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Sandy Knowe Wind Farm, Dumfries and Galloway

Cultural Heritage Assessment

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Sandy Knowe Wind Farm, Dumfries and Galloway

Cultural Heritage Assessment

10. Cultural Heritage

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10. Cultural Heritage

10.1 Introduction

- 10.1.1 This chapter considers the potential effects of the Proposed Development on cultural heritage (historic environment sites and features, archaeology and built heritage), hereafter referred to as ‘heritage assets’. The chapter details the results of a desk-based assessment and site visit. The assessment was undertaken by CFA Archaeology Ltd, using information provided by Historic Scotland (HS) and Dumfries and Galloway Council (DGC).
- 10.1.2 The assessment was conducted in accordance with the Chartered Institute for ‘Archaeologists ‘Code of Conduct’ (CIfA 2014a) and ‘Standard and Guidance for Historic Environment Desk-based Assessment’ (CIfA 2014b).
- 10.1.3 The specific objectives of the study were to:
- identify the archaeological baseline within the Proposed Development site and assess the importance of any heritage assets identified;
 - assess the Proposed Development site in terms of its archaeological potential;
 - consider the effects of the construction, operation and decommissioning of the Proposed Development on heritage assets, within the context of relevant legislation and planning guidance;
 - propose measures, where appropriate, to mitigate any significant adverse effects; and,
 - consider the cumulative effects of the Proposed Development in combination with other existing or proposed wind energy developments, upon cultural heritage assets.
- 10.1.4 Figure 10.1 shows the Proposed Development site boundary, the development layout and the locations of heritage assets within the site. A gazetteer of these assets is provided in Appendix 10.1.
- 10.1.5 Figure 10.2 shows the Proposed Development in its wider landscape context, together with the Proposed Development’s blade tip height zone of theoretical visibility (ZTV) and the location of heritage assets within a 10 km radius (extending from the outermost turbines of the Proposed Development) that have a theoretical view of the turbines; a list of the assets are provided in Appendix 10.2 and 10.3.
- 10.1.6 Those heritage assets that are relevant in the context of the assessment are: Scheduled Monuments, Listed Buildings, Conservation Areas and other historic environment interests. There are no World Heritage Sites, no Inventory Gardens and Designed Landscapes and no Historic Battlefields that will be affected (either directly or indirectly) by the Proposed Development.
- 10.1.7 Figure 10.3 shows the Proposed Development in its wider landscape together with the Proposed Developments ZTV, the locations of key heritage assets within 10 km of the outermost turbines which have a theoretical visibility of one or more turbines of the Proposed Development and the locations of other wind energy developments in the wider area. Potential cumulative effects are assessed below (Section 10.9).

10.2 Legislation, Policy and Guidelines

10.2.1 The primary planning policy and guidance for the Historic Environment comprises the Scottish Historic Environment Policy (SHEP) (Historic Scotland 2011), Scottish Planning Policy (SPP) (The Scottish Government 2014), Planning Advice Note 2/2011 (PAN 2) (2011) (Scottish Government 2011) at the national level, and, at the regional and local level, Dumfries and Galloway Local Development Plan (LDP) (Dumfries and Galloway Council 2014). Details of applicable planning policies are set out in Chapter 5.

Legislation

10.2.2 Legislation relevant to this assessment includes:

- Ancient Monuments and Archaeological Areas Act 1979 (1979 Act);
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (1997 Act); and,
- The Town and Country Planning (General Development Procedure) (Scotland) Order 1992 (1992 Order).

Policy

10.2.3 Primary Planning Policy at the national level comprises:

- National Planning Framework for Scotland 3 (NPF3) (2014);
- Scottish Historic Environment Policy document (SHEP) (2011);
- Scottish Planning Policy (SPP)(2014);

Regional and Local Policy

Dumfries and Galloway Local Development Plan (LDP) (2014)

10.2.4 The Dumfries and Galloway Local Development Plan (LPD) was adopted in September 2014. The plan provides the planning framework for Dumfries and Galloway and replaced the Dumfries and Galloway Structure Plan (1999) and Nithsdale Local Plan (2006).

10.2.5 The LDP policies which are relevant to this chapter are:

- Policy IN1: Renewable Energy;
- Policy HE2: Conservation Areas;
- Policy HE3: Archaeology;
- Policy HE4: Archaeologically Sensitive Areas; and
- Policy HE6: Gardens and Designed Landscapes.

Relevant Guidance

Planning Advice Note (PAN) 2/2011: Planning and Archaeology (2011)

10.2.6 PAN2/2011 advises that, in determining planning applications, planning authorities should take into account the relative importance of archaeological sites (para 5). It also notes that in determining planning applications that may impact on archaeological features or their setting, planning authorities may on occasion have to balance the benefits of development against the importance of archaeological features (para 6). The desirability of preserving a

monument (whether scheduled or not) is a material consideration and the objective should be to assure the protection and enhancement of monuments by preservation in situ, in an appropriate setting. When preservation in situ is not possible, recording and / or excavation followed by analysis and publication of the results may be an acceptable alternative (para 14).

Managing Change in the Historic Environment: Setting (2010)

10.2.7 Historic Scotland’s guidance notes that:

‘Setting should be thought of as the way in which the surroundings of a historic asset or place contribute to how it is experienced, understood and appreciated. Setting often extends beyond the immediate property boundary of a historic structure into the broader landscape’.

10.2.8 The guidance also suggests that:

‘If a proposed development is likely to impact on the setting of a historic environment asset, an objective written assessment should be prepared by the applicant to inform the decision-making process. The conclusions drawn should take into account the significance of the historic asset and its setting and attempt to quantify the extent of any detrimental impact. The methodology and level of information should be tailored to the circumstances of each case’.

10.3 Consultation

10.3.1 Formal responses were received from both HS and DGC addressing cultural heritage issues in regards to the Section 36 Application and Addendum and summaries of these responses are set out below in Table 10.1.

Table 10.1 – Issues Identified During Consultation

Consultee	Consultation Response	Applicant Action
Scottish Government Energy Consents and Deployment Unit - Scoping Opinion (June 2012) Section 8.5	The ES should address the predicted impacts on the historic environment and describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant.	The assessment presented below addresses direct effects, effects on setting (including cumulative effects) and presents mitigation in accordance with best practice guidance.
Annex 1.1 – Dumfries and Galloway Council	Confirmed that there is potential for a proposal of this nature to have significant impact on cultural heritage assets and therefore potential effects will need to be assessed in the environmental impact assessment. Confirmed that the proposed site walkover is required as the area has not been the subject of recent or modern-standard walkover survey. Indirect effects on the setting of significant historic environment assets should be lead by the Zone of Theoretical Visibility for both	Walk-over field survey was undertaken in advance of the 2012 Section 36 Application. Assets that may receive effects on their settings have been identified based on the blade tip height ZTV. Photomontages have been provided for St Connel’s Chapel and for Sanquhar Castle (see Table 10.9 for details). Cumulative wirelines

Consultee	Consultation Response	Applicant Action
	<p>individual wind farms and cumulative effects with other wind farms as agreed with the planning authority.</p> <p>Indirect effects on significant sites within and immediately adjacent to the site boundary should be assessed and illustrated appropriately with wirelines/ photomontages. Where sites have a significant landscape presence, as at St Connel's Chapel, Sanquhar Castle and Kemp's Castle this will definitely be required.</p> <p>A list of illustrations for the EIA should be agreed with the Council Archaeologist in due course.</p> <p>The ZTV suggests there will be no inter visibility with Inventory registered Gardens and Designed Landscapes at Drumlanrig Castle. This should be assessed and the effects confirmed.</p>	<p>and photowirelines have been provided St Connel's Chapel and for Sanquhar Castle and Sanquhar parish Church.</p>
Annex 1.5 - Forestry Commission	<p>The developer should recognise the wider aspects of the wind farm proposals on historic environment policies. In terms of forests and woodlands, besides the legacy of the past to be found within woodlands, the cultural heritage of ancient woodlands and veteran trees are particularly important</p>	<p>The only forestry on site is commercial conifer plantations on the site of a former opencast coal mine. This forestry has no archaeological potential.</p>
Annex 1.6 – Historic Scotland	<p>Comments concentrate on HS's statutory remit for scheduled monuments and their setting, category A listed buildings and their setting and gardens and designed landscapes appearing in the Inventory.</p> <p>There are no scheduled monuments within a 5 km radius of the development proposal. While the Zone of Theoretical Visibility (ZTV) indicates that the turbines may be intervisible with some monuments beyond this distance, significant impacts on their setting would seem unlikely.</p>	<p>Effects on the settings of scheduled monuments, category A listed buildings and Inventory Gardens and Designed Landscapes have been considered within 10 km of the Proposed Development.</p>
Historic Scotland (07.02.2013) Formal Response to Section 36 Application)	<p>Advised that they consider that the Proposed Development is unlikely to raise significant issues in respect of cultural heritage within their remit.</p>	<p>No further action required.</p>
Historic Scotland (19.12.2013) Formal response to Section 36 Addendum	<p>Advised that they continue to consider that the Proposed Development will raise no issues in</p>	<p>No further action required.</p>

