medieval period. Non-designated assets of potential national importance between 5 km and 10 km include a 17th century cross (Asset 35), ecclesiastical buildings (Assets 240, 242 & 248) and agricultural related remains.

There is judged to be a High potential for post-medieval remains to survive on the Proposed Development Site. Remains of this period are likely to reflect agricultural practices as well as limited settlement and abandonment activity.

Modern (AD1900-Present)

The OS maps published in 1909 (not illustrated) suggest that the Proposed Development Site underwent very little change in the late 19th and early 20th centuries. A water body annotated as "*Loch Mannoch*" is also illustrated in the central area of the Proposed Development Site along the Anstool Burn. The waterbody must have been constructed between surveys for the OS map published in 1894-5 (not illustrated) and 1909((not illustrated).

The OS maps published in 1957 ((not illustrated) depict a polygonal area of woodland within the central area of the Proposed Development Site. Gatehouse Golf Course, which extends into the 100m study area around the southwestern extent of the Proposed Development Site, was constructed sometime between 1910 and 1957.

There is one modern Category A Listed Building, Galloway Electric Power Scheme (Asset 54), to the south between 5 km and 10 km from the Proposed Development Site. The Inventory Garden and Designed Landscape of Threave Gardens (centred Asset 36), which was constructed in the 1960s, is centred to the east of the Proposed Development Site.

There is judged to be a High potential for modern remains to survive on the Proposed Development Site. Remains of this period are likely to reflect agricultural practices as well as limited settlement and abandonment activity, as well as the construction of Loch Mannoch.

It must be considered that the majority of the central and eastern areas of the Proposed Development Site are still in use as pastoral and arable land. Research has shown that modern agricultural activities, including long term vehicle movements and

deep ploughing can have an adverse impact on upstanding and buried archaeological remains.

Aerial Photography

Aerial photographs from 1946-1991 were viewed online via AOC Archaeology Group's online subscription to the NCAP's online collections or as pdf research copies ordered from NCAP (**Section 10.13**).

In general, photography from 1946 (Sortie 106G/Scot/UK/0044 & 106G/Scot/UK/0044) shows the land west of the Anstool Burn within an upland landscape, dominated by moorland and small burns. Field boundaries and a stand of trees, as drawn on the OS maps published 1957 ((not illustrated), are also visible on these photographs.

Straight, parallel linear features are visible within the western area of the of Proposed Development Site. These appear to be related to land drainage rather than cultivation. Land to the east of the Anstool Burn, within the Proposed Development Site, in general appears to have been semi and fully improved. Paleochannels around the Anstool Burn are also visible on the photography taken in 1946 and are illustrative of the movement of the Burn over time.

A possible sheep ree (Asset 342) is visible as a rectangular, cellular structure on the eastern side of a north-south aligned field boundary within the central area of the Proposed Development Site on the photography from 1946 (Sortie 106G/Scot/UK/0044 & 106G/Scot/UK/0044). To the west of Asset 342, on the western side of a north-south aligned unnamed burn, a possible sub-square enclosure with south and eastward projecting linear features (Asset 405) and two circular features are visible; the larger and more northern of which (Asset 84) is described by the NRHE as a circular enclosure. The southern one (Asset 415) appears to be a c.14 m diameter circular enclosure.

The land within the eastern area of the Proposed Development Site, west of the A762 appears to have been in use as arable land indicated by the presence of hay bales within the fields (Sortie 106G/Scot/UK/0044 & 106G/Scot/UK/0044). What appears to be ground disturbance is visible to the south of Upper Lairdmannoch (Asset 168) on the photography. The origin of such disturbance is unclear, although it may be related to vehicular movement and is limited to the either side of the road which extends roughly south-east from Asset 168.

The southwestern most area of the Proposed Development Site, south of Hillhead (Asset 421) is visible as being occupied by grassed fields in photography from 1946 (Sortie 106G/Scot/UK/0042 Frame 3351). Gatehouse Hill Wood and Disdow Wood are both visible north of Hillhead (Asset 421). A golf course is visible to the west of Disdow Wood, within 100m of the Proposed Development Site (Sortie 106G/Scot/UK/0041 Frame 3054).

The Scheduled cairn of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) is visible as a sub-circular feature to the west of the northern extent of Loch Mannoch on the photography from 1946. A central collection of stone appears to be defined by a ditch and surrounded by another ring of stones.

The sheep ree (Asset 342) within the central area of the Proposed Development Site is also visible on a photograph taken in 1961 (Sortie 58/RAF/4736 Frame 0082). Imagery from October 1961 shows the Proposed Development Site similarly to that recorded by photography in 1946.

The forestry plantations at Glengap Forest appear to have been partially planted and mature in the southwestern area of the Proposed Development Site by 1988 (Sortie ASS/62588 Frame 0198).

Five possible cairns (Assets 210, 239, 366, 367 & 413) are visible as sub-circular, positive features in arable land to the west and north of Kirkconnel Farmstead (Asset 62) on colour photography taken in April 1991 (Sortie AF/91C/0025 Frame 930). Large, industrial buildings are visible at Upper Lairdmannoch (Asset 168), indicating that the buildings or the area was likely still in use at this time. In general, this photograph shows the eastern area of the Proposed Development Site within enclosed, arable land.

Photography taken in September 1991 (Sortie OS/91/0300 Frame 220) shows a circular feature occupying the summit of high ground to the west of the northern extent of Loch Mannoch. The feature is likely the cairn of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1). A sheep ree (Asset 342) is also visible on this photograph. A stand of trees immediately east of the central area of the Proposed Development Site, appears to have been partially felled, and another stand of trees appears to have been planted to the south of Upper Lairdmannoch (Asset 168) by 1991. Linear, parallel features visible in the western extent of the western area of the Proposed Development Site are likely evidence of continuing drainage and land management activities.

LiDAR Imagery

Phase 3 LiDAR is available for the entire Proposed Development Site. The Scottish Public Sector LiDAR (Phase 3) was captured by Fugro for Scottish Power Energy Network (SPEN) in 2015 and 2016 and to monitor their overhead power cable network under their Virtual World Asset Management programme. In addition, two pilots' flights were included flown on behalf of the Scottish Border Council project Whiteadder in 2019.

The Scottish Government procured this dataset with a contribution from SEPA for public use in 2019 (Crown Copyright, Scottish Government, SEPA and Fugro, 2020).

LiDAR data for the Proposed Development Site included 0.5m spatial resolution Digital Surface Model (DSM) and Digital Terrain Model (DTM) which have been produced from combining Phase 1 and Phase 4 LiDAR Point Clouds and subsequently enhanced by implementing different visualisation techniques.

Analytical Hillshading (x16), Sky View Factor (SVF), Visualisation for Archaeological Topography (VAT), Simple Local Relief model (SLRM), Laplacian Filter and VAT & Analytical Hillshading (x16) have been produced by using the software Relief Visualization Toolbox 2.2.1 and SAGA GIS.

Hill shading is the most common visualisation technique for archaeological purposes and is effective for identified earthwork features (Chalis, 2011; Hesses, 2010, Kokaji et al., 2011; Kokaji, et al. 2017). Challis (2011) and Doneus (2013) note that reliance on a single technique can be detrimental and state that whilst hill shading may be the most common form of visualisation it can be the least likely to identify, in detail, archaeological remains. Simple Local Relief Model (SLRM) (also known as Local Relief Models) greatly enhances the visibility of small scale, shallow topographic features (Hesse, 2010).

LiDAR imagery indicates that the land within the eastern area of the Proposed Development Site has been at one time arable land. Regular linear features are visible

in this area suggesting some form of historic ploughing. No grid patterning is visible suggesting that the direction of ploughing does not appear to have changed regularly.

Two areas of relatively wider, regularly spaced linear features are visible centred on Asset 375 to the south of Upper Lairdmannoch (Asset 168). The HER had previous identified the northern most area as one where rig cultivation is evidenced and the patterning of linear feature in this area is comparable to rig cultivation. To the south, another area of east-west aligned linear features are visible bisected by a north-south aligned linear feature. The cultivation remains may also be a form of rig cultivation on the relatively lower lying ground.

Relatively wider spaced linear features within the eastern extent of the central area of the Proposed Development Site may be evidence of historic arable land usage, however the linear features may also reflect drainage activities.

Field boundaries are visible within the western area of the Proposed Development Site, although linear features in this area appear to be relatively deeper features compared to those visible in the rest of the Proposed Development Site. These types of features are more commonly associated with drainage channels. Field boundaries which correspond to historic fields boundaries recorded on the OS map published in 1852 (**Figure 10-24**) are also identifiable in the western area of the Proposed Development Site.

The route of the existing track, which runs roughly northeast from the Gatehouse of Fleet within the southwestern area of the Proposed Development Site is visible on LiDAR imagery. Rig cultivation (centred Assets 379-381) and a potential field system (centred Asset 380) recorded by the DGHER was identified on LiDAR imagery as part of this assessment, however no upstanding remains were identified during the walkover survey.

This indicates that the rig cultivation may survive as buried remains and reflects surviving field systems. Field systems and patterning which are comparable to historic and modern mapping, as well as linear features which correspond to planted forestry are also visible on LiDAR imagery.

Walkover Survey

This section should be read in conjunction with **Technical Appendix 10-2 Photographic Plates.** Plates referenced in the text below correspond to those contained in **Appendix 10-2.**

A walkover survey of the western area of the Proposed Development Site was undertaken on the 23 September 2020 in sunny and overcast conditions. This area was found to be located in land generally rising to the west to undulating moorland, interspersed with minor burns.

Two previously identified assets; a cairn field composed of three cairns (Asset 69; Plates 10-2-10-4) varying in size between 2.5 m and 3.5 m in diameter; and the location of an enclosure (Asset 100; Plate 10-5) with twinning pen were recorded during the walkover survey.

The walkover survey also recorded six potential clearance cairns (Assets 130-136; Plates 10-6 & 107), two heaps of stone, also potentially clearance cairns, (Assets 129 & 138) and a possible degraded hut circle. The hut circle (Asset 137; Plate 10-8) corresponds to a feature visible on LiDAR imagery.

A sub-circular and rounded stone (Asset 416- Plate 10-9) of unknown origin was also identified within an area of short grass. Across the central axis of the stone, at least six, sub-ovular hollows were identified. The walkover survey team did not think the stone was evidence of rock art.

A walkover survey of the central and eastern areas of the Proposed Development Site was undertaken on the 25th and 26th September 2023 in overcast and clear conditions.

The central area of the Proposed Development Site was found to occupy semi-improved pastureland between the Anstool Burn to the west, Loch Mannoch to the south, plantation forestry to the north and a north-south aligned dry stone boundary wall to the east. The land within this area was generally found to slope upwards from south to north (Plates 10 & 11).

Vegetation within this area ranged in height from ankle to thigh high grasses and ferns, and it is thought that the taller vegetation could have obscured more ephemeral archaeological remains. The walkover survey in this area was also determined by the presence of cows and young calves, which were avoided by the survey team and thus a systematic survey was not possible.

A number of burnt mounds (Asset 86-93) have been previously identified within this area within the extent of the Loch Mannoch ASA (centred Asset 65). This area was occupied by ferns which may have masked the remains of any upstanding burnt mounds. The ridge of land, on which burnt mounds have been identified (centred Assets 80 & 81) was identified (Plate 10-12) although individual mounds were not identified.

A double dry stone walled sheep ree (Asset 342; Plate 10-13), recorded by the HER and historic mapping was identified along the eastern boundary of this area. The sheep ree walls survived c. 1.5 m in height.

Two old field boundaries (Assets 401 & 402) composed of a low, linear, grass covered stone mounds were identified within the central and southern portions of the central area of the Proposed Development Site. The east-west aligned boundary (Asset 401; Plate 14) corresponds to a linear boundary depicted on the OS map published in 1852. Asset 402 (Plate 10-15) survives as a curved linear feature and may have been reused in the modern period as a track. This linear feature (Asset 402) is not depicted on available historic mapping and may pre-date the 19th century.

A square enclosure (Asset 405) measuring c. 5 m north-south by 6 m east-west and surviving to a maximum height of 0.4 m with facing stones visible along the southern extent (Plate 10-16) was identified in the central area of the Access Track. Asset 405 was recorded as an enclosure or structural base likely dating to the post-medieval period.

Three stone clearance cairns (Assets 391 (Plate 10-17), 406 (Plate 10-18) & 407) were also identified during the walkover survey A possible quarry or area of outcrop working (Plate 10-19) was identified immediately south of Asset 407, and the asset may just comprise unused quarried stone.

The eastern area of the Proposed Development Site was found to occupy generally south-eastward sloping, improved, enclosed grass land. This area is partially bound to the south by the Tarff Water, which is located in a steep V-shaped valley. This area is bound to the east by the A762.

The Grade II Listed Kirkconnel Farmhouse and Steading (Asset 62) located within Proposed Development Site appears to be an abandoned whitewashed farmhouse

with extensions to southern elevation (Plate 10-20) located to the south of a U-shaped courtyard (Plate 10-21). The courtyard at least appears to still be in agricultural use.

The Listed Building is currently surrounded by pasture land. A modern cottage was identified along the track to the southeast of the farmhouse and appears to have been inhabited.

The non-designated Upper Lairdmannoch (Asset 168; Plate 10-22) was found to survive as a complex of abandoned buildings including; an unroofed south facing two storey house with concrete or harled exterior at the northern end of the complex; two stone built roofed structures likely barns; an east-west aligned corrugated metal roof barn or ancillary building; and at least three metal, wooden and concrete enclosures.

The buildings reflect the long term residential and agricultural use of Upper Lairdmannoch from at least the mid-18th century to the modern day. An area of rig cultivation (centred Asset 375) identified by the HER to the south of Asset 168 was not identified during the walkover survey, however it was noted that the area had been recently used as cattle pasture (Plate 10-23) and any upstanding remains of rig cultivation may have been adversely impacted by animal trampling or vehicle movements. Rig cultivation (Asset 375) visible on LiDAR imagery suggest cultivation remains may survive as buried archaeology even if they cannot be discerned on the ground. Modern agricultural practices are known to have an adverse impact on upstanding and buried archaeological remains (Dunwell & Ralston, 2008 & Nobel et.al, 2019).

A field system (centred Asset 122) recorded by the NRHE and HER from historic mapping further to the south of Upper Lairdmannoch (Asset 168) was found to survive as a series of dry-stone field boundaries (Plate 10-24) which do not appear to have undergone any great change compared to their historic depictions. Modern metal gates were observed within the stone walls and some alterations were visible along the boundary with, a stand of trees indicating some change.

Twenty clearance cairns (Assets 239, 366-368, 388, 390, 392-400, 403, 408-411 & 413), composed of stone and varying in size were recorded within the eastern area of the Proposed Development Site. Four of these cairns (Assets 239 & 366-368) had been previously identified by the HER. The cairns were found in areas of improved ground and are likely evidence of improvement. The cairns may also indicate the location of historic arable land use, compared to the current dominant land use which is now pastoral. Each cairn is individually detailed in **Technical Appendix 10-1**. Plates 10-25 to 10-28 are a selection of photographs of the twenty cairns which can also be located on **Figure 10-14**. Another potential clearance cairn was recorded as a mound composed of a grass covered stones (Asset 404; Plate 10-29).

A quarry (Asset 412) was recorded within the western river terrace of the Tarff Water, parallel to the A76.

The Access Track in the southwestern area of the Proposed Development Site was surveyed on the 18 March 2025 in sunny and clear conditions. The Access Track north of the B727 was found to follow an existing farm track (Plate 10-40) which allows access to Hillhead (Aset 421). An old drain (Asset 422; Plate 10-41) recorded on historic mapping was found to still be in existence and formed the field boundary running parallel to and west of the existing track.

The northern portion of the Access Track was found to occupy an area of undulating moorland and rough pasture. No evidence of upstanding rig cultivation was identified in the areas of rig and furrow and field systems recorded by the DGHER (Assets 379-381).

Three separate stone dykes (Plate 10-44), two aligned east-west running parallel to one another and one aligned north-south were recorded in the extent of Asset 380 which includes historic field systems. The dykes likely reflect historic patterning and were found to survive in poor condition.

A stone spread (Plate 10-42) measuring c. 8 m by c. 5.3 m surviving to a height of 0.25 m with evidence of burnt material was identified in the vicinity of a previously recorded burnt mound (Asset 127). No mound was encountered at the grid reference given for Asset 127 and it is likely this represents a slightly erroneous grid reference for the spread of burnt stone identified during the survey, as the NRHE description fits the location of the feature encountered.

A clearance cairn (Asset 428; Plate 10-43) measuring 4m in diameter and surviving to a height of 0.5 m, was identified in an area of improved land. The cairn is likely evidence of post-medieval field improvement in the area however its exact date is unknown.

10.5.1 Future Baseline

In the case that the Proposed Development does not proceed, the future baseline would likely be unchanged from what has been recorded previously and as part of the survey for this assessment.

Agricultural and recreational activities within the Proposed Development Site, such as cattle grazing and vehicle movement may have an adverse impact on the condition of upstanding built and earthwork remains over time (Dunwell & Ralston, 2008 & Noble et al. 2019).

10.6 Embedded Mitigation

Development Design

The design of the Proposed Development has been carefully considered. The Proposed Development, including the location of wind turbines within the western area of the Proposed Development Site has been designed to take cognisance of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) and its setting. Particular emphasis was placed on keeping the turbines beyond the ridgeline to the west of the asset where possible. The positioning and the extent of the solar array has also been designed with the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) in mind, with panels being placed beyond the ridgeline to the east of the Scheduled Monument. HES were consulted on the Proposed Development and its potential settings impacts at an early stage and throughout the evolution of the turbine and solar layouts. (**Table 10-1**).

Pre-application consultation, with regard to the previous 12 turbine layout with maximum blade tip height of 150 m was undertaken in 2020/2021 and identified the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) as a key consideration for the Proposed Development. This previous iteration would have seen the previous redline boundary extend 500 m to the east of the Scheduled Monument (Asset 1).

Between pre-application and Scoping, the Proposed Development was reduced by three turbines and the tip height was increased from 150m to 180m, with the positioning of the turbines taking into consideration this sensitive receptor. Ground mounted solar and battery storage was also added to the design at this stage, see **Chapter: 3 Description of Development**. The Wind Development array at Scoping included nine turbines. The closest proposed turbines were proposed over 1 km to the west and northwest of the Scheduled cairn and stone circle (Asset 1).

Preliminary visualisations were used to consider potential settings impacts and design iterations sought to minimise effects as far as possible. These were shared with HES following Scoping (**Table 10-1;** 12 February 2024). Turbines 8 and 9 were identified by HES as being of "*particular concern*" directly backdropping the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1). Turbine 8 was located c. 1.52 km northwest and Turbine 9 was located c, 1.13 km northwest of the of the Scheduled cairn (Asset 1), the nearest element of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1).

Following these comments from HES, the locations of Turbines 8 and 9 were altered. At this time the turbines were renumbered with Turbine 8 and 9 becoming Turbines 1 and 2. Turbines 1 and 2, now the closest wind turbines to this sensitive receptor are located as to not directly backdrop the cairn in views from the stone circle. The distance between the Scheduled cairn and stone circle (Asset 1) and Turbines 1 and 2 was also increased following HES's comments. Turbine 1 is located 1.29 km northwest and Turbine 2 is located 1.76 km northwest of the Scheduled cairn (Asset 1), to the nearest element of the Scheduled Monument.

Whilst the setting of the Scheduled cairn and stone circle (Asset 1) has been a key consideration in the design iteration of the Proposed Development and attempts have been made for turbines not to backdrop the assets when viewed from each other however the design of the wind turbines is also constrained by other environmental factors as described in **Chapter 3: Description of Development** in Section 3.2.2.

The design of the solar array has also taken cognisance of the location and setting of the Scheduled cairn and stone circle (Asset 1). HES raised concerns following a review of cultural heritage visualisations based on the previous 'Design Chill' iteration of the Proposed Development, as described in **Chapter 3: Description of Development** in **Table 3-1**.

As shown in **Table 10-1,** HES response to AOC Consultation on 23 January 2024 Received 12 February 2024), HES stated that "*The montages provided indicate that the western extent of the solar array is also visible in key views out from the monument over the valley that the cairn and stone circle would have overlooked. This will likely affect the ability to appreciate the monument's relationship with its immediate and wider landscape in the open views to the east and south-east*."

Following these comments solar panels have been removed and pulled back from the ridgeline to the east of Loch Mannoch to limit visibility of the solar array and to limit their inclusion in key views out from the Scheduled Monument into the valley now dominated by Loch Mannoch.

Archaeological remains and paleoenvironmental remains have been found to survive in Scotland buried in peat deposits, especially within undisturbed and deeper peat deposits. Peat deposits have been recorded within the northwestern area of the Site.

Areas of deeper peat (typically greater than 1 m) have been avoided by design. For full details see **Chapter 8**.

Protection of Archaeological Sites

Loch Mannoch ASA (centred Asset 65) and numerous heritage assets (**Figures 10-14** to **Figures 10-16**) have been recorded within the Proposed Development Site. The Proposed Development has been designed to avoid direct impact upon individual heritage assets wherever possible.

10.7 Potential Effects

10.7.1 Construction Effects

Construction impacts associated with the Proposed Development include construction works for an energy park consisting of nine wind turbines at up to 180 m to tip height, ground mounted solar and battery energy storage systems (BESS) and associated infrastructure including electrical transformers, hardstandings, access roads, cabling, borrow pits and electrical substation.

Other construction activities, such as vehicle movements, soil and overburden storage and landscaping, as well as ecological and habitat enhancements also have the potential to cause direct, permanent, and irreversible direct physical impacts to cultural heritage assets.

As such, the construction of the Proposed Development has the potential to disturb, damage or destroy heritage assets including buried remains of cultural heritage interest.

Construction effects on cultural heritage receptors, as discussed here, have been limited to direct physical impacts on heritage features and deposits. Whilst there is some limited potential for impacts upon the setting of designated heritage assets to occur during the construction phase, any such effects would be temporary, and it is considered that setting effects resulting from construction would not exceed the predicted operational effects upon the setting of heritage assets. As such, with aim of achieving proportionality, the potential for setting effects is considered under operational effects.

Known heritage assets

This assessment has identified one Category B Listed Building (Aset 62) and 91 non-designated heritage assets (**Table 10-6**) within the Proposed Development Site (**Figure 10-14** to **Figure 10-17**). The effects; Beneficial, negligible or adverse, short, medium or long term, Temporary or permanent, direct and indirect effect, and their importance as described in **Table 10-2** are detailed in **Table 10-6.**

Table 10-6: Heritage Assets within the Proposed Development Site

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
62	Kirkconnel Farmhouse and Steading	Listed Building- Category B	None	None	None	None	Medium
65	Loch Mannoch	Archaeologically Sensitive Area	Adverse	Long	Permanent	Direct	Medium
67	Millae- Hut circle	Non-designated Heritage Asset	None	None	None	None	Low
68	Millae- Bank	Non-designated Heritage Asset	None	None	None	None	Negligible
69	Loch Mannoch- Cairnfield	Non-designated Heritage Asset	None	None	None	None	Negligible
71	Loch Mannoch- Bank	Non-designated Heritage Asset	None	None	None	None	Negligible
74	Anstool Burn- Cairnfield	Non-designated Heritage Asset	None	None	None	None	Negligible
75	Upper Lairdmannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
76	Upper Lairdmannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
77	Upper Lairdmannoch- Burnt Mound	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Low
78	Upper Lairdmannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
79	Anstool Burn- Cairnfield	Non-designated Heritage Asset	None	None	None	None	Negligible
80	Loch Mannoch- Bank	Non-designated Heritage Asset	None	None	None	None	Negligible
81	Loch Mannoch- Bank	Non-designated Heritage Asset	None	None	None	None	Negligible

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
82	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
84	Loch Mannoch- Bank	Non-designated Heritage Asset	None	None	None	None	Negligible
85	Loch Mannoch- Cairn	Non-designated Heritage Asset	None	None	None	None	Low
86	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
87	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
88	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
89	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
90	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
91	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
92	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
93	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
94	Loch Mannoch- Cairn	Non-designated Heritage Asset	None	None	None	None	Low
100	Loch Mannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
121	Upper Lairdmannoch- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
122	Upper Lairdmannoch- Field	Non-designated Heritage	Adverse	Long	Permanent	Direct	Low