Consultee	Consultation Response	Applicant Action
	respect of cultural heritage within their remit.	
Dumfries and Galloway Council Archaeologist (03.05.2013) Formal Response to Section 36 Application	Advised that there will be a significant adverse impact on the setting of St Connel's Church and Graveyard from the Proposed Development.	The effect of the Proposed Development on St Connel's Church and Graveyard is assessed in Section 10.6.
Dumfries and Galloway Council Archaeologist (03.05.2013) Formal Response to Section 36 Application	<p>Advised that the proposed development straddles two landscape character types:</p> <ul style="list-style-type: none"> - Unit 9: Upper Dale: Upper Nithsdale; and, - Unit 19a: Southern Uplands Nith Forest: Ken <p>Advised that Unit 9 is considered to have a high sensitivity assessment for 'Settlement and Archaeology' in the Dumfries and Galloway Wind Farm Landscape Capacity Study (DGWFLCS) and that the Proposed Development may have an adverse effect in respect of 'settlement and archaeology' and raise cumulative issues.</p>	<p>The archaeological potential of the Proposed Development is assessed within Section 10.5.</p> <p>The effect of the Proposed Development on cultural heritage assets within the wider landscape is assessed in Section 10.6.</p>
Dumfries and Galloway Council Archaeologist (10.02.2014) Formal Response to Section 36 Application Addendum	Agreed that minor adverse direct effects predicted on seven sheepfolds present within the Proposed Development could be mitigated by the implementation of a scheme of archaeological work.	<p>The direct (construction) effects of the Proposed Development are assessed in Section 10.6.</p> <p>Mitigation to offset predicted direct effects are provided in Section 10.7.</p>
Dumfries and Galloway Council Archaeologist (10.02.2014) Formal Response to Section 36 Application Addendum	<p>Considered that the impact of the Proposed Development on the setting of the following two cultural heritage sites will be significant and adverse:</p> <ul style="list-style-type: none"> - Old St Connel's Church and Graveyard; and, - Crichton Peel and Sanquhar Castle. 	The effects of the Proposed Development on St Connel's Church and Graveyard, and, Crichton Peel and Sanquhar Castle are assessed in Section 10.6.
Dumfries and Galloway Council Archaeologist (10.02.2014) Formal Response to Section 36 Application Addendum	Considered that the cumulative impact of the proposed development in conjunction with other consented and proposed wind energy developments in the surrounding landscape will lead to significant adverse effects on three cultural heritage assets:	The cumulative effects of the Proposed Development on cultural heritage assets are assessed within Section 10.9.

Consultee	Consultation Response	Applicant Action
	<ul style="list-style-type: none"> -Old St Connel's Church and Graveyard; -Sanquhar Castle; and, -Sanquhar Parish Church. 	

10.4 Assessment Methodology

Consultation

10.4.1 As outlined in Section 10.3, formal responses were received from statutory consultees following the submission of the Section 36 Application and Addendum. The responses were received from the following statutory organisations:

- Historic Scotland (HS); and
- Dumfries and Galloway Council (DGC).

Study Area

10.4.2 The potential for direct effects upon heritage assets has been considered within the Proposed Development site, as illustrated on Figure 10.1.

10.4.3 The consideration of effects upon the setting of heritage assets uses a 10 km radius study area (extending from the outermost turbines of the Proposed Development). No specific assets beyond 10 km were identified, either by statutory consultees, or through preliminary assessment of the 35 km ZTV as requiring consideration in the assessment. Figure 10.2 shows the Proposed Development, together with its zone of theoretical visibility (ZTV), and the location of heritage assets within the 10 km radius which have a theoretical view of the turbines. A list of these heritage assets is provided in Appendix 10.2.

10.4.4 The consideration of potential cumulative effects upon the settings of heritage assets also uses the 10 km radius study area.

Desk Study

10.4.5 A number of information sources were consulted as part of the desk-based assessment work. These include:

- Details of the locations and extents of Scheduled Monuments, Listed Buildings, Conservation Areas, Inventory status Gardens and Designed Landscapes and Inventory status Historic Battlefields in GIS were downloaded from the Historic Scotland Spatial Data Warehouse (Historic Scotland 2015).
- Dumfries and Galloway Council Historic Environment Record.
- The Royal Commission on the Ancient and Historic Monuments of Scotland (RCAHMS) database – Canmore (RCAHMS 2015).
- Ordnance Survey maps and other historical maps held by the Map Library of the National Library of Scotland.
- Modern vertical aerial photographic imagery available on-line (GoogleEarth™ and Bing™).

- Relevant bibliographic references (Section 36 Application and Addendum) and online historic resources (Robertson 1791-99, Richardson 1834-45) were consulted to provide background and historic information.
- The online Historic Land-Use Assessment Data for Scotland (HLAMap) (RCAHMS 2015b), maintained by the RCAHMS, was consulted for information on the historic land use character of the site.
- The Scottish Palaeoecological Archive Database (SPAD) (Coles et al 1998), which records the distribution of known sites across Scotland, was consulted for information on sites with palaeoenvironmental potential within or adjacent to the site.

Site Visit

10.4.6 The Proposed Development site was subject to a detailed walk-over survey in 2012 as part of a cultural heritage assessment undertaken for the Section 36 Application (2012) and the results from this study are still valid.

10.4.7 An additional site visit to the Project Area was undertaken by CFA Archaeology Ltd (CFA) on 27th May 2015. The site visit focused on heritage assets most likely to receive significant effects on their settings (i.e. those closest to the Proposed Development) and those considered on preliminary analysis to be most sensitive to changes to their settings. The aim of the site visit was to:

- assess the character and sensitivity of the settings of cultural heritage assets within 10 km of the Proposed Development that are indicated by the ZTV to have theoretical views of the turbines; and
- assess the effects of the Proposed Development on those settings.

10.4.8 Assets identified through consultations as requiring assessment of the effect of the Proposed Development on their settings were all visited, as far as public access allowed.

10.4.9 No intrusive archaeological interventions have been carried out as part of this assessment.

Assessment of Potential Effect Significance

Importance of Heritage Assets

10.4.10 The importance of heritage assets reflects the policy protection given to them in SPP and SHEP. Table 10.2 summarises the relative importance of heritage assets relevant to the assessment.

Table 10.2 – Relative Importance of Heritage Assets

Heritage Importance	Definition/Criteria
National/International	Assets of national or greater importance, including: Scheduled Monuments, and sites proposed for scheduling; Category A Listed Buildings.
Regional	Assets of regional importance, including: Archaeological sites and areas of distinctive regional importance; Category B Listed Buildings; Conservation Areas; Archaeologically Sensitive Areas (ASA); and Non-Inventory designed landscapes (NIDL) identified in the Dumfries and Galloway Council HER Non-Statutory Registered Sites (NSR) identified in the Dumfries and

Heritage Importance	Definition/Criteria
	Galloway Council HER ¹ .
Local	Assets of local importance, including: Archaeological sites of local importance; Category C Listed Buildings; Unlisted buildings and townscapes with local (vernacular) characteristics.
Lesser	Assets of little or no importance, including: Sites of former archaeological features; Artefact find-spots; Unlisted buildings of minor historic or architectural interest; Poorly preserved examples of particularly types of features.

Assessment of Direct Effects

10.4.11 Criteria for assessing the magnitude of direct impacts, which measures the degree of change to the baseline condition of a feature that will result from the construction activities of the development, are presented in Table 10.3.

Table 10.3 – Magnitude of Direct Effects

Level of Magnitude	Definition/Criteria
High	A major impact fundamentally changing the baseline condition of the heritage asset, leading to total or major alteration of character.
Medium	A moderate impact changing the baseline condition of the heritage asset materially but not fundamentally, leading to partial alteration of character.
Low	Minor detectable impacts which do not alter the baseline condition of the heritage asset materially.
Negligible	A very slight and barely distinguishable change from baseline conditions.

10.4.12 Table 4.2 (Chapter 4: Approach to EIA) provides a guide to the relationship between the ‘sensitivity of an identified receptor’ and the anticipated ‘magnitude of an impact’. It is, however, acknowledged in Chapter 4 that professional judgement is equally important in verifying the suitability of this guiding ‘formula’ to the assessment of the significance of each individual effect. For Cultural Heritage, the importance of individual assets as defined in Table 10.2 is used in the place of ‘sensitivity of receptor’. The parameters set out in Table 4.2 have therefore been adopted but amended to suit the requirements for assessment of effects (direct and on setting) for Cultural Heritage assets.

10.4.13 The cultural heritage importance of the asset defined in Table 10.2 and the magnitude of the predicted impact (Table 10.3) are used along with professional judgement to inform the assessment of the likely significance of the direct impact. Table 10.4 summarises the criteria for assigning significance of a direct impact. For consistency, the ‘significance levels,’ set out in Table 4.2, have been adopted for the Cultural Heritage assessment. Professional judgement has been employed to provide the stated level of significance provided in the text and appendices.

Table 10.4 – Matrix for assessing Significance of Direct Effects

¹ NSR sites were identified in some Local Authority areas through a Historic Scotland funded project in the 1980s. In most cases the designations have not been verified by further field inspections and Historic Scotland does not rely solely, or mainly, on such designations when selecting sites for scheduling. Nevertheless, it is recognised that such designations denote potentially important archaeological sites and features and that they should be considered to be important assets. In recognition of this, assets with such designations (whilst they have no statutory protection equivalent to Scheduled Monuments) are considered in the assessment as being of regional heritage importance.

Heritage Importance of Asset ▼	Magnitude of Impact ►			
	High	Medium	Low	Negligible
National / International	Major	Major	Moderate	Minor
Regional	Major	Moderate	Minor	Negligible
Local	Moderate	Minor	Negligible	Negligible
Lesser	Minor	Negligible	Negligible	Negligible

10.4.14 Major and moderate effects are considered to be ‘significant’ in the context of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 (EIA Regs). Minor and negligible effects are ‘not significant’.