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
	System	Asset					
127	Dow Craig Hill- Burnt Mound	Non-designated Heritage Asset	None	None	None	None	Low
129	Heap of Stones	Non-designated Heritage Asset	None	None	None	None	Negligible
130	Possible clearance cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
131	Clearance cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
132	Clearance cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
133	Clearance cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
134	Clearance cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
135	Clearance cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
136	Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
137	Hut circle	Non-designated Heritage Asset	None	None	None	None	Low
138	Shepherds cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
149	Kirkconnel Linn- Lade	Non-designated Heritage Asset	None	None	None	None	Negligible
168	Upper Lairdmannoch- Farmstead	Non-designated Heritage Asset	None	None	None	None	Negligible
169	Upper Lairdmannoch- Building	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
210	Clearance cairn?	Non-designated Heritage Asset	None	None	None	None	Negligible
239	Clearance cairn?	Non-designated Heritage Asset	None	None	None	None	Negligible
340	Shepherds cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
341	Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
342	Sheep ree	Non-designated Heritage Asset	None	None	None	None	Negligible
356	Clearance cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
366	Clearance cairn?	Non-designated Heritage Asset	None	None	None	None	Negligible
367	Clearance cairn?	Non-designated Heritage Asset	None	None	None	None	Negligible
368	Clearance cairn?	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
375	rig cultivation	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Low
379	Rig cultivation	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Low
380	Field system, rig	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Low
381	Rig cultivation	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Low
386	Millae Old Quarry	Non-designated Heritage Asset	None	None	None	None	Negligible
387	Kirkconnel Bridge	Non-designated Heritage	None	None	None	None	Negligible

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
		Asset					
388	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
390	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
391	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
392	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
393	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
394	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
395	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
396	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
397	Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
398	Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
399	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
400	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
401	Old Field Boundary?	Non-designated Heritage Asset	None	None	None	None	Negligible
402	Old Field Boundary?	Non-designated Heritage Asset	None	None	None	None	Negligible

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
403	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
404	Mound	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
405	Square Enclosure?	Non-designated Heritage Asset	None	None	None	None	Negligible
407	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
408	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible
409	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
410	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
411	Clearance Cairn	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
412	Quarry?	Non-designated Heritage Asset	None	None	None	None	Negligible
413	Clearance Cairn?	Non-designated Heritage Asset	None	None	None	None	Negligible
414	Quarry	Non-designated Heritage Asset	Adverse	Long	Permanent	Direct	Negligible
415	Circular feature	Non-designated Heritage Asset	None	None	None	None	Negligible
422	Old Drain	Non-designated Heritage Asset	None	None	None	None	Negligible
423	Gravel Pit	Non-designated Heritage Asset	None	None	None	None	Negligible
426	Gravel Pit	Non-designated Heritage	None	None	None	None	Negligible

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Importance
		Asset					
427	Old Fence	Non-designated Heritage Asset	None	None	None	None	Negligible
428	Hay Ree	Non-designated Heritage Asset	None	None	None	None	Negligible
429	Gravel Pit	Non-designated Heritage Asset	None	None	None	None	Negligible
430	Old Fence	Non-designated Heritage Asset	None	None	None	None	Negligible
434	Enclosure(s)	Non-designated Heritage Asset	None	None	None	None	Negligible
438	Clearance Cairn	Non-designated Heritage Asset	None	None	None	None	Negligible

Whilst the Category B Listed Kirkconnel Farmhouse and Steading (Asset 62) is located within the Proposed Development Site, the Proposed Development will have no effect on the Listed Building itself or on the immediately surrounding buildings and agricultural land.

Loch Mannoch ASA (centred Asset 65) encloses an area where multi-period anthropogenic remains have been recorded from the prehistoric period onwards around the Anstool Burn and the northern area of Loch Mannoch. The ASA is judged to be of Medum importance. The infrastructure track, linking the Proposed Development would cross through two discreet areas of the ASA; the eastern area parallel to an area where a number of burnt mounds, of possible prehistoric date, have been recorded; and the northern area between two cairnfields (centred Assets 74 & 79) of unconfirmed date.

Whilst the Proposed Development has avoided the known heritage assets within the ASA, the construction of the Proposed Development has the potential to impact unknown heritage assets as well as paleoenvironmental and archaeological deposits which *may* survive within the ASA. The Proposed Development has the potential to have an adverse, direct, permanent, long term effect on the ASA.

The field system at Upper Lairdmannoch (centred Asset 122), which is recorded within the western portion of the eastern area of the Proposed Development Site, survives as existing stone wall field boundaries associated with areas of woodland which dates from the post-medieval period, likely from the 19th century. An area of rig cultivation (centred Asset 375), recorded by the HER but not identified during the walkover survey, is recorded in the northern portion of the eastern area of the Proposed Development Site.

Whilst upstanding remains were not visible on the Proposed Development Site, LiDAR imagery indicates that buried remains may survive. The origin of the cultivation remains may date form the medieval period onwards. As agricultural field systems which reflect historic land management and division the assets are considered to be of Low importance. The Proposed Development would have a direct effect on surviving elements of the assets which would lead to an adverse effect on any surviving remains as well as any associated buried remains which would be long term and permanent.

An area of rig cultivation (centred Asset 375) which is visible on LiDAR imagery, but which was not seen to survive as upstanding earthworks during the walkover in 2023, is located within the northeastern area of the Proposed Development. Rig cultivation may date from the medieval period. As an example of agrarian land use in the Proposed Development Site which is also recorded on historic mapping and which was in pastoral use in 2023, the asset is judged to be of Low importance.

The Proposed Development would be constructed within the area where rig is recorded and as such has the potential to directly impact any upstanding and buried remains as well as any deposits associated with the rig cultivation. The Proposed Development would lead to an adverse, permanent ang long term effect.

There are four (Assets 368, 392, 397, 409) clearance cairns recorded within eastern area of the Proposed Development Site which would be directly impacted by the Proposed Development. The Proposed Development would have a long term and permanent effect on the cairns and any associated buried remains. The importance of clearance cairns, as assets which reflect historic land improvement and land management and

which are common and numerous to the agricultural landscape, is judged to be negligible. It is possible that the clearance cairns recorded within the Proposed Development Site, including the six identified here may have earlier origins. Any impact on such assets would lead to an adverse, permanent ang long term effect.

As detailed in **Table 10-6**, the Proposed Development would have an effect on 83 non-designated heritage assets recorded within the Proposed Development Site.

Access Track

The Access Track occupies the southwestern area of the Proposed Development Site. There is the potential for direct impacts as the construction of the Access Tracks, including any upgrading of existing portions of track, and cutting and filling activities which will require ground breaking works. Ground breaking works have the potential to directly impact known and unknown heritage assets.

Nine heritage assets were recorded within the extent of the southwestern Proposed Development Site. The Access Track crosses three areas identified as Archaeological Regions by the DGHER (centred Assets 379-381) (**Figure 10-17**). Rig cultivation (centred Assets 379-381) and a potential field system (centred Asset 380), likely dating from the medieval and/or post-medieval periods has been recorded within these areas (centred Assets 379-381). Indeed, historic mapping and satellite imagery indicates the survival of field systems and improved ground in these areas.

A review of LiDAR imagery as part of this assessment indicates evidence of the rig cultivation and shows surviving field systems. No evidence of the rig cultivation was identified during the walkover survey. Rig cultivation and associated field systems are judged to be of Low importance (**Table 10-2**) being fairly common agricultural remains recorded in the area which is largely recorded on historic mapping and has been identified by previous archaeological studies. Any impact to upstanding or buried rig cultivation or historic field systems would be considered to be a direct, adverse, permanent, long term effect.

Dow Craig Hill burnt mound (Asset 127) is located within the Proposed Development Site. The description of the location of the burnt mound is given as being in a "*gully to the west of a track*". The remains of the burnt mound were identified during the walkover survey at a slightly different location than that given by the HNHRE. As a burnt mound, the asset is considered to be of low importance. No effect is anticipated on the burnt mound (Asset 127).

Three recorded gravel pits (Assets 423, 426 & 429), an old fence (Asset 427) and an old drain (Asset 422), found to still be in use to the west of an existing track, have been identified via historic mapping. These assets are considered to be of negligible importance being common features of the post-medieval agricultural landscape. Assets 423, 426, 427 & 427 are located in the footprint of the existing track within the FLS land and any remains and deposits associated with those assets were likely adversely impacted when that track was originally constructed. No impact on these assets is anticipated.

Unknown heritage assets and archaeological/paleoenvironmental deposits

The Proposed Development extends within close proximity to nine non-designated heritage assets (Assets 366, 367, 395, 398, 403, 408, 410, 411 & 414). These assets would be considered to be of negligible importance, being fairly common features of a post-medieval improved agricultural landscape. Whilst these assets will be avoided by design and thus no direct, physical impact is anticipated (**Table 10-6)**, there is the potential for buried archaeological remains associated with the construction, use and abandonment of these assets to extend around the upstanding remains and be directly impacted by the Proposed Development.

The importance of hitherto unknown archaeological remains on the Proposed Development Site cannot be predicted, although as the assets are of likely post-medieval date the importance of any surrounding deposits would likely correspond to that of their respective assets.

There is judged to be the potential for hitherto unknown buried archaeological remains to survive on the Proposed Development Site. The importance of hitherto unknown archaeological remains on the Proposed Development Site cannot be predicted although any prehistoric remains would likely be of relatively higher importance compared to post-medieval agricultural remains.

The Proposed Development has been designed to avoid where possible areas of peat deposits over 0.5m in depth, see **Chapter 3 Description of Development** for further information on site design. There is judged to be potential for paleoenvironment deposits and buried archaeological remains to survive within peat deposits, especially deeper (>1m deep) deposits, although it is acknowledged that historic and modern artificial drainage activities may have truncated any/or damaged these deposits. Any paleoenvironmental deposits are likely to be of a Low importance but would add further contextual information about the local environment and its development through time.

The potential impact of the Proposed Development on hitherto unknown archaeological remains and/or paleoenvironment remains and buried archaeological assets within the Proposed Development footprint would be considered to be a direct, adverse, permanent and long term effect.

Potential Enhancement Features

The Habitat Management Plan (HMP) states that wildflower planting requires topsoil to be stripped and subsoil to the ripped prior to wildflower seeds being sown for the best chance of establishment (**Volume 3 Technical Appendix 6-6**). Wildflower planting has been proposed as a potential enhancement feature around the Solar Development.

In the case that the areas identified on **Figure 6-9** are stripped there would be a direct physical impact on four clearance cairns (Assets 388, 396, 410 & 411). Clearance cairns are considered to be of negligible importance. Any impact to upstanding or buried remains associated with the clearance cairns would be considered to be a direct, adverse, permanent, long term effect.

Wodland planting is also proposed in the vicinity of the Solar Development. The planting of trees would require ground breaking works and the planting of trees can have an adverse impact on known heritage assets. There are eleven known heritage

assets (Assets 77, 169, 356, 390, 395, 399, 404, 407, 410, 411, 414) recorded within the areas proposed for woodland planting. Burnt mounds (Asset 77) and the remains of post-medieval buildings are considered to be of low importance, and the importance of clearance cairns are considered to be negligible**.** Any impact to these assets would be considered to be a direct, adverse, permanent, long term effect.

A quarry (Asset 386) recorded from historic mapping within the northern boundary Proposed Development Site is judged to be of negligible importance. Potential planting activities associated with the feathering of adjacent conifer plantation for black grouse is unlikely to impact the remains of the quarry. No impact is anticipated.

The stripping of large areas and the scarring of subsoil as well as area planting for woodland has the potential to have an adverse impact on hitherto unknown archaeological remains. The impact on hitherto unknown heritage assets would be considered to be a direct, adverse, permanent and long term effect.

10.7.2 Operational (Including Maintenance) Effects

Operational effects include potential effects upon the settings or character of designated assets such as Listed Buildings, Scheduled Monuments, and Inventory Gardens and Designed Landscapes (GDL), Conservation Areas and non-statutory garden and designed landscapes (note there are no Inventory Battlefields or World Heritage Sites located within the study areas) as well as non-designated heritage assets and considered to be of potential national importance (**Table 10-1**) and identified by the authors of this Chapter following site visits. No direct physical effects upon designated or non-designated assets are anticipated during the operational phase.

A series of bare earth zone of theoretical visibility figures (ZTV's) have been produced for the Proposed Development (Chapter 5). The following ZTV's are relevant to this assessment:

- A bare earth blade tip ZTV (Figure 5-5-3) is based on a tip height of 180 m, the OS T5 digital surface model (DSM) and T50 digital terrain model (DTM) and a viewer's eye height of 2 m;
- A bare earth hub height ZTV (Figure 5-5-1) is based on a hub height of 98.5 m, the OS T5 digital surface model (DSM) and T50 digital terrain model (DTM) and a viewer's eye height of 2 m; and
- A bare earth solar ZTV (Figure 5-11) is based on a panel height of 3.5 m, the T50 digital terrain model (DTM) and a viewer's eye height of 2 m.

In addition to the ZTV, all the designated heritage assets within the 10 km study area have been subject to an assessment to identify their key characteristics and key views. No designated heritage assets outwith the ZTV were identified as having key views or relationships in which the Proposed Development would be located and assets outwith the ZTV have been subsequently scoped out. This is in line with consultation with HES (**Table 10-1**).

Following a review of designated heritage assets beyond the 10 km study area, HES agreed that designated heritage assets beyond 10 km could be scoped out of this assessment (**Table 10-1**).

This assessment of operational effects is informed by cultural heritage wirelines and photowire visualisations as well as photomontages (**Figures 10-1 to 10-13**) created for this assessment. The Landscape and Visual Impact Assessment (**LVIA - Chapter 5**)

visualisations (photomontages and wirelines) from LVIA viewpoints (VP's-1 through 25) have also informed this assessment where relevant.

A detailed assessment of the impact of the Proposed Development on the setting of heritage assets identified through Scoping and consultation as requiring detailed assessment, (**Table 10-1**) is presented in **Table 10-7**. This assessment details the effects; including whether they are beneficial, negligible or adverse, short, medium or long term, temporary or permanent, direct or indirect as well as their relative sensitivity as described in **Table 10-3.** In terms of settings effects the term at worst is considered to be Medium and Temporary, as the Proposed Development has a designated lifespan and may be changed or removed in the future.

A setting assessment of the other 133 designated heritage assets and non-designated asset of potential national importance within the 10 km study area, and within the ZTV, has been undertaken for the Proposed Development. These assessments are presented in **Technical Appendix 10-3: Settings Assessment**. All plates referenced can be found in **Technical Appendix 10-2.**

Table 10-7: Setting Effects of the Proposed Development on Designated Heritage Assets identified as requiring detailed assessment through Scoping and consultation

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Relative Sensitivity
1	Loch Mannoch, cairn and stone circle N end of	Scheduled Monument	Adverse	Medium	Temporary	Direct	High
2	Edgarton Mote, fort 690m SW of Camelon Bridge	Scheduled Monument	Adverse	Medium	Temporary	Direct	High
3	Bargatton Farm, cairn 610m S of	Scheduled Monument	Adverse	Medium	Temporary	Direct	High
5	Craig Hill, fort, Laurieston	Scheduled Monument	Adverse	Medium	Temporary	Direct	High

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Relative Sensitivity
128	Cairntosh Hill, cairn	Scheduled Monument	Adverse	Medium	Temporary	Direct	High
38	Rusco Tower	Category A Listed Building	None	-	-	-	Medium
30/55	Anwoth Old Church, cross slab & Gordon Tomb	Scheduled Monument/ Category A Listed Building	None	Medium	Temporary	None	Medium
37	Cally	Inventory Garden & Designed Landscape	None	Medium	Temporary	None	Medium

Asset Number	Asset Name	Designation	Beneficial/Negligible /Adverse	Term	Temporary/ Permanent	Direct/ Indirect	Relative Sensitivity
62	Kirkconnel Farmhouse and Steading	Category B Listed Building	Adverse	Medium	Temporary	Direct	Medium
139	Gatehouse of Fleet	Conservation Area	None	Medium	Temporary	None	Medium
144	Barstobrick Hill, Neilson's Monument	Non-designated Heritage Asset	Adverse	Medium	Temporary	Direct	High
145	Giant's Dike Barstobrick Hill	Non-designated Heritage Asset	Adverse	Medium	Temporary	Direct	High

Loch Mannoch, cairn and stone circle N end of (SM1033- Asset 1)

The Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) is formed of two separate circular elements; one covers the remains of a cairn, located atop a slight plateau; and the other encompasses the remains of a stone circle found to be currently composed of eleven standing stones during a site visit in 2023 (Plates 10-31 to 10-33).

Stone circles and cairns have been dated in Scotland to the Neolithic period (c. 3800-c. 2500BC (ScARF, 2025b), although research has indicated later dates of origin and the long-term use and reuse of these types of assets. The two elements have been Scheduled as one Scheduled Monument by HES, who have recently stated that this is based on their proximity and north-west, south-east alignment (HES, 2024).

This alignment can only refer to their physical, and visual alignment based on the supposed alignment of the central stone of the stone circle. The alignment of the cairn is not wholly understood. The cairn is described by the NRHE (there is no Scheduling description available from HES) and was found during a site visit to be a circular cairn with no discernible entrance or alignment potentially due to historic/antiquarian intervention, located on a roughly circular plateau of land, which slopes downwards in all compass directions.

There appears to be a paucity of scientific evidence that the elements are contemporary, although if constructed separately whichever was the latter likely took cognisance of the other. Overall, the elements reflect long term prehistoric ritual and funerary/burial activity in wider area of prehistoric activity.

The Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) is located at the northern end of a natural topographic bowl, formed by rising land to the north, and upwards sloping land to the east and west. HES (2024) state that the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) would have once overlooked other ritual and funerary monuments surrounding the river valley, now occupied by Loch Mannoch.

However, relationships to prehistoric funerary, burial and ritual assets to the south, within the extent of Loch Mannoch are not recorded by HES, the NRHE or the HER and historical mapping offers no further clues to what these may be. A possible stone circle (Asset 108) has been recorded within 60 m to the north of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1), however since its original recording in the late 19th century it has not been identified on the ground.

It is possible that the remains were adversely impacted by the construction of Loch Mannoch, that it was incorrectly identified or that it now only survives as a buried asset. As such any contemporary assets related to the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) in the immediate surrounds appear to have been wholly lost with the construction of Loch Mannoch. As such whilst it is purported that the cairn and stone circle were part of a wider funerary and ritual landscape this is not wholly supported by current knowledge.

The Bronze Age Settlement ASA (centred Asset 65) known as Loch Mannoch which encompasses Bronze Age remains extends to the north and northwest of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) and encompasses the cairn and stone circle and provides context for Bronze Age activity as well as multi-period activity in the area and highlights the relationships to the north identified by HES. The assets recorded within the ASA include burnt mounds of uncertain function as well as multi-

period domestic and agricultural remains, suggesting the long term use of the area for settlement.

A site visit in 2023 identified the stone circle located on the western edge of the northern extent of Loch Mannoch (Plate 10-42) and the cairn located on a low summit to the west of the northern end of the Loch (Plate 10-43). This location of a prehistoric funerary, ritual and burial monument in close proximity to waterbodies is not uncommon in Scotland.

The land to the north was found to undulate and rise gently (see Plates 10-10 & 10-18 for general view of the northern extent of Loch Mannoch) and was occupied by a polygonal copse of trees (Plate 10-33) utilised by the landowner for recreational hunting activities, and semi-improved grassland largely overgrown by ferns. Based on historic mapping and aerial photography (Sortie OS/91/0300 Frame 220) the copse is a relatively modern landscape feature and was planted after 1991.

The area to the north appears to have historically been arable land which is no longer in use or maintained as such; although cattle were identified further north indicating that the area is still in pastoral use. The land to the east rises to a low ridge, occupied by a stand of trees and defined by a low and broken stone wall.

The stand of trees is recorded on historic mapping from at least 1957, although based on the aerial imagery from 1991 (Sortie OS/91/0300 Frame 220) the stand has been restocked. The wall defines the modern extent of arable land further to the east which slopes downwards and divides it from the land to the west which slopes downwards to Loch Mannoch (see Plate 10-32). The land to the south slopes downwards and is currently occupied by the waterbody known as Loch Mannoch and is bound on either side by rising ground, forming the river valley (see Plates 10-10 & 10-18).

Based on historic mapping, Loch Mannoch appears to have been formed sometime around the turn of the 20th century by damming and flooding the southern extent of the Anstool Burn before it joins the Tarff Water, an unnamed north-south aligned burn and the northern extent of Glengap Burn. The land either side of the Loch is occupied by fern covered grassland. Individual trees were visible and areas of woodland were visible on the eastern side of the Loch around the dam.

This woodland appears to have been planted after 1957 based on historic mapping. The land to the west undulates, sloping down around the Anstool Burn and then rising to a low, defined ridgeline occupied by moorland (see Plate 10-31). The land further west slopes generally upward and is occupied by moorland (see Plate 10-3). In general, the current setting of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) appears to be on the border between improved and unimproved land and has been altered in the 20th century by the construction of Loch Mannoch and modern tree planting.

The setting of the assets comprising the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) as they were when constructed is not easily appreciable with no knowledge of the landscape prior to the construction of Loch Mannoch. The understanding and appreciation of the setting of the assets is also made difficult as it is not certain if the assets are contemporary or have a dissonance of date.

The original setting of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) at present can only be based on pre-20th century mapping however this itself is not necessarily representative of the original setting of the Scheduled Loch Mannoch,

cairn & stone circle N end of (Asset 1) as it reflects the post-medieval location of waterways, land divisions and landscape use. Historic OS mapping (**Figure 10-24**) locates the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) between the Anstool Burn to the west and an unnamed north-south aligned burn to the east.

The cairn is identified on a summit on the edge of what is drawn to represent relatively drier or improved land to the west and the land to the east, the location of the stone circle is depicted as being within moorland. Whilst Roy's map (**Figure 10-23**) is less detailed, it indicates that the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) were located in undulating uplands to the north of the main water channel, the Tarff Water, and in the vicinity of small burns.

These maps indicate the land in close proximity to the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) was not improved, nor used for arable activities however without further evidence and based on the location of other prehistoric remains, it is likely that the land around the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) or small parcels of this land may have been intensively cultivated or improved for agricultural and settlement purposes, even in the prehistoric period.

As such, when constructed, the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) would likely have been located in an active prehistoric landscape, near waterways, and near areas of improved ground and settlements as identified in the ASA (centred Asset 65), which is in part dissimilar to the present landscape. Any assessment of the original setting of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) would be better informed by landscape reconstruction data from macro and microfossil analysis.

The modern landform, which echoes the historic burn valley in which the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) were constructed contributes to the understanding, appreciation and experience of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1).

The relative sensitivity of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1), in line with **Table 10-3** is judged to be high as their setting is a key characteristic of their cultural significance.

Based on the ZTV and visualisations, the solar element of the Proposed Development is not anticipated to be visible from the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) (**Figures 10-1g; 10-2e**). All nine turbines of the wind element of the Proposed Development are theoretically visible from the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) (**Figures 10-1b-f**). The effect of the Proposed Development on the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) is judged to be adverse, medium term, temporary and direct.

Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2)

The Scheduled Edgarton Mote, fort (Asset 2) has been described as a fort or small walled settlement which occupies a prominent rocky low ridge c. 121 m AOD. A rampart identified on the north and south may be indicative of defensive structures associated with the fort, however its topographical positioning is also indicative of a defensive nature. The land to the west rises gradually up towards Craigelwhan and the

land to the south slopes downwards towards lower lying land on the western side of the River Dee to the north of Bargatton Loch.

This topography suggests that the fort overlooked the fertile land to the east, potentially allowing it to manage the surrounding land and exert control. The elements of setting which provides cultural significance for Edgarton Mote, fort include its topographical prominence and defensible position as well as its relationship to potentially contemporary remains. The relative sensitivity of Edgarton Mote is considered to be high.