Assessment of Effects on Setting (Operational Impacts)

10.4.15 For each asset where a potential effect on setting has been identified, the assessment adopts a four-stage approach:

- identification of the characteristics of the setting of the asset (see paragraph 10.4.16);
- assessment of the sensitivity of that setting to change;
- identification of how the presence of the proposed development will affect that setting (magnitude of impact); and
- assessment of significance of effect on setting.

Identification of characteristics of setting

10.4.16 The baseline setting of each relevant asset or related group of assets is characterised on a case-by-case basis. Characterisation of the setting of an asset is based upon its properties and location and takes into account the factors identified in Managing Change in the Historic Environment: Setting (Historic Scotland 2010). The baseline setting of each asset is characterised principally in terms of:

- archaeological / historical context of the asset;
- current landscape and visual surroundings of the asset;
- aesthetic and experiential properties of the asset within its surroundings; and,
- social value (actual or potential) of the asset as a recreational/leisure or educational resource.

10.4.17 Factors considered in the assessment of the setting include:

- the location and orientation of the asset;
- important views of, or from, the asset (e.g. principal façades of Listed Buildings);
- the importance, if applicable, of designed settings; and
- any obvious views or vistas.

Criteria for Assessing Sensitivity of Setting

10.4.18 Sensitivity of setting has been assessed by considering two factors:

- the relative weight which statute and policy attach to the asset and its setting; and
- the degree to which the baseline setting contributes to the understanding and / or appreciation, and hence value, of the asset.

10.4.19 The relative weight that statute and policy attach to the asset and its setting is determined using the importance of archaeological and heritage assets set out in Table 10.2.

10.4.20 The degree to which the baseline setting contributes to the understanding and / or appreciation of the asset has been assessed according to the criteria set out in Table 10.5.

Table 10.5 – Contribution of Setting to Understanding and Appreciation of Asset

Contribution of Setting	Definition/Criteria
High	A setting which makes a strong positive contribution to the understanding and/or appreciation of the siting and/or historical/archaeological/architectural context of a receptor. E.g. a prominent topographic location; surroundings that include related monuments in close association; surroundings that are believed to be little changed from those when the receptor was created.
Moderate	A setting which makes some positive contribution to the understanding and/or appreciation of the siting and/or historical/archaeological/architectural context of a receptor. E.g. surroundings that complement the siting and appearance of a receptor, such as the presence of a feature of the rural past within a more recent farming landscape containing little or no urban or industrial development.
Low	A setting which makes little positive contribution to the understanding and/or appreciation of the siting and/or historical/archaeological/architectural context of a receptor. E.g. where surroundings only partially complement the siting and appearance of a receptor, such as the presence of a feature of the rural past within a partly urbanised or industrialised landscape.
Negligible	A setting which does not contribute positively to the understanding and/or appreciation of the siting and/or historical/archaeological/architectural context of a receptor. E.g. immediate surroundings, such as of a commercial coniferous single species woodland or industrial development, that are not relevant to understanding the context of the receptor.

10.4.21 These two sets of criteria (Tables 10.2 and 10.5) are combined to assess the overall sensitivity of a setting, as set out in Table 10.6.

Table 10.6 – Sensitivity of Setting of an Asset

Importance of Asset ▼	Contribution to Setting ►			
	High	Moderate	Low	Negligible
National / International	High	Medium	Medium	Low
Regional	Medium	Medium	Low	Low
Local	Medium	Low	Low	Low

Identification of Magnitude of Impact on Setting

10.4.22 Where it has been determined that the setting of an asset is such that there is no potential for it to be affected by the presence of the Proposed Development (including all assets of lesser cultural heritage importance) the asset is not considered further in the assessment. For the remaining assets, the magnitude of impact on setting was assessed according to the thresholds set out in Table 10.7.

Table 10.7 – Magnitude of Impact on Setting

Level Of Magnitude	Definition/Criteria
High	Fundamental material impacts obviously changing the surroundings of a receptor, such that its baseline setting is

	substantially or totally altered.
Medium	Effects discernibly changing the surroundings of a receptor, such that its baseline setting is partly and materially altered.
Low	Slight, but detectable impacts that do not materially alter the baseline setting of the receptor.
Imperceptible	A very slight and barely distinguishable change from baseline conditions.

Assessment of Significance of Effect on Setting

10.4.23 The significance of an effect on setting depends on both the magnitude of impact and the sensitivity of the setting of the asset. Table 10.8 presents the matrix that has been used, together with professional judgement, to inform the determination of the significance of effects on setting.

Table 10.8 – Significance of Effect on Setting

Magnitude of Impact ▼	Sensitivity of Setting ►		
	High	Medium	Low
High	Major	Moderate	Minor
Medium	Moderate	Moderate	Minor
Low	Minor	Minor	Negligible
Imperceptible	Negligible	Negligible	Negligible

10.4.24 Major and moderate effects are considered to be ‘significant’ in the context of the EIA Regs. Minor and negligible effects are ‘not significant’.

Requirements for Mitigation

10.4.25 Under Schedule 4 Part 1 of the EIA Regs measures should be included in the ES that are envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

10.4.26 PAN 1/2013 (Scottish Government 2013) describes mitigation as a hierarchy of measures: prevention, reduction, compensatory (offset) measures. Prevention and reduction measures can be achieved through design, whilst compensatory measures offset impacts that are have not been prevented or reduced.

10.4.27 The emphasis in Scottish Government Planning Advice Note (PAN) 2/2011: Planning and Archaeology (PAN2) is the preservation of important remains in situ where practicable and by record where preservation is not possible. The mitigation measures presented below therefore take account of this planning guidance and provide various options for protection or recording and ensuring that, where practical, surviving assets are preserved intact to retain the present historic elements of the landscape.

10.4.28 Detailed mitigation proposals in respect of potential impacts on cultural heritage assets (direct effects and effects on setting) are set out below (Section 10.7).

Assessment of Residual Effect Significance

10.4.29 The assessment of the significance of residual effects (direct and effects on setting) takes into account the proposed mitigation measures. Whilst prevention and reduction measures can provide mitigation that will remove or reduce the significance of a potential impact, offset measures do not reduce the level of significance; they can, however, provide compensation for adverse effects.

Cumulative Assessment

- 10.4.30 The assessment of cumulative effects on cultural heritage is based upon consideration of the impacts of the Proposed Development on the settings of assets within 10 km of the site in addition to the likely impacts of other operational, consented and proposed wind energy developments (at the application stage). The assessment takes into account the relative scale (i.e. size and number of turbines), of the various developments, their distance from the affected asset, and the potential degree of visibility from the assets of the various developments. Sites which at the scoping stage are not included in the cumulative assessment, due to the lack of detailed information regarding them. The criteria adopted above (Section 10.4.15 – 10.4.24) in respect of effects on setting were employed to determine the magnitude and significance of the predicted cumulative effects.

Limitations to Assessment

- 10.4.31 Assessment of the significance of direct effects on historic environment features identified within the Proposed Development site is derived from information on their baseline condition gathered during field survey carried out in 2012 for the Section 36 Application.
- 10.4.32 No World Heritage Sites, Inventory Gardens and Designed Landscapes, or Inventory Historic Battlefields are present within the 10 km study area and these have been scoped out of further assessment. Impacts on the settings of assets beyond 10 km are excluded as none beyond that distance have been identified by examination of the ZTV where an impact on its setting could be considered to be potentially significant. Neither Historic Scotland nor Dumfries and Galloway Council have identified any particular heritage assets beyond 10 km as requiring inclusion in the assessment for impacts on setting.

10.5 Baseline Conditions

Heritage Assets within the Proposed Development Site

- 10.5.1 Eleven heritage assets have been identified within the Proposed Development site. The locations and extents of these are shown on Figure 10.1 and Appendix 10.1 provides detailed gazetteer information on their character and baseline condition. Numbers in brackets and in bold, in the following sections, refer to asset numbers shown on Figure 10.1 and listed in Appendix 10.1.

Prehistoric

- 10.5.2 The HER records that a Bronze Age adze (**10**) (ancient wood working tool) was discovered at Librymoor Plantation in 1928. The area in which the find was made has been disturbed by opencast mining in the 1980s/90s and there is no potential for buried remains associated with this find to survive in the area. The artefact does not remain *in situ* and the find-spot is considered to be of lesser heritage importance.

Medieval

- 10.5.3 Fragments of an earthen bank (**6a-b**) are recorded crossing land at the northern edge of the Proposed Development site. The bank is known as 'The Deil's Dyke' and was first recorded by Galloway antiquary Joseph Train in the 1840s (cited in Graham 1951). It has been suggested that the dyke was a Pictish defensive structure that ran from Beoch to Knockreach, across the breadth of Dumfries and Galloway.

10.5.4 Graham (1948-49) records that the earthworks that make up what is recorded as the 'Deil's Dyke' show no common constructional features and some appear to be of no great age. Instead, Graham argues that the earthwork remains are not those of a once continuous dyke that transverses the whole breadth of Galloway, but are instead individual 'march-dykes/head-dykes' (agricultural boundaries) marking the boundaries between neighbouring farms. Excavations carried out in 1981 (Barber 1981) on sections of the dyke at Kirkconnel (**6b**) recorded that here the bank had been constructed by stripping turves and underlying soil either side of the dyke, and piling this up to form a bank approximately 2 m high. Two sherds of 12th century pottery were recovered from the core of the bank, during the excavation, suggesting that at least this section is possibly of early medieval date. However, evidence from other sections of the dyke suggest that some of the structure may have earlier prehistoric origins (Barber 1981) as dating evidence from the original ground surface under the bank showed it to be from some time in the late Iron Age (Barber 1981).