The ZTV's for the Proposed Development indicate that the Proposed Development would be intervisible with the fort and indeed the fort was identifiable from the Proposed Development Site (Plate 10-34). **Figure 10-8** indicates that nine turbine hubs would be visible from the fort beyond a ridgeline to the northwest. The solar ZTV indicates that both the northern and southern portions of the solar array would be visible from the majority of the Scheduled extent. Whilst the Proposed Development would be visible, as a modern development, the fort's topographical position would be unchanged and its location above the fertile plain to the east would remain appreciable.

The effect of the Proposed Development on the fort is considered to be adverse, of medium term, temporary and direct.

Bargatton Farm, cairn 610m S of (SM1002; Asset 3)

The cairn at Bargatton Farm (Asset 3) survives as a sub-circular robbed cairn to the south of a roughly east-west aligned dry stone field boundary wall. It is likely that stone forming the cairn has been robbed in the past for the construction for the nearby stone walls. The farmer also commented that there were once holes in the cairn, which they believed to have been historic investigations into the cairn and noted that these were infilled by the farmer's grandfather (per comms 2024).

The cairn is located on a relatively flat plateau in a post-medieval and modern agricultural landscape dominated by field patterning of those periods. The land to the south slopes downwards to a modern reservoir which may have been an historic water body and rises gradually upwards to the north, east and west. The cairn does not appear to have been constructed on a high topographic location however its lower siting may be associated with prehistoric settlement patterns and waterways.

Another cairn, recorded by the HER is located c. 170 m northwest and may be further evidence of prehistoric burial and funerary activity in the lower lying area. The cairn as a burial and funerary monument is considered to be of high relative sensitivity to change.

The Proposed Development, based on the ZTVs prepared for this assessment, would likely be intervisible with the cairn to the southwest in rising land. Indeed, **Figure 10-5** shows that nine turbines would be visible from the cairn. The northern portion of the solar array is predicted to the visible to the southwest from the cairn.

Whilst the Proposed Development may be visible, the immediate baseline setting of the cairn and its near relationships to similar assets would be unaffected and the ability to understand, appreciate and understand the asset and its historic siting would not be affected.

The effect of the Proposed Development on the cairn is considered to be adverse, of medium term, temporary and direct.

Craig Hill, fort, Laurieston (Asset 5)

The earthwork remains of the Fort (Asset 5) occupies the rocky summit of Craig Hill (Plate 10-45). The Fort is located within sheep pastureland and post-medieval and modern field patterning; stone built walls, which have potentially utilised robbed stone from the Fort, were identified on the lower slopes around the Fort.

The land slopes downwards in all compass directions from the Fort; to the north towards undulating, rocky land; to the east towards Lochgower, a body of water surrounded by planted woodland; and to the south and west to lower lying agricultural land dominated by post-medieval and modern field patterning, interspersed with tree plantations. The topographical prominence of the Fort and the reason for its construction and use is easily appreciable. The relative sensitivity of the Fort is judged to be high.

The Proposed Development would be located c. 5.44 km southwest of the Fort, along a ridgeline which likely marked the very distant edge of the field of view available from the Fort and all nine turbines are theoretically visible from the Fort (**Figure 10-7**). The solar ZTV indicates that both portions of the solar array would be visible from the majority of the Scheduled extent.

Whilst the Proposed Development may be visible from the Fort (Plate 10-46) it would not change the topographic prominence of the Fort nor the ability to understand its defensive positioning nor its viewscape which would still be appreciable and understandable. The effect of the Proposed Development on the cairn is judged to be adverse, medium term, temporary and direct.

Cairntosh Hill, cairn (SM2237; Asset 128)

The Scheduled Cairntosh Hill, cairn (Asset 128) occupies the summit of a hill measuring c. 329 m AOD. No kerb has been identified and there has been debate by different recorders in the past as to whether the cairn is a prehistoric burial cairn or a later shepherds cairn. However the 1990s Royal Commission of Ancient and Historic Monuments of Scotland (RCAHMS) Survey identified what they believed to be an excavated cist within the central area of the cairn.

The immediate surrounding land in all compass directions slopes downwards. Land to the north and northeast was found to be occupied by mature commercial forestry (Glencap Forest) occupying land which rises upwards. Land to the west undulates but generally slopes downwards to Dendoo or Disdow Hill, also occupied by commercial forestry and the land to the south slopes downwards to agricultural land.

The topographical prominence of the cairn and the reason for its siting is easily appreciable, however its original viewscape and the ability to experience and understand this is curtailed by modern commercial forestry and survives at present only on mapping. As a burial cairn, clearly located on high ground, the cairn is considered to be of ***high*** relative sensitivity to change.

The Proposed Development would be located at its closest c. 3.41 km (T4) to the northeast of the cairn, beyond the existing commercial forestry. This forestry at present limits views in the direction of the Proposed Development and thus would largely screen

the modern development, however as commercial forestry is subject to regular harvest it cannot be considered to be a long term screening option.

Theoretically based on cultural heritage wireline **Figure 10-6** the Proposed Development would be seen as a modern development in one direction, behind rising land to the northeast. The bare earth ZTV indicates that the solar array is not anticipated to be visible from the Scheduled extent of the cairn. Whilst the Proposed Development may be intervisible with the cairn and may be seen on approach to the cairn from the south, the topographic prominence of the cairn would still be appreciable and understandable. The effect of the Proposed Development on the cairn is judged to be adverse, medium term, temporary and direct.

Rusco Tower (LB3299; Asset 38)

Rusco Tower is a Category A Listed rectangular tower house dating to the 16th century located within woodland to the north of National Cycle Route 1. The Listing description for the tower house indicates that its cultural significance is largely associated with its external and internal architectural and historical interest. The tower house, based on mapping, is located on a relatively flat plateau which slopes downwards to the east towards the Water of Fleet and the river valley.

The land to the west rises upwards to Kenlum Hill. As such the tower house appears to have been sited to overlook the adjacent river valley and potentially have views down towards the Gatehouse of Fleet settlement (centred Asset 139).

Whilst the setting of the tower house is of some importance the majority of its cultural significance appears to lie in its intrinsic characteristics and its relative sensitivity to change is judged to be medium.

The ZTV prepared for this assessment indicates no theoretical intervisibility with either element of the Proposed Development and a wireline (**Figure 10-9**) produced for this assessment indicates that the Proposed Development would not be intervisible with Rusco Tower. Based on the current and historic setting of the tower house, the understanding, appreciation and experience of the tower house would be unchanged and as such no impact is anticipated.

Anwoth Old Church Churchyard (LB3309; Assets 30 and 55)

The Category A Listed Anwoth Old Church Churchyard (Asset 55) is located within the extent of the Scheduled Anwoth Old Church, cross slab & Gordon Tomb (Asset 30), and thus represents a later phase of ecclesiastical activity on the same site. The Category A Listed Churchyard (Asset 55) is composed of the churchyard, containing 18th century grave stones, and an early 19th century Egypto-Grecian style mausoleum.

Based on the Listing description the cultural significance of the Listed Building relates to its architectural interest as well as its association with the Scheduled Church, Cross Slab and Tomb. The churchyard is located in a deep valley formed around the Boreland Burn and thus has a contained setting, with no obvious wider designed views. As an asset where setting makes a limited contribution to its cultural significance, the Churchyard is considered to be of low relative sensitivity to change.

The Proposed Development is predicted to be at worst, visible as the tips of two turbines (**Figure 10-10**) and the ZTV indicates that the solar array would not be visible. Plate 10-39 illustrates the mixed vegetation on the hills to the northeast of Anwoth Old Church

Churchyard (Asset 55) which would likely screen the Proposed Development from view in the short term, however the Proposed Development is located well beyond the valley setting of the Churchyard and it would not impact on the relationship between the Scheduled remains and the Listed Churchyard. The Proposed Development is considered to have no effect on the setting of the Listed Churchyard.

Cally (GDL00079; centred Asset 37)

Cally Inventory Garden and Designed Landscape (GDL) (centred Asset 37) is a mid-18th and 19th century designed landscape which provides an attractive setting for the Category A Listed Cally Palace (Asset 48). The gardens appear to have been designed for the house, creating a grand, landscaped setting for the mansion house, in keeping with landscape design of the period.

The landscape is now dominated by a golf course, with the Palace being the central building associated with recreational use, and woodland. The southern extent of the gardens associated with Cally, to the south of the A75 is not designated but is included within the List of Non-Inventory Gardens and Designed Landscapes in Dumfries and Galloway Region (NIDL) (centred Asset 209).

Based on historic mapping this southern area was once part of the landscaping for Cally Palace and included the southern extent of a deer park and planned woodlands, however the area was divided from the GDL when the A75 was constructed. An annotation on historic mapping also indicates that the western portion of the Proposed Development Site was once part of the wider estate lands of the Murray Stewart's, a familial name associated with the owners of Cally in the 19th century. As Cally GDL and NIDL was designed for and to surround a Palace, the relative sensitivity to changes beyond the boundaries of the designed landscape is judged to be medium.

The ZTV indicates that only the southwestern corner of the GDL and the western extent of the NIDL would have at worst, visibility of between one and three proposed turbines of the Proposed Development. A wireline (**Figure 10-11**) from Whillan Hill, the highest point within the GDL indicates that no turbines are visible from the central area of the GDL, although there would likely be some intervisibility from within the southern extent of the NIDL. The solar array is not anticipated to be visible from the GDL.

Whilst the Proposed Development may be visible in the distance as a modern landscape addition, it would not affect how the GDL and the NIDL are understood, appreciated and experienced in relation to Cally Palace, nor would it affect the ability to understand the relationships of the individual elements of the designed landscape. No effect is anticipated.

Kirkconnel Farmhouse and Steading (Asset 62)

Kirkconnel Farmhouse and Steading (Asset 62) is a Category B Listed group of buildings dating to the late 18th and early 19th centuries (Plates 10- 20 & 10-21). The Listing description indicates that cultural significance is associated with architectural interest, however as a farmhouse of post-medieval date the surrounding landscape does also contribute to the cultural significance.

When constructed, the Farmhouse and Steading were positioned within agricultural land, historically associated with other farmhouses and cottages such as Upper Lairdmannoch (Asset 168) and indeed Roy's map located the Farmhouse and Steading associated with other smaller ancillary buildings and cultivated land. Subsequent mapping illustrates the Farmhouse and Steading associated with agricultural land on the west side of a north-south aligned road, the A762.

The land to the west slopes steeply upwards towards Linn Hill and it is likely that this land may have been preferred for pastural use. In the present landscape, the historic setting of the Farmhouse and Steading has been largely preserved as the land use has not

changed. A wooden pole overhead line (OHL) aligned roughly north-south was found to extend to the Farmhouse and Steading through adjacent agricultural land, although this minor modern landscape addition does not change how the Farmhouse and Steading can be understood as a post-medieval farm with associated farmland which reflects the post-medieval and modern field patterning.

As the surrounding agrarian setting contributes to the understanding, experience and appreciation of the Farmhouse and Steading, relative sensitivity to change is considered to be medium.

The Proposed Development Site would extend to the northern extent of Kirkconnel Farmhouse, although the nearest element of the Proposed Development, the southern solar area, would be located c. 0.295 km north. As such the Proposed Development would alter the land use to the north converting it from agricultural land to energy production land, often characterised as being of an industrial nature, albeit within an upland agricultural landscape.

LVIA Viewpoint 02 is from the A762 to the east of Kirkconnel Farmhouse and Steading and shows the proposed turbines occupying the land to the west of road, behind vegetation. The land use immediately beside the road would be visually changed, although beyond the turbines agricultural land and rising moorland would be visible. The retention of portions of agricultural land as shown on VP02 enables an appreciation of the Listed Building historic setting.

The land use immediately around the Farmhouse and Steading and to the south would be unchanged and thus the historic setting of the Farmhouse and Steading would not change in this direction. A ZTV and wireline (**Figure 10-12**) prepared for this assessment indicates that the wind turbines would not be visible from the Farmhouse and Steading, although as LVIA VP 01 and LVIA VP 02 show the proposed turbines would be visible from the agricultural land associated with Kirkconnell to the east and northeast of the Farmhouse and Steading.