10.5.5 The section of bank (**6b**) at Libry Plantation has been removed by open cast coal mine carried out in 1980s/90s. In light of the potential prehistoric date for sections of the dyke the remaining part of the Deil's Dyke surviving at Nether Cairn is assessed as being potentially of regional importance.

Post-medieval Agrarian Features

10.5.6 Two Y-shaped sheep shelters (**2** and **5**) and two circular sheepfolds (**3** and **7**) are depicted on the Ordnance Survey 1st and 2nd Edition maps (1860 and 1900) within the Proposed Development site. These structures are all visible on modern aerial photographs within areas of rough pasture. In addition, two additional sheepfolds (**4** and **8**) are visible on modern aerial photographs; neither is depicted on the 1st and 2nd Edition maps suggesting that they are of relatively recent date. The sheep shelters and sheepfolds are all minor 19th-20th century agricultural features and area considered to be of lesser heritage importance.

20th Century Mining Works

10.5.7 The coal authority (The Coal Authority 2011) records the presence of several former mine shafts (**1** and **9**), at Nether Cairn and Libry Moor respectively. Mining in these areas was closed in 1942 and the shafts were in-filled and the land-reinstated as pasture. The mine shafts at Libry Moor have since been removed during opencast coal mining carried out in this area in the 1980s/90s and no longer survive. The shafts are considered to be of lesser heritage importance.

Archaeological Potential of the Proposed Development Site

10.5.8 The HLAmap records that the area is open moorland/rough pasture to the south of Kirconnel at 270 m-290 m AOD and surrounded by commercial forestry plantation at Polnagrie Hill, Libry Moor and Wham Rig. Part of the Site at Libry Moor has been recently been planted with commercial forestry following the closure of the former opencast coal mining operations.

10.5.9 The Dumfries and Galloway Wind Farm Landscape Capacity Study (Anderson 2011) records that the Proposed Development straddles two landscape character types: Unit 9 - Upper Dale, Upper Nithsdale and Unit 19a - Southern Uplands Nith Forest, Ken. Unit 9 is characterised by post-improvement (19th-20th century) fields within the valley floor which

are edged by higher hills utilised for rough grazing; whilst Unit 19a is characterised as forestry with very little evidence of relict land-use.

- 10.5.10 Few upstanding heritage assets are present within the Proposed Development site, the bulk of those recorded are 19th/20th century agrarian features, such as sheepfolds and sheep shelters. No prehistoric or medieval features have been identified within the Proposed Development site.
- 10.5.11 A small number of find-spots of prehistoric date and early historic period are recorded in the wider surrounding area, including:
- a middle Bronze Age flanged adze (edge tool for wood working) (NMRS Ref: NS71SW 5) recovered during drainage works in the 1920s at Libry Plantation, approximately 600 m north of the Proposed Development;
 - a hammer stone (NMRS Ref: NS71SW 2), probably of early prehistoric date, uncovered near to Kello Burn in the late 1800s, approximately 1.5 km to the east; and,
 - a cinerary urn and associated human remains (NMRS Ref: NS71W 2) of probable Roman date uncovered on the southern edge of Kirkconnel in 1841 during road works.
- 10.5.12 A possible Roman fortlet and temporary camp (NMRS Ref: NS71SW 11) has been identified to the north of Kirkconnel at Bankhead, around 2.5 km from the Proposed Development site.
- 10.5.13 Later settlement is recorded on General Roy's Military Survey Map of Scotland(1747-55) at Kirkconnel and Sanquhar both of which have medieval origins. The remains of St Connel's Church (**MDG75**), of late-12th/early-13th century construction, but retaining earlier 9th century remains, survives today just north of Kirkconnel, approximately 3 km to the north of the Proposed Development, and the ruins of the late 14th century Sanquhar Castle (**687**) are present on the outskirts of Sanquhar (7 km away).
- 10.5.14 Several farmsteads (or 'fermtouns') and associated open fields are depicted on Roy's Military Survey Map (1747-55) along the River Nith to either side of Kirkconnel. Amongst these are 'Crockroy', 'Rigg' and 'Drumbuie', all of which survive today; the evidence demonstrating that this area was well settled and cultivated by the mid-18th century. The Proposed Development area itself is, however, shown as open moorland on Roy's map and this land-use continues on the Ordnance Survey 1st and 2nd Edition maps (1860 and 1900). Today, much of the site continues in use as moorland and rough pasture, utilised predominantly for grazing, and has undergone little modification since the 18th century. Opencast coal mining (see Figure 10.1 for extent; The Coal Authority 2011) was carried out at Libry Moor in the 1980s/1990s; following closure the land was reinstated and largely planted with commercial forestry. The areas of opencast mining are consequently have no further archaeological potential.
- 10.5.15 Taking into account the present historic environment record, both within the Proposed Development site and in the immediate vicinity, and the predominantly pastoral use of the Site, it is considered that the potential for finding hitherto undiscovered remains of archaeological significance is low-medium. However, given the limited land-take required by the separate elements of the Proposed Development, the probability of encountering unknown buried remains during the course of the construction work is judged to be low.

Heritage Assets within the Wider Landscape

- 10.5.16 The blade tip height ZTV (Figure 10.2) indicates that within 5 km of the Proposed Development there are four Category B Listed Buildings, three Category C Listed Buildings and four NSR Sites that have predicted visibility of the proposed turbines. One of these heritage assets, Deil's Dyke (**11; MDG11235 & MDG 11247**) lies partially within the Proposed Development site (across the western site access track).
- 10.5.17 An additional three Scheduled Monuments, one Category A Listed Building, 22 Category B Listed Buildings and one Conservation Area are between 5 km and 10 km of the Proposed Development and are predicted to have visibility of one or more turbines.
- 10.5.18 The majority of the heritage assets from which there is theoretical visibility of the proposed turbines are located in the village of Sanquhar and it is probable that the Proposed Development will be largely or entirely screened from view from these assets by the surrounding built environment. Relatively few heritage assets stand in isolated, rural locations where wide landscape views are possible.

10.6 Potential Effects

Construction

- 10.6.1 The assessment of potential construction effects has been carried out with reference to the Proposed Development layout and the cultural heritage constraints shown on Figure 10.1.
- 10.6.2 Any ground breaking activities associated with the construction of the Proposed Development (such as those required for turbine bases and crane hard-standings, access tracks, borrow pits, temporary compound, etc.) have the potential to disturb or destroy features of cultural heritage interest. Other construction activities, such as vehicle movements, soil and overburden storage and landscaping also have the potential to cause direct permanent and irreversible effects on the cultural heritage.

Potential Direct (Construction) Effects

- 10.6.3 One potential direct effect is predicted: on the remains of the Deil's Dyke (**6a**), which is crossed by the route of the western site access track through Nether Cairn. The dyke is assessed as being of regional heritage importance.
- 10.6.4 Only a small part of the dyke will be directly affected by the Proposed Development and construction works will not affect the majority of the dyke remains. It is therefore considered that the direct impact on the Deil's Dyke as a whole, resulting from construction of the access track, will be of low magnitude, resulting in an effect of **minor** significance.
- 10.6.5 Where the dyke is crossed by the access track the remains would receive a direct impact of medium magnitude (affecting part of the remains and leading to a partial change of its character). The effect would be of **moderate** significance but could be offset through mitigation (see below).

Operation

- 10.6.6 The presence of features of the Proposed Development may have indirect effects on the setting of heritage assets in the wider landscape. In particular, there is potential for the

turbines to be present in important views of, and from, Scheduled Monuments, Listed Buildings and Conservation Areas in the vicinity of the Proposed Development.

- 10.6.7 Heritage assets with statutory designations of national or regional importance (Scheduled Monuments, Category A and B Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes and Inventory Historic Battlefields) within 10 km of the outermost turbines of the Proposed Development and having theoretical visibility of one or more turbine, based on the blade tip height ZTV, were identified using ArcGIS analysis of data derived from Historic Scotland’s data download facility.
- 10.6.8 Identification of Category C Listed Buildings where settings could be affected was restricted to those within 5 km of the Proposed Development as these are buildings (and other structures) that are generally minor vernacular building types of the local historic environment, with localised geographical settings.
- 10.6.9 In addition to those assets identified through the above analysis, heritage assets identified in the DGC HER as of national and regional importance (Non-Statutory Registered Sites, Archaeological Sensitive Areas and Non-Inventory Designed Landscapes) within 5 km of the outermost proposed turbines, have been taken into account in the tabulated assessment.
- 10.6.10 The baseline setting of each relevant asset or related group of assets has been characterised on a case-by-case basis. The characterisation of the setting of an asset is based upon its properties and location, and takes into account the factors identified in the guidance issued by Historic Scotland (Managing Change 2010) (as per paragraph 10.4.16).
- 10.6.11 Appendices 10.2 and 10.3 provide tabulated summary assessments on a site by site basis, of the predicted effects on the settings of assets within 10 km of the Proposed Development where the blade tip height ZTV indicates that there will be theoretical views of one or more turbines. The table also contains cross reference, where applicable, to the relevant cultural heritage photomontage and/or to an appropriate visualisation provided in the LVIA.
- 10.6.12 The assessment of significance of effect has been based on the analysis of the blade tip height ZTV, taking into account the distance of the assessed asset from the Proposed Development, the number of blade tips potentially visible and the present baseline setting of each asset (which includes the operational Hare Hill Wind Farm). The ZTV model is however based on bare-earth surface topography and takes no account of obstructions to intervisibility caused by existing forestry and other vegetation or buildings and other man-made features. Therefore, professional judgement has been used to assess the significance of effects informed by the ZTV, photomontages and site visits.
- 10.6.13 Assets highlighted by HS and DGC within their responses to the Section 36 Application (2012) and the Section 36 Addendum (2013) as considered to have the most sensitive settings (Table 10.1) have been assessed using photomontages (Figures 10.4 and 10.5) and 360° degree cumulative wirelines. A list of those cultural heritage assets for which visualisations have been provided is given below (Table 10.9).

Table 10.9 – List of Cultural Heritage Visualisations

Figure Number	Asset Name (Index No / HER Ref)	Monument Status	Predicted Significance of Effect
Figure 10.4a-g	Crichton Peel and Sanquhar Castle (687)	Scheduled Monument	Minor

Figure 10.5a-g	Sanquhar Parish Church (40538)	Category B Listed Building	Minor
Figure 10.6a-g	Old St Connel's Church and Graveyard (MDG75)	NSR Site	Minor

Potential Setting (Indirect/Operational) Effects

Crichton Peel and Sanquhar Castle (687) (Figure 10.4a-g)

- 10.6.14 Crichton Peel and Sanquhar Castle, a 13th century fortification with later 19th century restoration, stands on the edge of Sanquhar on a slightly elevated position within an improved pasture field just west of Castlebank Cottage and the derelict Castlemains Farmstead and the ruins are currently surrounded by a high wire fence for safety reasons. The castle is bounded on the west by the River Nith and to the north by Townfoot Burn. The main views from the castle are focused north-west and south-east along the River Nith valley; although these views are partly screened by trees along Townfoot Burn, around Castlebank Cottage, and a modern housing estate, on the edge of Sanquhar, to the north and north-east of the castle. Views out take in the wider rural farming landscape that surrounds the castle and the built up edges of Sanquhar. Due to the relatively low-lying location of the castle, the vegetation and trees around part of the castle, and the surrounding buildings (Castlebank Cottage and Castlemains Farmstead) it is best appreciated at close quarters. It does not constitute an obvious feature in the wider area, being most visible only in the local landscape when approaching Sanquhar from the south-east along the A76 public road.
- 10.6.15 The castle has a high social value as a locally important archaeological feature and, as a monument of the medieval period, it has a high archaeological interest and potential as a recreational/educational resource. The nearby modern housing development detracts somewhat from the setting of the monument, but otherwise the rural character of the landscape surrounding the castle is largely sympathetic to the appreciation and understanding of the castle and its setting. Crichton Peel and Sanquhar Castle is a monument of national heritage importance and its current setting is assessed as being of medium sensitivity.
- 10.6.16 The Proposed Development will be visible in distant views (Figure 10.4d), around 7.6 km, to the west-north-west of the castle, seen along with the operational Hare Hill Wind Farm which will be visible beyond the Proposed Development and at a slightly higher elevation. Glimpses of the Proposed Development will be seen beyond the castle buildings when approaching the castle from Castlemains Farmstead from the north-east and whilst looking out along the Nith River valley on the western side of the castle. The introduction of the Proposed Development will constitute a slight, detectable change to the wider landscape surroundings of the castle, but its presence will have little effect on the ability to appreciate and understand the setting of the castle. Other views out from the castle will be unaffected and the limited views of it from the A76 approach to Sanquhar will be uninterrupted.
- 10.6.17 The effect of the proposed Development on the setting of Crichton Peel and Sanquhar Castle is assessed to be of low magnitude, resulting in an effect of **minor** significance and not significant in EIA terms.

Sanquhar Parish Church (40538) (Figure 10.5a-g)

- 10.6.18 This 19th century church stands within a large churchyard on raised ground to the west side of Sanquhar and on the edge of the Conservation Area. The building is orientated east to west with entrances at the western end and on the northern side of the building. Views out from the church, to the north and west, overlook low lying ground which is used as playing fields for the local high school and towards Sanquhar House on the opposite side of the A76; wider views are also gained out to surrounding rural farmland that surrounds Sanquhar in these same directions. Views in other directions, to the east and south, are principally limited by surrounding buildings. The church, which is still in use as an ecclesiastical building, is a prominent feature when approaching the town along the A76 from the north-west. The setting of the church is primarily defined by its association with Sanquhar and the surrounding semi-urban environment in which it stands. The church is of regional heritage importance and is considered to have a setting of medium, but localised sensitivity.
- 10.6.19 The Proposed Development will be present around 7.1 km to the west of the church and visible in distant views from the church, seen along with the operational Hare Hill Wind Farm in the same arc of view; the Hare Hill turbines being visible beyond the Proposed Development and at a slightly higher elevation. The Proposed Development will also be partially screened from view by intervening woodland (Figure 10.5d) Although the proposed turbines will be an additional element in the wider surrounding landscape and will alter the character of the landscape out over which views from the church extend, the relationship between the asset and its surrounding landscape (both rural and urban) will still be easily legible and the presence of the Proposed Development will not affect an ability to appreciate the localised setting of the church and its association with Sanquhar.
- 10.6.20 The effect of the Proposed Development on the setting of the church is assessed to be of low magnitude, resulting in an effect of **minor** significance and not significant in EIA terms.

Old St Connel's Church & Graveyard (MDG75) (Figure 10.6a-g)

- 10.6.21 The turf-covered foundations of the former, medieval St Connel's Church are situated in a slightly elevated location, on a south-facing plateau on the lower slopes of Kirkland Hill, within a rural landscape of enclosed improved pasture farmland, and rough pasture grassland and moorland. The principal views from the church are to the south, focused along the Glenaylmer Burn towards Kirkconnel and across the Nith valley below, and westwards along the valley floor. Views to the north and north-west are constrained by the rising ground and a range of hills in that direction. The church remains, surviving as low relief features within a walled enclosure, can best be fully appreciated from within its immediate environs, and they are not a prominent visual feature in the local landscape. The church remains have a relatively localised setting within the Nith valley.
- 10.6.22 The rural farmland surroundings of the church are reasonably sympathetic to the appreciation of both the surviving remains, and the visual relationship of the church's location within the valley below, although surface coal mining is also a visual feature of the landscape to the west. The remains of St. Connel's Church have a measure of social and experiential value due to their archaeological potential and historical and architectural properties, and landscape setting; they are a valued part of the local historic landscape and are promoted locally forming part of the Kirkconnel Parish Heritage Trail and there are interpretation boards on site. The congregation of the present St Connel's Church meet

annually in the ruins of the original Church for a service. The enclosure, within which the church stands, also contains a cairn dedicated to local striking miners who, in 1926, excavated the site and uncovered the churches footings. The church is assessed as being of regional heritage importance, and is considered to have a setting of medium, but localised sensitivity.

- 10.6.23 The Proposed Development will be present to the south-west of the asset, approximately 4.6 km away. Figure 10.6d shows that all 24 proposed turbines will be visible from the church on the opposite side of the River Nith valley and at a similar elevation. The operational Hare Hill Wind Farm will be visible in the same views as the Proposed Development, but visibly separated from the proposed turbines and at a greater distance from the church, partially screened by intervening topography. The Proposed Development will be a fairly prominent new element in the surrounding landscape of the church and will alter the character of the landscape over which views from the asset extend.
- 10.6.24 As a new and modern element in the landscape the Proposed Development may affect the experiential appreciation of ‘sense of place’ of some visitors to the church. However, it is judged that the presence of the Proposed Development, on the opposite side of the river valley, will not affect an ability to appreciate the church buildings and its associated churchyard nor affect an appreciation of its immediate rural setting, the relationship between the asset and its surrounding landscape still being easily legible. In addition, the Proposed Development will not affect an ability to understand the historical or archaeological properties of the monument.
- 10.6.25 It is assessed that the Proposed Development will have an effect of low magnitude on the setting of the St Connel’s Church and Garveyards, resulting in an effect of **minor** significance and therefore not significant in EIA terms.

Decommissioning

- 10.6.26 There will be no direct effects on heritage assets during the decommissioning of the Proposed Development, presuming that the same road infrastructure is used for the dismantling and removal of the built features of the Proposed Development. The impact of the removal of the turbines and the dismantling of the associated infrastructure will remove indirect effects on the settings of heritage assets.

10.7 Mitigation Measures

Design Mitigation

- 10.7.1 The layout of the Proposed Development, including the positioning of the turbines, routing of access tracks and the siting of other infrastructure elements has been arrived at through a series of iterative stages to develop the best layout within the context of all environmental and technical constraints and the Proposed Development has been designed to specifically avoid heritage assets where possible (refer to Chapter 2).

Construction Mitigation

- 10.7.2 Planning Advice Note 1/2013: Environmental Impact Assessment (PAN 1/2013) describes mitigation as a hierarchy of measures: prevention, reduction, compensatory (offset)

measures. Prevention and reduction measures can be achieved through design, whilst compensatory measures offset impacts that have not been prevented or reduced.