As noted above the solar panels would be visible in close proximity to the Listed Building. The Proposed Development, as a modern development would be appreciable as such and thus the land to the north would still be understandable as land associated with the Farmhouse and Steading just of a somewhat altered character. The effect of the Proposed Development on the Farmhouse and Steading is judged to be adverse, medium term, temporary and direct.

Gatehouse of Fleet Conservation Area (centred Asset 139)

The Gatehouse of Fleet Conservation Area encompasses the extent of a planned town developed in the late 18th century to serve the cotton mills and other industrial facilities which belonged to James Murray (DGC, 2020b). The setting of the Conservation Area relates to its residential core and thus its original function as well as to the proximity of this area to the historic industrial and employment opportunities available.

The natural landform which was shaped by the Water of Fleet is noted within the Conservation Area as having shaped the town "economically and physically" (DGC, 2020b) and thus the local geography is a key characteristic of the Conservation Area and its setting. The setting of the Conservation Area is considered to make a moderate contribution to the understanding, appreciation and experience of the Conservation Area, whereby its cultural significance is also derived from other characteristics. The relative sensitivity of the Conservation Area is judged to be Medium.

The ZTV prepared for this assessment anticipates that between one and three turbines of the Proposed Development would be visible from the southwestern extent of the Conservation Area (**Figures 10-21** and **Figure 10-22**). The ZTV indicates that the solar array would not be visible from the Conservation Area.

A wireline (**Figure 10-13**) from the junction of High Street, the B796 and Hannay Street indicates that no turbines would be visible from the Conservation Area. Whilst the Proposed Development may be partially visible from a discrete portion of the Conservation Area, the Proposed Development would not alter how the setting of the Conservation Area is appreciated, experience or understood. The effect of the Proposed Development on the Conservation Area is judged to be adverse, medium term, temporary and direct.

Barstobrick Hill, Neilson's Monument (Asset 144) and Giant's Dike (Asset 145)

Barstobrick Hill, Neilson's Monument (Asset 144) and Giant's Dike (Asset 145) are non-designated heritage assets located within an area of archaeological interest as defined by the Dumfries and Galloway HER (**Figure 10-18**).

The remains of a fort crowning a rocky conspicuous hill and roughly north-east, south-west aligned ridge of high ground c. 163 m AOD are known as Giant's Dike (Asset 145). The remains of the fort historically have been documented as compromising a wall and potential earthworks (Plate 10-35), although a post-medieval field boundary wall now bisects the location of the fort which is identified by modern signage and interpretation panels (Plate 10-35).

The topographical prominence and defensive positioning of the fort can be well understood due to the location of the fort and there is the potential for contemporary remains to survive along the high ridge of ground in the wider area which may add further information about the land use around the fort when it was in use.

Barstobrick Hill, Neilson's Monument (Asset 144) was erected to James Beaumont Neilson who invented the hot-blast process of iron making and who originated from the area (Plate 10-36). The process was an important progression in the process of smelting iron and is important to the development industry in Scotland, and indeed in the wider world, in the post-medieval period.

The monument is formed of a high pyramid with an inscribed panel and is located to the south of the Giant's Dike fort on the same ridge of high ground. The monument, due to its height and positioning is an identifiable monument in the wider landscape and provides goods views of the wider landscape for visitors. It is also well associated with a local walking route.

Plates 10-37 and 10-38 illustrate the views available from the assets across the wider environment. The non-designated heritage assets are considered to have a high relative sensitivity to change as their setting makes a major contribution to the understanding, experience and appreciation of them.

The Proposed Development would be located to the west of the assets and based on the ZTV's prepared for this assessment both elements, the solar and wind, would be visible from the assets. The wind turbines would be visible in views of the assets from the south, east and north, but would be identifiable as being on a different summit of high ground (**Figure VP3b**).

The wind turbines may appear to backdrop the assets when viewed from the east, looking west, although the wind turbines would be appreciably different in form and style and thus be readily understandable as different to the fort and monument. The solar array would be visible within an agricultural landscape, however the general agrarian landscape to the west is still understandable as the solar array only occupies discrete areas of land in two parcels on rising ground.

As a modern addition to the wider landscape on a different area of high ground the effect of the Proposed Development on the cairn is judged to be adverse, medium term, temporary and direct.

10.7.3 Decommissioning Effects

The Proposed Development would be decommissioned at the end of the operational phase. At this time, the Proposed Development, including associated infrastructure would be removed from the Proposed Development Site.

Any decommissioning works would be subject to prevailing legislation, guidance and permitting regimes at the time of decommissioning. The decommissioning would allow for the baseline land uses to be restored.

There is the potential for ground disturbance during decommissioning works beyond ground disturbance during construction works. As such there is the potential for direct, adverse, long term, permanent effects on known heritage assets and buried archaeological remains.

It is considered that there is a potential for temporary effects upon the settings of heritage assets during the decommissioning phase. Any decommissioning effects would be temporary and likely of a shorter duration than the assessed construction effects.

Upon the completion of the decommissioning, the medium-term effects of the operational phase on the setting of assets would be removed, with the setting of those assets restored to the current baseline condition.

10.7.4 Cumulative Effects

Cumulative effects are considered following additional mitigation measures in the assessment of residual effects (**Section 10.9**) following the methodology for construction and operational effects outlined in **Section 10.4.3**.

10.8 Additional Mitigation Measures

Construction Works

The Proposed Development has the potential to directly affect known heritage assets as well as having the potential to impact hitherto unknown buried archaeological remains and archaeological and paleoenvironmental deposits. Details of mitigation will be agreed with the Archaeologist at the Archaeology Service, Dumfries and Galloway Council through a Written Scheme of Investigation (WSI). This will be secured via an appropriately worded planning condition. Mitigation may include fencing, geophysical survey, trial trenching and watching briefs. An Archaeological Clerk of Works (ACoW) will ensure that mitigation agreed in the WSI will be implemented prior to and during construction activities.

A number of non-designated heritage assets (Assets 67, 68, 74, 79, 89-92, 136, 137, 366, 408 and Asset centred 133) extend within close proximity of the Proposed Development infrastructure. These assets will be fenced off under archaeological supervision (ACoW) in advance of construction works to prevent accidental damage by plant movement during construction.

Fencing around archaeological monuments will be maintained throughout the construction, and decommissioning periods to prevent accidental damage by plant.

The fences will be removed during operation as all vehicle traffic will be restricted to access tracks and thus the risk of damage to archaeological monuments will be very low.

In the case that the potential enhancement features (**Figure 6-9**) are implemented it would be recommended that the following heritage assets (Assets 77, 169, 356, 388, 390, 395, 396, 399, 404, 407, 410, & 414) are also fenced prior to works associated with soil stripping and wildflower planting as well as tree planting commence. Large area strips required for the wildflower planting may be subject to archaeological monitoring. The fencing and any supervision monitoring would be undertaken by the ACoW and be outlined within the WSI.

Operational Works

No mitigation is possible for operational effects beyond embedded mitigation by design as discussed above.

Broadleaf woodland planting is proposed to the east of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) (Figure 6-9) to screen any potential views of the solar development. It is acknowledged that based on the ZTV and visualisations the solar array is not predicted to be visible from the cairn and stone circle (**Figures 10-1g** & **10-2e**).

10.9 Assessment of Residual Effects

10.9.1 Construction Effects

This assessment has identified that the Proposed Development has the potential to effect 22 non-designated heritage assets (**Table 10-6**) within the Proposed Development Site, three along the Access Track and twelve non-designated heritage assets within areas identified for wildflower and tree planting. The implementation of the above outlined additional mitigation measures will allow for recording of known heritage assets and any paleoenvironmental and/or archaeological deposits associated with known remains. The importance, magnitude of effect and significance of impact are detailed in **Table 10-8.**

Table 10-8: Residual Effects of the Proposed Development Heritage Assets within the Proposed Development

Asset Number	Asset Name	Designation	Importance	Magnitude of Impact	Significance of Effect
65	Loch Mannoch	Archaeologically Sensitive Area	Medium	Low	Minor
77	Upper Lairdmannoch-	Non-designated Heritage Asset	Low	High	Moderate

Asset Number	Asset Name	Designation	Importance	Magnitude of Impact	Significance of Effect
	Burnt Mound				
122	Upper Lairdmannoch-Field System	Non-designated Heritage Asset	Low	Low	Negligible
169	Upper Lairdmannoch-Buildings	Non-designated Heritage Asset	Low	High	Moderate
356	Clearance cairn	Non-designated Heritage Asset	Negligible	High	Minor
366	Clearance cairn?	Non-designated Heritage Asset	Negligible	Negligible	Negligible
367	Clearance cairn?	Non-designated Heritage Asset	Negligible	Negligible	Negligible
368	Clearance cairn?	Non-designated Heritage Asset	Negligible	High	Minor
375	rig cultivation	Non-designated Heritage Asset	Low	Medium	Minor
379	Rig cultivation	Non-designated Heritage Asset	Low	Low	Negligible
380	Field system, rig	Non-designated Heritage Asset	Low	Low	Negligible
381	Rig cultivation	Non-designated Heritage Asset	Low	Low	Negligible
388	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
390	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
392	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
395	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
396	Cairn	Non-designated Heritage Asset	Negligible	High	Minor
397	Cairn	Non-designated Heritage Asset	Negligible	High	Minor
398	Cairn	Non-designated Heritage Asset	Negligible	Negligible	Negligible
399	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
403	Clearance Cairn	Non-designated Heritage Asset	Negligible	Negligible	Negligible
404	Mound	Non-designated Heritage Asset	Negligible	High	Minor
407	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
408	Clearance Cairn	Non-designated Heritage Asset	Negligible	Negligible	Negligible
409	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor

Asset Number	Asset Name	Designation	Importance	Magnitude of Impact	Significance of Effect
410	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
411	Clearance Cairn	Non-designated Heritage Asset	Negligible	High	Minor
414	Quarry	Non-designated Heritage Asset	Negligible	High	Minor
422	Old Drain	Non-designated Heritage Asset	Negligible	Negligible	Negligible

Loch Mannoch ASA (centred Asset 65) is judged to be of medium importance, being a defined area which identifies an area of multi-phase activity from the prehistoric period onwards and containing known and the potential for unknown heritage assets and buried remains.

The construction of the Proposed Development would lead to removal of a small proportion of the baseline condition of the asset, which may impact hitherto unknown archaeological remains and/or any buried archaeological and paleoenvironmental deposits. This is considered to be a ***low*** magnitude of change. The resulting significance of effect is ***minor*** which is not considered to be significant in EIA terms.

The remains of field systems and rig cultivation (centred Assets 122 375 & 379-381), which may date from the medieval or post-medieval periods reflect the historic land use of the area within and around the Proposed Development Site. These assets are recorded on historic mapping and via LiDAR imagery and thus survive through archival materials. The assets (Assets 122 375 & 379-381) are considered to be of ***low*** importance.

The construction of Proposed Development around Asset 375 is considered to be a material alteration of the baseline condition of any surviving upstanding and buried cultivation remains where part of the asset is removed. The magnitude of change is considered to be ***low***. The resulting significance of effect is ***minor***.

The magnitude of impact on the remains of field systems and rig cultivation (Assets 122 & 379-381) are judged to lead to the removal of a small proportion of the assets, as they survive which would be considered to be ***low***. The resulting significance of effect is ***negligible***. This effect is considered to be ***not significant*** in EIA terms.

Cairns (Assets 368, 392, 396 & 409) directly impacted by the Proposed Development are considered to be of ***negligible*** importance. The construction of the Proposed Development would lead to a total removal of deposits associated within these cairns and this the magnitude of impact is considered to be ***high***. The resulting significance of effect is ***minor*** and a level considered to be ***not significant*** in EIA terms.

On old drain (Asset 422) record on historic mapping and recorded as an existing drain to the west of a track is considered to be of ***negligible*** importance.

In the case that works for the Access Track include infilling the drain and extending the road, this would constitute a ***negligible*** magnitude of impact. The drain survives as a wide and deep feature and is unlikely to be impacted by construction works. The resulting significance of effect is ***negligible***, a level not considered to be significant in EIA terms.