- 10.7.3 The emphasis in Planning Advice Note (PAN) 2/2011: Planning and Archaeology (PAN2) is the preservation of important remains in situ where practicable and by record where preservation is not possible. The mitigation measures presented below therefore take account of this planning guidance and provide various options for protection or recording and ensuring that, where practical, surviving assets are preserved intact to retain the present historic elements of the landscape.
- 10.7.4 All mitigation works presented in the following paragraphs will take place prior to, or, where appropriate, during, the construction of the Proposed Development. All works will be conducted by a professional archaeological organisation, and the scope of works will be detailed in one or more Written Scheme(s) of Investigation (WSI) developed in consultation with (and subject to the agreement of) Dumfries and Galloway Council.

Preservation in Situ

- 10.7.5 Two sheepfolds (**3** and **4**) which lie in close proximity to the access track between Turbines T10 and T13 will be marked-off to prevent accidental damage occurring to them during construction activities in the vicinity.
- 10.7.6 Where the access track crosses the Deil's Dyke (**6a**) the required breach in the alignment of the dyke will be kept to a minimum width necessary to facilitate the passage of the track and associated drainage ditch. This section will be subject to additional mitigation (see below).

Recording, Excavation and Post-Excavation

- 10.7.7 Where the Deil's Dyke (**6a**) is to be crossed by the western site access track this section will be subject to archaeological investigation. Archaeological sections of the bank (and any associated ditch) will be excavated and recorded, by photography and drawings and the dyke where it is to be breached will be carefully removed under archaeologically controlled monitoring; the purpose being to monitor the dismantlement and recover any artefacts that may come to light. .
- 10.7.8 Although considered unlikely, if important discoveries are made during archaeological mitigation works and preservation *in situ* is not possible, provision will be made for an appropriate level of recording that may include excavation, where necessary, of any archaeological remains encountered. Such provision will also include the consequent production of written reports on the findings, with post-excavation analyses and publications of the results of the works, as appropriate. This will be offset mitigation and although it will not reduce the level of significance of the effect, it will fully compensate for the loss of any archaeological value that the affected remains may hold.

Construction Guidelines

- 10.7.9 Written Guidelines will be issued for use by all construction contractors, outlining the need to avoid causing unnecessary damage to known sites. The Guidelines will contain arrangements for calling upon retained professional support in the event that buried archaeological remains of potential archaeological interest (such as building remains, human remains, artefacts etc) should be discovered in areas not subject to archaeological monitoring. The guidance will make clear the legal responsibilities placed upon those who disturb artefacts or human remains.

Decommissioning

- 10.7.10 Upon decommissioning of the Proposed Development tracks will be removed and turbine bases and crane hard-standings restored; the access required and works required being similar to those undertaken during the construction phase. The site infrastructure (access tracks and crane hard-standing) will be used in the dismantlement and removal of the turbines.
- 10.7.11 All protective measures (marking off) proposed during the construction phase mitigation will be put in place during and throughout the decommissioning phase to ensure the preservation of important remains *in situ*. Marking out will be removed following the completion of the removal of all infrastructure elements.

Operational Mitigation

- 10.7.12 Effects arising from the operation of the Proposed Development are identified as being of no more than **minor** significance for any heritage asset. All effects are assessed as being not significant in EIA terms and therefore no mitigation is required.

10.8 Residual Effects

Direct (Construction) Effects

- 10.8.1 The completion of the programme of archaeological mitigation works set out above (Section 10.7) will minimise (through perseveration *in situ*) or offset the effect on the Deil's Dyke (through preservation by record) that may occur as a result of the construction of the Proposed Development.
- 10.8.2 There is some (albeit limited) potential for direct effects on any surviving buried archaeological remains that may be encountered. However, taking mitigation into account, any residual effect in relation to potential direct effects on the cultural heritage resources within the Proposed Development site will be of no more than **minor** significance.

Operational Effects on Setting

- 10.8.3 There will be no significant impacts on the settings of cultural heritage assets within the wider landscape; therefore, the Proposed Development will not have a significant residual effect on the setting of any heritage assets.

Decommissioning

- 10.8.4 The removal of the turbines during decommissioning of the Proposed Development at the end of its operational life time will restore the settings of affected heritage assets to their pre-development status.

10.9 Cumulative Effects

- 10.9.1 The assessment of cumulative effects on the cultural heritage assets is based upon consideration of the effects of the Proposed Development on the setting of assets with statutory and non-statutory designations within 10 km of the proposed Development, in addition to the likely effects of other wind farms within the vicinity.

- 10.9.2 The cultural heritage cumulative impact assessment focuses on those assets identified by Dumfries and Galloway Council to be specifically assessed for effects on setting (Table 10.1 for details). Cumulative 360° wirelines from these assets have been produced and relevant Figure references are provided in Table 10.9 (above).
- 10.9.3 Figure 10.3 shows the Proposed Development, the location of heritage assets within 10 km of the Proposed Development from which there will be theoretical views of the turbines, and the locations of other wind energy developments that may, in combination with the Proposed Development, have a cumulative effect on the settings of heritage assets in the wider landscape.
- 10.9.4 Within 10 km of the Proposed Development there are:
- One operational wind energy development: Hare Hill (20 turbines).
 - Seven consented wind energy developments: Afton (27 turbines), Hare Hill Extension (39 turbines), High Park Farm (one turbine), , Sanquhar Community Wind Farm (12 turbines), Sunnyside (two turbines), Twentyshilling Hill (nine turbines) and Whiteside Hill (11 turbines).
 - Eight wind energy developments at the planning application stage, including those which have been refused and are being appealed or are still within the allowable timeframe for appeal: Garleffan (nine turbines), Glenmuckloch (eight turbines), Lethans (26 turbines), Penbreck (nine turbines), Pencloe (21 turbines), Sanquhar ‘Six’ (six turbines), Spango (14 turbines), Ulzieside (12 turbines) and Ashmark (seven turbines).
- 10.9.5 Other wind farm developments are present or proposed in the wider landscape (see Table 6.X in Chapter 6: Landscape and Visual Assessment). Where predicted to be visible they are shown on the cumulative wirelines from the heritage assets assessed and are referenced in the assessment below.

Crichton Peel and Sanquhar Castle (687)

- 10.9.6 The cumulative wirelines (Figure 10.4e-f) and photowireline (Figure 10.4g) for this asset show that when looking in a western direction from the castle the Proposed Development will be visible together with four other wind farm developments (operational Hare Hill, planning Hare Hill Extension, consented Sanquhar Community Wind Farm and planning Sanquhar ‘Six’) as a group (Figure 10.4e (A) and Figure 10.4g). If all of those other developments in that group currently in planning or consented are constructed they would form the baseline against which the addition of the Proposed Development would be a detectable but slight change. The cumulative impact of the addition of the Proposed Development to the operational and proposed cumulative wind farms in the western view on the asset’s setting would be of low magnitude; a **minor** effect which is not significance.
- 10.9.7 The consented Whiteside Hill the planning Ulzieside developments would be visibly separate from the main group described above as would the Lethans and Glenmuckloch developments (Figure 10.4e (A)). The consented Sunnyside and in planning Spango developments would be visible as a small group to the north beyond Sanquhar (Figure 10.4e (B)) and the in planning Twentyshilling Hill would be visible as a stand-alone development in views to the south (Figure 10.4e (D)). The cumulative impact of the addition of the Proposed Development to the operational and proposed cumulative wind farms to the north and south on the asset’s setting would be of no more than low magnitude; a **minor** effect which is not significance.

Sanquhar Parish Church (40538)

- 10.9.8 The cumulative wirelines (Figure 10.5e-f) and photowireline (Figure 10.5g) for this asset show that when looking in a westerly direction from the church the Proposed Development will be visible together with four other wind farm developments (operational Hare Hill, planning Hare Hill Extension, consented Sanquhar Community Wind Farm and planning Sanquhar 'Six') as a group (Figure 10.5e (A) and Figure 10.4g). If all of those developments in that group currently in planning or consented are constructed they would form the baseline against which the addition of the Proposed Development would be a detectable but slight change. The cumulative impact of the addition of the Proposed Development to the operational and proposed cumulative wind farms in the western view on the asset's setting would be of low magnitude; a **minor** effect which is not significance.
- 10.9.9 The consented Whiteside Hill and planning Ulzieside developments would be visibly separate from the main group described above as would the Lethans and Glenmuckloch developments (Figure 10.5e (A & D)). The consented Sunnyside and in planning Spango developments would be visible as a small group to the north beyond Sanquhar (Figure 10.5e (B)) and the in planning Twentyshilling Hill would be visible as a stand-alone development in views to the south (Figure 10.5e (D)). The cumulative impact of the addition of the Proposed Development to the operational and proposed cumulative wind farms to the north and south on the asset's setting would be of no more than low magnitude; a **minor** effect which is not significance.

St Connel's Church and Graveyard (MDG75)

- 10.9.10 The cumulative wirelines (Figure 10.6e-f) and photowireline (Figure 10.6g) for this asset show that when looking in a southerly direction from St Connel's Church the Proposed Development will be visible along with six additional wind farm developments (operational Hare Hill, consented Sanquhar Community Wind Farm and Whiteside Hill and the in planning developments at Ulzieside, Sanquhar 'Six' and Hare Hill Extension. These developments will be visible as a group along the hill slopes and moorland on the opposite side of the river valley (Figure 10.6e (A)). The majority of the cumulative developments will be visible along the skyline, but the Proposed Development will be largely back clothed by the surrounding hills and set against the backdrop of the other schemes. If all of those other developments in that group currently in planning or consented are constructed they would form the baseline against which the addition of the Proposed Development would be a detectable but slight change. The cumulative impact of the addition of the Proposed Development to the operational and proposed cumulative wind farms in the southerly view on the asset's setting would be of low magnitude; a **minor** effect which is not significance.
- 10.9.11 The proposed Lethans and Glenmuckloch developments would occupy a separate arc of view from that of those to the south being visible along the skyline in the view to the northwest and seen as distinct and separate from the main group to the south. If these two schemes were to go ahead, the cumulative impact of the addition of the Proposed Development in a different arc of view would be of low magnitude; a **minor** effect which is not significance.
- 10.9.12 The in planning Twentyshilling Hill development would lie to the southeast and a great distance (12 km) from the asset. The cumulative impact with Twentyshilling Hill would be of negligible magnitude; a **minor** effect which is not significance.

10.10 Summary

- 10.10.1 The Cultural Heritage chapter considers the likely impacts on heritage assets (archaeology and built heritage) of the construction and operation of the Proposed Development.
- 10.10.2 The assessment was designed to identify and evaluate any cultural heritage assets within the Proposed Development site through examination of desk-based sources and a site visit, and to identify heritage assets within 10 km of the Proposed Development that could have their settings affected.
- 10.10.3 Ten heritage assets have been identified within the Proposed Development site (Figure 10.1) including sections of medieval field boundary 'Deil's Dyke' (**6**), two sheep shelters (**2** and **5**), four sheepfolds (**3**, **4**, **7** and **8**), former coal mining shafts (**1** and **9**), and a find-spot (**10**). The majority of these sites are associated with 19th/20th century farming activity and attest to the use of the area principally for grazing. Previous excavations of sections of the Deil's Dyke, just south of Kirkconnel, suggest that sections of the dyke may have an earlier prehistoric date and the feature is assessed as being of regional heritage importance; while the other sites are judged to be of no more than lesser importance.
- 10.10.4 One direct effect of **moderate** significance is predicted on the remains of a section of the Deil's Dyke (**6a**) which will be crossed by the proposed western site access track. In addition, there is some (albeit limited) potential for direct effects on any surviving buried archaeological remains that may be encountered. Mitigation to offset these effects has been set out and taking this into account there will be no residual significant direct impacts in relation to cultural heritage assets.
- 10.10.5 There will be no significant impacts on the settings of cultural heritage assets within the wider landscape from the Proposed Development alone when considered in the context of the current baseline including the operational Hare Hill Wind Farm.
- 10.10.6 It is assessed that there will be a cumulative effect on St Connel's Church (**MDG75**) of **minor** significance from addition of the Proposed Development to a baseline comprising other operational, consented or proposed wind energy schemes if all of those currently in planning were to be consented.

Table 10.10 – Summary of Proposed Development Effects

Description of Effect	Potential Effect		Mitigation	Residual Effect	
	Significance	Adverse/Beneficial		Significance	Adverse/Beneficial
Construction and decommissioning					
Potential direct effect on a section of the Deil’s Dyke (6a)	Moderate (significant)	Adverse	Breaches of the dyke during construction of the off-site access track will be kept to a minimum width necessary to facilitate the passage of the track and associated drainage ditch. Archaeological investigation and a watching brief will be carried out where the Deil’s Dyke is crossed by the off-site access track.	Minor (non-significant)	Adverse
Potential direct effects on hitherto unknown buried archaeological remains	Minor (non-significant)	Adverse	Recording; Watching Brief/Evaluation	Minor (non-significant)	Adverse
Operation					
Indirect effect predicted on the setting of Crichton Peel and Sanquhar Castle (687)	Minor (non-significant)	Adverse	None required	Minor (non-significant)	Adverse
Indirect effect predicted on the setting of and Sanquhar Parish Church (40538)	Minor (non-significant)	Adverse	None require	Minor (non-significant)	Adverse
Indirect effect predicted on the setting of St Connel’s Church and Graveyard (MDG75)	Minor (non-significant)	Adverse	None required	Minor (non-significant)	Adverse
Indirect effects predicted on the	Negligible/Minor (non-significant)	Adverse	None required	Negligible/Minor (non-significant)	Adverse

Description of Effect	Potential Effect		Mitigation	Residual Effect	
	Significance	Adverse/Beneficial		Significance	Adverse/Beneficial
setting of all other cultural heritage assets with predicted visibility of the Proposed Development					

Table 10.11 – Summary of Cumulative Effects

Description of Effect	Residual Effect		Cumulative Wind Farms	Cumulative Effect	
	Significance	Adverse/Beneficial		Significance	Adverse/Beneficial
Construction and decommissioning					
None	None	None	None	None	None
Operation					
Indirect effect predicted on the setting of Crichton Peel and Sanquhar Castle (687)	Minor (non-significant)	Adverse	Hare Hill, Hare Hill Extension, Sanquhar Community Wind Farm and Sanquhar ‘Six’, Whiteside Hill, Ulzieside, Lethans, Glenmuckloch, Spango, Sunnyside, Twentyshilling Hill.	Minor (non-significant)	Adverse
Indirect effect predicted on the setting of and Sanquhar Parish Church (40538)	Minor (non-significant)	Adverse	Hare Hill, Hare Hill Extension, Sanquhar Community Wind Farm and Sanquhar ‘Six’, Whiteside Hill, Ulzieside, Lethans, Glenmuckloch, Spango, Sunnyside, Twentyshilling Hill.	Minor (non-significant)	Adverse
Indirect effect predicted on the setting of St Connel’s Church and Graveyard (MDG75)	Minor (non-significant)	Adverse	Hare Hill, Hare Hill Extension, Sanquhar Community Wind Farm and Sanquhar ‘Six’, Whiteside Hill, Ulzieside, Lethans, Glenmuckloch.	Minor (non-significant)	Adverse
Indirect effects predicted on the setting	Negligible/Minor (non-significant)	Adverse	Hare Hill, Hare Hill Extension, Sanquhar Community Wind Farm	Negligible/Minor (non-significant)	Adverse

of all other cultural heritage assets with predicted visibility of the Proposed Development			and Sanquhar 'Six', Whiteside Hill, Ulzieside, Lethans, Glenmuckloch, Spango, Sunnyside.		
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10.11 References

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10.1 Cultural Heritage Appendix

Appendix 10.1 Gazetteer of Cultural Heritage Sites and Features within the Proposed Development Site

Site No	Site Name / Type	HER / RCAHMS no	Easting	Northing	Primary Source	Description	Importance	Nature of Direct Impact	Magnitude of Impact	Significance of Effect
1	Nether Cairn, Mine Shafts	-	269417	611797	The Coal Authority (2011); Sandy Knowe Windfarm ES (2012, Site 76)	A coal report produced in 2011 for Rigg Farm (Kirkconnel) records the presence of nine former mine shafts to the west of Polneul Burn. The shafts have all been in-filled and the ground is currently used as pastureland.	Lesser	None	None	None
2	Macans Burn, Sheep Shelter	-	269178	611144	Historic maps; Sandy Knowe Windfarm ES (2012, Site 1); Aerial photographs	A Y-shaped sheep shelter is depicted on the Ordnance Survey 1st Edition map (Dumfriesshire, 1899, Sheet, 005.11, 25 inches to 1 mile) and the 2nd Edition Dumfriesshire, 1900, Sheet V.SE, 6 inches to 1 mile) to the north-west of 'Macan's Burn'. The same sheep fold is shown on the 2015 Ordnance Survey 1:10,000 map. The sheep shelter is visible on modern vertical aerial photographs (GoogleEarth™).	Lesser	None	None	None
3	Hay Knowe, Sheepfold	-	269365	610800	Historic maps; Sandy Knowe Windfarm ES (2012, Site 2); Aerial photographs	A circular sheepfold, with two radiating walls on the north-east and south arc, is depicted on the Ordnance Survey 1st Edition map (Dumfriesshire, 1899, Sheet, 005.11, 25 inches to 1 mile) and 2nd Edition map (Dumfriesshire, 1900, Sheet V.SE, 6 inches to 1 mile) at 'Hay Knowe'. The same sheep ree is shown on the 2015 Ordnance Survey 1:10,000 map. The sheep shelter is visible on modern vertical aerial photographs (GoogleEarth™).	Lesser	None	None	None
4	Hay Knowe, Sheepfold	-	269691	610864	HER; Sandy Knowe Windfarm ES (2012, Site 3); Aerial photographs	The HER records the presence of a circular sheepfold just north of an unnamed burn. The same sheep ree is shown on the 2015 Ordnance Survey 1:10,000 map. The sheep ree is not shown on the 1st or 2nd Edition maps suggesting that it is of relatively recent date. The sheepfold is visible on modern vertical aerial photographs (GoogleEarth™).	Lesser	None	None	None
5	White Hill, Sheep shelter	-	269038	610318	Sandy Knowe Windfarm ES (2012, Site 4); Aerial photographs	The original ES records the presence of a Y-shaped sheep shelter at 'White Hill'. The same sheep shelter is shown on the 2015 Ordnance Survey 1:10,000 map. The sheep ree is not shown on the 1st or 2nd Edition maps suggesting that it is of relatively recent date. The sheep shelter is visible on modern vertical aerial photographs (GoogleEarth™).	Lesser	None	None	None
6	Deil's Dyke, Bank (earthwork)	MDG11235, MDG11241 / NS61SE 8, NS71SW 25, NS71SW 25.06	271770	611520	HER; RCAHMS; Sandy Knowe Windfarm ES (2012, Sites 13-14, 23-27)	The HER and Canmore record that the earthwork that might be regarded as the Deil's Dyke proper extends from east of Afton Water (at approximately NS 6169 1142) to Burnmouth (at approximately NS 8400 0500). Barber (1981) records that where the Deil's Dyke is extant it comprises an earthen bank of rounded profile (2m-4m wide and up to 7m high) of scraped earth construction. Where a ditch exists it is no more than a channel averaging 0.5m wide and 0.4m deep on the uphill side. The dyke has no defensive qualities; many stretches have been designed, or later utilised, as a march-dyke or head-dyke, with rug and furrow extending up to, but not beyond it. Several of the erratic direction changes are deliberate detours to enclose as much favourable arable land as possible. 6a – (26951, 611881 to 270071, 611931) This section of the Deil's Dyke is fairly well persevered surviving as an upstanding bank running straight to Polneul Burn. It is visible on modern aerial photographs as a turf covered bank crossing an area of rough pastureland. 6b – (271710 611530) This section of the Deil's Dyke has been removed by open cast quarry works in the 1990s. Prior to the coal mining a series of section were excavated across this section of the dyke revealed that the dyke had been constructed by stripping the turves and B horizon on either side to form the bank. A core of turves was visible in some places. Medieval pottery was retrieved from the bank core providing a terminus date for the bank around the 12 th century AD.	Regional	Direct: Section 6a of Deil's Dyke crossed by proposed site access track	Medium: crossing by the proposed western access track will truncate the course of the dyke at that location..	Moderate
7	Polbroc, Sheepfold	-	270186	609740	Historic maps, Sandy Knowe	The original ES records that a circular sheepfold is depicted on the Ordnance Survey	Lesser	None	None	None