There are seven cairns (Assets 366, 367, 395, 398, 403, 408 & 410) and one quarry (Asset 414) within the Proposed Development Site close to infrastructure associated with the Proposed Development where the construction work may impact peripheral deposits and fabric associated with the assets. The magnitude of impact is judged to be ***negligible*** and the resulting significance of effect is ***negligible***. This significance of effect is considered to be ***not significant*** in EIA terms.

The additional mitigation will also investigate the potential for previously unknown assets as well as plan for the potential for hitherto unknown remains to be identified by the construction team. Potential effects on unknown buried remains cannot be predicted at this stage, although any such impacts are also addressed by the additional mitigation measures, and it is judged to be unlikely that they will exceed the EIA significance threshold.

Potential Enhancement Features

The Habitat Management Plan (HMP) states that wildflower planting requires topsoil to be stripped and subsoil to the ripped prior to wildflower seeds being sown for the best chance of establishment (**Volume 3 Technical Appendix 6-6**). Wildflower planting has been proposed as a potential enhancement feature around the Solar Development.

Mitigation to prevent any of these activities having a direct physical impact on known heritage assets has been identified in **Section 10.8** above. The following identifies the worst case scenario in the case that the mitigation is not implemented.

In the case that the areas identified on **Figure 6-9** are stripped there would be a direct physical impact on four clearance cairns (Assets 388, 396, 410 & 411). Clearance cairns are considered to be of ***negligible*** importance. It is recommended that the cairns are avoided, and fenced prior to planting preparation taking place, but in the worst case, the magnitude of change would be ***high*** and the resulting significance of effect ***minor***. This significance of effect is considered to be ***not significant*** in EIA terms.

Wodland planting is also proposed in the vicinity of the Solar Development. The planting of trees will require ground breaking works and the planting of trees can have an adverse impact on known and unknown heritage assets. Root action from planted trees can also have an indirect impact on nearby heritage assets. There are eleven known heritage assets (Assets 77, 169, 356, 390, 399, 404, 407, 410, 411, 414, 485) recorded within the areas proposed for woodland planting. Burnt mounds (Asset 77) and the remains of post-medieval buildings (Asset 169) are considered to be of ***low*** importance, and the importance of cairns are considered to be ***negligible.*** It is recommended all these assets are avoided, and fenced prior to planting taking place, but in the worst case, the magnitude of change would be ***high***. The resulting significance of effect in regard to Assets 77 and 169 would be ***moderate***. This significance of effect is considered to be ***significant*** in EIA terms. In relation to assets of negligible importance the significance of effect would be ***minor***. This significance of effect is considered to be ***not significant*** in EIA terms.

The stripping of large areas and the scarring of subsoil as well as area planting for woodland has the potential to have an adverse impact on hitherto unknown archaeological remains. Potential effects on unknown buried remains cannot be predicted at this stage, although any such impacts are also addressed by the additional mitigation measures, and it is judged to be unlikely that they would exceed the EIA significance threshold.

10.9.2 Operational Effects

No direct mitigation is possible for setting effects (beyond embedded mitigation by design) and therefore, residual operational phase effects on the setting of heritage assets would be the same as potential effects. The following assessment details the effects in line with the significance criteria detailed in **Section 10.4.3**.

An assessment of residual effects in on designated heritage assets discussed above in **Section 10.7.2** is detailed below. **Technical Appendix 10-3** presents an assessment of the residual effect of Proposed Development on designated heritage assets and identified heritage assets within the 10 km study and within the ZTV.

The results of these assessments have identified levels of effect ranging from Moderate to No Impact. Moderate levels of effect are considered to be Significant in EIA terms. Minor to No Impact levels of effect are not considered to be significant in EIA terms. No significant adverse impacts upon the integrity of any Scheduled Monuments' settings are anticipated.

Loch Mannoch, cairn and stone circle N end of (SM1033- Asset 1);

As stated, the relative sensitivity of Loch Mannoch, cairn and stone circle N end of (Asset 1) is judged to be high. It must be noted that whilst the cairn and stone circle are judged to have a ***high*** relative sensitivity, the value the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) may derive from other characteristics which have not yet been explored, for example their archaeological potential in regard to dating and landscape recreation. In terms of dating, it is currently unknown if the two elements of the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) are contemporary and thus it would be useful to know which asset was constructed first, or if indeed they are contemporary. Whilst historic mapping illustrates that Loch Mannoch is a modern waterbody and indicates that the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) was historically located in wetlands by waterways, the extent of wetlands and what type of vegetation, including what ground and tree cover was present in the local landscape when the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) were constructed, would provide a better understanding of the siting of the assets and their relationship to the natural landscape as well as to other prehistoric activity in the area.

The ZTV and visualisations indicate that the solar array is not predicted to be visible from the cairn and stone circle (**Figures 10-1g & 10-2e).**

The ZTV and visualisations illustrate that all nine turbines of the wind element of the Proposed Development would be visible from the cairn and stone circle from one direction to the west (**Figures 10-1b-f**).

The turbines would also be visible backdropping the cairn when viewed from the stone circle, in particular Turbine 8 would be visible as a turbine hub in a direct line of sight, north-west from the centre of the stone circle to the centre of the cairn (**Figure 10-2d**). Turbines 7 and 6 would also be visible, flanking and framing the edge of the cairn (**Figure 10-2b**). It must be considered that the relatively modern copse of trees, which the landowner has stated is a long term feature of the landscape and therefore remain in situ for the lifespan of the Proposed Development, would screen T6 and indeed largely T1 and T2 from view when looking at the cairn from the stone circle (**Figure 101f & 10-2d**).

However, whilst the Proposed Development would be visible in the alignment identified as being important by HES, and in one direction from the east looking west, **Figure 10-3d** from the south-east and **Figure 10-4d** from the west illustrates the wider setting of the cairn and stone circle, in the relatively low lying ground of a topographical bowl, prior to the 20th century occupied by rivers and now dominated by Loch Mannoch.

The Proposed Development is visible on the rising moorland to the west, beyond the topographical bowl in which the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) is located. The lower lying ground of said topographical bowl and the area, around the location of waterways would have likely been the foci for activity contemporary to that at the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1).

It is acknowledged that prehistoric and potential prehistoric activity has been identified to the north and west of the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) within Loch Mannoch ASA (centred Asset 65) in the relatively higher land and it cannot be discounted that that activity is contemporaneous, although it can be stated due to the rising ground to the west, that in a westward facing view from the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1), activity would not have been directly visible from the Scheduled Monument. Indirect visibility such as rising smoke from fires would likely have been visible and it cannot be discounted that contemporary activity in the wider landscape would have been audible.

As such the Proposed Development is judged to be a ***medium*** magnitude of impact on the setting of the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1), being an alteration of the asset's baseline where a key characteristic of the setting may be partially eroded, namely the insertion of modern turbines into an upland landscape which would lead to the loss of some cultural significance.

However, the topographic position of the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1) would still be appreciable, understandable and experienced in the wider landscape from multiple directions and approaches and the association (or supposed association) between the cairn and stone circle and other prehistoric and potential prehistoric assets in the wider landscape would still be appreciable, understood and experienced, and the view between the cairn and stone circle, looking eastward would be unchanged due to the location of the Proposed Development. The resulting significance of effect significance of effect is ***moderate***, a level deemed significant in EIA terms.

The key characteristics of the setting of the cairn and stone circle include their proximity to one another, which is reflected in their Scheduling; the location of the assets, in the lower lying land of a topographic bowl historically formed by rivers and now dominated by Loch Mannoch; the presumed association of the assets to other funerary and ritual assets to the south in the vicinity of Loch Mannoch; and the association of the assets with other prehistoric activity in the local area (centred Asset 65).

It must be considered that a key characteristic of the original setting of the cairn and stone circle has already been adversely affected by modern development, namely the alteration of the river valley system to the south by the flooding of said area to construct Loch Mannoch in the early 20th century. HES (2024) state the cairn and stone circle would have "*overlooked agricultural land, settlement and other ritual and funerary monuments*" in the land to the south now occupied by Loch Mannoch. The ability to understand, appreciate and experience the historic and original setting of the assets in

relation to the land to the south is now limited in the extant landscape and is better understood whilst consulting cartographic materials. The construction of Loch Mannoch has also limited our ability to identify other ritual and funerary monuments in the land to the south, if they were ever present as they have not been recorded and are now flooded.

The Proposed Development would be an alteration to the visual northwest, southeast alignment from the stone circle to the cairn identified by HES, however the Proposed Development would be a clear modern structure. The edge of the topographical bowl in which the cairn and stone are located would be unchanged and indeed highlighted by the Proposed Development (**Figure 10-3d & 10-4d**).

This area identifies the low lying, fertile agricultural land would still be appreciable, understandable and be able to be experienced in the local landscape. The Proposed Development would not affect the ability to understand, appreciate and experience the proximity and visual association of the cairn and stone circle, indeed in one direction, eastward, the view would be unchanged; or the association of the assets with other prehistoric assets in the wider landscape.

On balance, with the retention of key characteristics, the understanding, appreciation and experience of the cairn and stone circle are adequately would be retained and their overall cultural significance would not be materially adversely impacted.

Edgarton Mote, fort 690m SW of Camelon Bridge (SM1119; Asset 2)

As stated, the relative sensitivity of Edgarton Mote (Asset 2) is judged to be ***high***.

The fort was found to be identifiable from the Proposed Development Site (Plate 10-34) and indeed **Figure 10-8** indicates that nine turbine hubs will be visible from the fort beyond a ridgeline to the northwest. The northern and southern portion of the solar array is predicted to be visible from the fort based on the ZTV.

However, the topographical position and a key relationship of the fort with the fertile plain to the east, which are considered to form a key characteristic of the asset's setting, would be unchanged. As such the Proposed Development is judged to be an alteration to the baseline setting which would not affect the ability to understand, appreciate and experience the fort in its wider landscape which is judged to be a ***low*** magnitude of change. The resulting significance of effect is ***minor*** and not significant in EIA terms.

Bargatton Farm, cairn 610m S of (SM1002; Asset 3);

A stated, the relative sensitivity of the cairn is considered to be ***high.***

Figure 10-5 shows that nine turbines and the northern portion of the solar array would be visible to the southwest of the cairn. Whilst the turbines and solar panels may be visible as a modern structure within the wider landscape the near relationship and intervisibility of the cairn to other nearby potential cairns would be retained.

The Proposed Development is considered to be an alteration to the baseline setting which does not affect the ability to understand, appreciate and experience the contribution that setting makes to the asset's overall significance. The magnitude of change is considered to be ***low*** and the resulting significance of effect ***minor***. This significance of effect is considered to be ***not significant*** in EIA terms.

The integrity of the asset's setting would not be significantly adversely impacted.

Craig Hill, fort, Laurieston (Asset 5)

A stated, the relative sensitivity of the Fort is considered to be ***high.***

Figure 10-7 shows that the Proposed Development would be theoretically visible as nine turbines from the Fort and indeed based on a site visit the Proposed turbines would be visible as modern additions to the landscape, occupy the land at the very edge of the field of view from the Fort. The ZTV also indicates that both elements of the solar array would be visible to the southwest.

Whilst the Proposed Development would be visible it would not change the topographical prominence of the Fort, nor impede the ability to appreciate, understand and experience the wider ranging views that the location of the Fort would have afforded an occupant when in use.

As such the Proposed Development is considered to be a marginal alteration to the baseline setting where the elements which contribute to cultural significance are largely unchanged. The magnitude of change is considered to be ***low*** and the resulting significance of effect ***minor***. This significance of effect is considered to be ***not significant*** in EIA terms.

The integrity of the asset's setting would not be significantly adversely impacted.

Cairntosh Hill, cairn (SM2237; Asset 128);

As stated, the relative sensitivity of Cairntosh Hill, cairn (Asset 128) is judged to be ***high***.

The Proposed Development would be visible from the cairn as turbine blades (T8), turbine hubs (T6 & 9), and turbines (T1-7) emerging from behind a ridgeline to the north which slopes generally west to east (**Figure 10-6**). The solar array is not anticipated to be visible based on the ZTV.

Whilst the Proposed Development would be visible from the cairn, the cairn's topographical position, prominence and the ability to understand the land over which it was designed to overlook would still be appreciable and understandable. As such the Proposed Development is judged to be an alteration of the baseline setting which does not erode key characteristics and only leads to a slight loss of cultural significance. The magnitude of change is considered to be ***low.*** The resulting significance of effect would be ***minor*** and ***not significant*** in EIA terms.

The integrity of the asset's setting would not be significantly adversely impacted.

Kirkconnel Farmhouse and Steading (Asset 62)

As stated the relative sensitivity of Kirkconnel Farmhouse and Steading (Asset 62) is judged to be ***medium***.

The Proposed Development would extend c. 0.295 km to the north of Kirkconnel Farmhouse. The ZTV prepared for this assessment indicates that the southern portion of the solar array would be visible from the Farmhouse and Steading, however the northern portion is not theoretically visible.

The Proposed Development would alter the character of wider land use of the Farmhouse and Steading as shown on LVIA VP 01 and LVIA VP02, converting it from agricultural land to energy production land, often characterised as being of an industrial nature, albeit within an upland agricultural landscape. The land use the south would be unchanged and thus the historic setting of the Farmhouse and Steading would not change in this direction. The Proposed Development, as a modern development would be appreciable as such and thus the land to the north would still be understandable as land associated with the Farmhouse and Steading just of a somewhat altered character. The magnitude of change would be considered to be ***low***, being an alteration to the asset's baseline setting which does not affect how it is understood, appreciated an experienced and would only leave to a slight loss of cultural significance. The resulting level effect would be ***minor*** and ***not significant*** in EIA terms.

Gatehouse of Fleet Conservation Area (centred Asset 139)

As stated the relative sensitivity of the Gatehouse of Fleet Conservation Area (centred Asset 139) is judged to be ***medium***.

The closest element of the Proposed Development would be Turbine 4, c. 6.31 km northeast of the northeastern most extent of the Conservation Area. The ZTV prepared for this assessment does not indicate that the solar array would be visible from the Conservation Area.

A wireline (Figure 10-13) from the junction of High Street, the B796 and Hannay Street indicates that no turbines would be visible from the Conservation Area, however the bare earth ZTV prepared for this assessment indicates that there is theoretical visibility of up to three turbines from the southwestern area of the Conservation Area. However, due to the built environment, associated landscaping and surrounding woodland in that area of the Conservation Area, the Proposed Development is unlikely to be appreciably visible and thus is considered to be a marginal alteration to the baseline setting which would leave the cultural significance unchanged. The magnitude of change is judged to be ***negligible*** and the resulting significance of effect ***neutral***. This significance of effect is not considered to be significant in EIA terms.

Barstobrick Hill, Neilson's Monument (Asset 144) and Giant's Dike (Asset 145)

As stated, the relative sensitivity of Barstobrick Hill, Neilson's Monument (Asset 144) and Giant's Dike (Asset 145) is judged to be ***high***.

The Proposed Development would be located to the west of the assets, with the solar array on the relatively lower lying fertile land to the west. The ZTV for the solar arrays indicates that both the northern and southern portions would be visible from the assets and from the western half of the area of archaeological interest in which they are located.

The ZTV for the wind turbines indicates that assets and the western half of the area of archaeological interest in which the assets are located, would have visibility with up to nine turbines with the eastern and downslope area not having any visibility of the Proposed Development.

A photomontage from the summit of Barstobrick Hill (**VP3**) shows that, from the summit of the hill, between the two monuments and from the central area of the area of archaeological interest, the Proposed Development would be visible in one direction, to the west of the assets and that the solar array would be visible in discrete blocks, broken by agricultural land and woodland, on the low and rising ground to the west. Nine turbines would be visible to full height to the west of the solar array on the visible moorland ridgeline to the west, with larger hill visible in the distance beyond the Proposed Development.

Visits to the area in 2023 found that the solar array may be visible at discrete locations on approach to the assets from the north and south along the A762 from the assets. It was also thought that and the wind turbines may appear to backdrop the assets when viewed from the east, looking west, although the wind turbines would be appreciably different in form and style and thus be readily understandable as different to the fort and monument. The wind turbines are also likely to be visible in views of the assets from the north and south, however the Proposed Development would be an easily recognisable modern addition to the landscape, compared to the form of the monument.

The Proposed Development is considered to be a change to the assets baseline setting which would not affect the ability to appreciate, understand and experience the setting of the assets either from the assets themselves or from the wider landscape nor would it impact their topographical prominence.

The magnitude of impact would be considered to be ***low*** and the resulting significance of effect ***minor*** and ***not significant*** in EIA terms.

10.9.3 Decommissioning Effects

It is not anticipated that decommissioning works would cause direct impacts upon any known heritage assets or buried archaeological remains or deposits beyond the existing footprint of the Proposed Development.

Upon the completion of the decommissioning, the medium-term effects of the operational phase on the setting of assets would be removed, with the setting of those assets restored to the current baseline condition.

Thus, residual decommissioning effects are not anticipated to cause a significance of effect higher than those reported in this Chapter for construction (**Section 10.9.2**) and operation (**Section 10.9.3**) of the Proposed Development.

10.9.4 Cumulative Effects

Archaeological remains are by their very nature an irreplaceable resource and are subject to threats both within and outwith the planning system. The range of non-development threats is broad and includes deterioration of upstanding structural remains and damage to remains by agrarian activities and burial beneath modern woodland plantations.

Any archaeological remains which may be present on the Proposed Development Site need to be understood within this context of loss which can occur in modern agricultural landscapes on a regional and national scale (Dunwell & Ralston, 2008 & Nobel et al. 2019). Archaeological investigations allow any loss to be controlled through programmes of recording, sampling and analysis.

The consequence of this is that, where direct impacts occur through either development or academic research investigations, then our understanding of these assets is enhanced, and the results of these investigations inform our knowledge of the past of Dumfries and Galloway. Indeed, our understanding of the Dumfries and Galloway's archaeological heritage is itself the cumulative product of the results of numerous investigations undertaken over many generations.

Any direct impacts which may result from the Proposed Development would be addressed through the programme of mitigation that has been set out in **Section 10.6** and **Section 10.8** including comprehensive investigations should this be required, the results of which will contribute to our overall understanding of Dumfries and Galloway's past and therefore create a beneficial cumulative legacy. The significance of the cumulative effect on archaeology during construction, combined with other developments or causes of loss, would therefore be negligible and not significant.

As such this assessment will focus on the likely significant cumulative effects upon the setting of heritage assets which have the potential to occur during the operational phase.

This assessment considers the potential for cumulative effects arising from the addition of the Proposed Development to other cumulative developments upon the setting of heritage assets which have the potential to occur during the operational phase. The cumulative effect assessment takes regard of the guidance on cumulative effects upon heritage assets as set out in Environmental Impact Assessment Handbook V5 (SNH, 2018) and utilises the criteria for assessing setting effects as set out above.

With regard to the likely significant cumulative effects on cultural heritage assets, the assessment considers operational, consented, application and scoping wind farm developments at distances up to 15 km from the Proposed Development. The location of cumulative developments is shown on **Figure 1-4.** Full details of the cumulative development, Blair Hill, is included in Chapter 5.

The methodology section (**Section 10.4.3**), states that all heritage assets where an impact on their setting has been predicted for the Proposed Development alone would be considered in the detailed assessment.

However, the singular cumulative development is located 15 km to the north and is not theoretically visible on any cultural heritage visualisations. Due to the distance, the cumulative development is unlikely to increase the magnitude of change from that of the Proposed Development alone. As such no detailed assessment has been undertaken for cumulative effects.

10.10 Monitoring Requirements

Details of any archaeological mitigation works within the Proposed Development Site Details will be agreed with the Archaeologist at the Archaeology Service, Dumfries and Galloway through a Written Scheme of Investigation (WSI). This will be secured via an appropriately worded planning condition.

10.11 Opportunities for Enhancement

The Procurement Reform (Scotland) Act 2014 requires contractors, and their supply chains, to consider not only cost when commissioning or procuring services but also how they can make a positive economic, social and / or environmental impact and suppliers are required to set out their proposals for delivering social value that results in positive benefits to communities through a development.

The implication of this is stated in NPF4 (Scottish Government 2023) Policy 7o where impacts to heritage assets cannot be avoided it is stated that "*Where impacts cannot be avoided they should be minimised. Where it has been demonstrated that avoidance or retention is not possible, excavation, recording, analysis, archiving, publication and activities to provide public benefit may be required*".

HES's Our Past, Our Future (2023) states that '*the historic environment creates real benefits for people'*, and two of the three priorities of the publication relate to public engagement and public benefit.

CIfA (2021a&b) and ALGAO (Mann, 2023) have recently also noted the need for public or community engagement in archaeology.

Public benefit or a programme of enhancement will be considered as part of the Proposed Development. This may include the dissemination of information through different media, in person and digitally, to different audiences and age groups about the known heritage assets within the Proposed Development Site, prior to the construction of the Proposed Development as well as dissemination of any findings of archaeological works on the Proposed Development Site during the construction phase.

Enhancement will also include improving physical access through the Proposed Development Site following construction which will include heritage trails, with physical and digital media enhanced by audio and visual content which would inform visitors about the cultural heritage within the Proposed Development. This will include a footpath from the turbine infrastructure to a location near to the Scheduled Loch Mannoch, cairn and stone circle N end of (Asset 1).

Any such access would benefit from utilising the constructed infrastructure as to avoid additional impacts on known and unknown heritage assets and archaeological deposits within the Proposed Development Site. Digital forms of any heritage trails, utilising web mapping, gaming programmes and/or recorded videos may be considered for wider accessibility.

Such programmes may ensure that people benefit from heritage works and encourage an understanding and appreciation of cultural significance beyond specialist understanding to the wider public.

The exact details of any enhancement would be developed in association with the wider development team as well as the Archaeologist at the Archaeology Service,

Dumfries and Galloway and HES. Interested local parties may also be consulted with the development and long term maintenance of any on-site programme of public enhancement.

10.12 Summary

This chapter considers the archaeological and cultural heritage value of the Proposed Development Site and assesses the likely significant effects on archaeological features and heritage assets resulting from the construction, operation and decommissioning of the Proposed Development.

A moderate significance of effect is considered to be significant in EIA terms and a Minor and negligible significance of effect is considered to be not significant in EIA terms. Additional mitigation in the form of invasive archaeological works and fencing to identify the assets to the construction team and prevent accidental damaged has been recommended.

The assessment has identified one Category B Listed Building (Asset 62) and 91 non-designated heritage assets within the Proposed Development Site (**Figure 10-14** to **Figure 10-17**). The Proposed Development has the potential to effect 22 non-designated heritage assets within the Proposed Development Site, three along the Access Track, and twelve within area proposed for wildflower and tree planting.

An assessment of another eleven designated heritage assets and non-designated asset of potential national importance identified by key consultees as well as 133 designated heritage assets and non-designated asset of potential national importance within the Zone of Theoretical Visibility (ZTV) for the solar array and wind turbines has been undertaken. The significance of effect has been judged to range from Minor to No Impact, levels which are not considered to be significant in EIA terms.

The Listed Building, Kirkconnell Farmstead and Steading (Asset 62) would experience a change to its setting due to a shift in land use from agricultural to semi-industrial, though this is considered a minor effect and not significant in EIA terms.

Two non-designated assets, a burnt mound (Asset 77) and building remains (Asset 169) are assessed as experiencing **Moderate** effects which are significant in EIA terms.

All other effects on non-designated assets are assessed as Minor or Negligible and therefore not significant.

In compliance with NPF4, an assessment of the integrity of the setting of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) has been undertaken. The setting of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) has been considered through the design process with Historic Environment Scotland (HES) being consulted on the predicted impact of the Proposed Development on the Scheduled Monument.

Nine turbines of the Proposed Development would be visible from the cairn and stone circle, with Turbine 8 backdropping the cairn in northwest facing views from the stone circle. In wider views of the Scheduled Monument the monuments topographical bowl location and historic river valley setting would remain appreciable.

The Proposed Development is judged to have a **Moderate** significance of effect on Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) which is a level considered to be significant in EIA terms. However, the assessment considered that the

integrity of setting of the Scheduled Loch Mannoch, cairn & stone circle N end of (Asset 1) would not be significantly adversely impacted.

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