Site No	Site Name / Type	HER / RCAHMS no	Easting	Northing	Primary Source	Description	Importance	Nature of Direct Impact	Magnitude of Impact	Significance of Effect
					Windfarm ES (2012, Site 7)	1 st Edition map (Dumfriesshire, 1860, Sheet V, 6 inches to 1 mile). Re-examination of the Ordnance Survey 1 st and 2 nd Edition maps indicates that this sheepfold is actually first depicted on the Ordnance Survey 2 nd Edition map (1900, Sheet V.SE, 6 inches to 1 mile). The sheepfold is visible on modern aerial photographs (GoogleEarth™).				
8	Polmeur, Sheepfold	-	270557	611024	Aerial photographs; Sandy Knowe Windfarm ES (2012, Site 6)	A circular sheep fold with two radiating walls on the north and east arcs is visible immediately west of Polmeur Burn on modern aerial photographs (GoogleEarth™). Field survey carried out for the original ES (2012) recorded that the dry-stone sheepfolds survives in a poor to moderate condition.	Lesser	None	None	None
9	Libry Moor, Shafts	-	271689	610507	The Coal Authority (2011); Sandy Knowe Windfarm ES (2012, Site 73)	A coal report produced in 2011 for Rigg Farm (Kirkconnel) records the presence of three former mine shafts at Libry Moor which have been filled in by this date. These mining shafts have been removed during later open cast coal mining carried out in this area in the 1990s.	Lesser	None	None	None
10	Librymoor Plantation: Find-spot, adze	MDG131 / NS71SW 5	271700	611400	HER, Canmore, Sandy Knowe Windfarm ES (2012, Site 12)	The HER and Canmore record that a cast of a middle Bronze Age flanged adze was discovered in 1928 during drainage operations near the Deil's Dyke. The exact location of the find-spot is unknown, although it may have been recovered from immediately beneath the Dyke (Coles 1966).	Lesser	None	None	None

10.1 Cultural Heritage Appendix

Appendix 10.2 External Receptors within 5 km of the outermost turbines¹

Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
10237	Kirkconnel Parish Church and Churchyard	Category B Listed	272802	612308	2.7	21-24	21-24	Regional	Early 18th century church altered in 1896. Churchyard contains good 18th and 19th century monuments. Located within Kirkconnel in wider improved rural landscape. Principal views to south onto main street. Screening from other buildings and trees, particularly on north, west and east sides. Localised setting. Some social and experiential value due to historical and architectural properties and landscape setting.	Moderate (localised)	Medium (localised)	Low: Localised semi-rural setting and some screening provided by surrounding buildings and trees. Long range views not important to understanding asset.	Minor
10238	Kirkconnel, 71-72 Main Street, Queensberry Arms Hotel	Category B Listed	273088	612219	2.9	21-24	21-24	Regional	Earlier 19th century two-storey hotel with Art Nouveau interior. Located within Kirkconnel in wider improved rural landscape. Main views to north onto main street. Screening from other buildings and trees. Localised setting.	Moderate (localised)	Medium (localised)	Imperceptible: Localised semi-rural setting and screening provided by surrounding buildings. Long range views not important to understanding asset.	Negligible
10240	The Knowe, Farmhouse	Category B Listed	271856	612710	2.4	21-24	21-24	Regional	Earlier 19th century, two-storey farmhouse with asymmetrical ranges standing immediately east of complex of modern farm buildings and barns. Located within improved rural landscape. Principal façade aligned south-east looking out along valley, although views are also gained from the southern elevation overlooking arable fields and railway line. Localised setting.	Moderate (localised)	Medium (localised)	Low: Localised rural setting. Long range views not important to understanding asset.	Minor
13345	Kirkconnel, Manse	Category B Listed	272438	612384	2.5	21-24	21-24	Regional	18th century church built as parish manse soon after neighbouring Kilbride parish was suppressed circa 1732. Located on edge of Kirkconnel within improved rural landscape. Trees surround the churchyard and provide screening out to the surrounding arable farmland. Secluded localised setting.	Moderate (localised)	Medium (localised)	Imperceptible: Localised rural setting and screening provided by surrounding trees. Long range views not important to understanding asset.	Negligible
10239	Kirkland	Category C Listed	272287	614327	4.0	21-24	21-24	Local	Earlier/mid 19th century. Symmetrical two storey farmhouse located on slight terrace on south-west-facing slope, within Glenalymer Burn valley, in improved rural landscape. Stands immediately south of modern farm buildings and barns. Screening from mixed woodland stands and conifer plantation surrounding farm. Secluded localised setting.	Moderate (localised)	Low (localised)	Imperceptible: Localised rural setting and screening provided by surrounding trees. Long range views not important to understanding asset.	Negligible
10275	Kirkconnel, Guildhall Bridge	Category C Listed	272190	612341	2.3	21-24	21-24	Local	Mid-18th century three segmental arched bridge over River Nith, widened with iron girders in 1920. Localised setting on edge of Kirkconnel within improved rural landscape. Views focused along river valley to north-west and south-east.	Moderate (localised)	Low (localised)	Imperceptible: Localised rural setting. Long range views not important to understanding asset.	Negligible
10278	Kirkconnel, Kelloside	Category C Listed	272835	611887	2.5	21-24	21-24	Local	Mid-late 19th century large two storey farmhouse, L-plan, with low rear wing. Located in improved rural landscape. Immediately west of modern farm buildings and barns. Screening from mixed woodland	Moderate (localised)	Low (localised)	Imperceptible: Localised rural setting and screening provided by surrounding trees. Long range views not important to	Negligible

¹ Includes HER cited NSR sites to within 5 km

Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
									to north and south of house. Localised setting.			understanding asset.	
MDG75	St Connel's Church Cemetery Cross, Church	NSR Site	272360	615020	4.6	21-24	21-24	Regional	Foundations of former medieval church, situated on a south-facing plateau on southern base of Kirkland Hill, within improved rural landscape. Replacement church built in 1729 in Kirkconnel. Principal views in southern arc towards Kirkconnel and lower valley. More restricted views to north due to rising topography. Not prominent feature in wider landscape. Localised setting.	Moderate (localised)	Medium (localised)	<i>Figure 10.6a-e</i> Low – Proposed turbines visible in arc of view to the south-west in context of the operational Hare Hill Wind Farm. The Proposed Development will not however affect an ability to appreciate the church buildings and its associated church yard nor affect an understanding and appreciation of its immediate farmland setting. <i>See ES Paragraphs 10.6.17-10.6.19 for detailed discussion.</i>	Minor
MDG11235, MDG11244-11247	Deil's Dyke	NSR Site	270000	611930	0.7-0.9	21-24	21-24	Regional	Linear earthwork, some of which has Iron Age origins. Formerly thought to define medieval kingdom of Galloway, later discovered to be series of disconnected agricultural banks. Sections of the earthwork, particularly around Kirkconnel, have been removed in 1980s/1990s prior to surface mining. Located in rough pasture running along River Nith valley.	High (localised)	High (localised)	Imperceptible: Long range views not important to setting or understanding of monument as a form of land boundary or enclosure. No effects on archaeological potential of historic properties.	Negligible
MDG11250	Deil's Dyke	NSR Site	275583	610319	4.8	21-24	21-24	Regional	Linear earthwork, some of which has Iron Age origins. Formerly thought to define medieval kingdom of Galloway, later discovered to be series of disconnected agricultural banks. Sections of the earthwork, particularly around Kirkconnel, have been removed in 1980s/1990s prior to surface mining. Located in rough pasture running along River Nith valley.	High (localised)	High (localised)	Imperceptible: Long range views not important to setting or understanding of monument as a form of land boundary or enclosure. No effects on archaeological potential of historic properties.	Negligible
MDG21369	Grieve Hill to Dumfries Wagonway	NSR Site	267864	615069	4.0	21-24	21-24	Regional	Remains of former wagonway associated with transport of industrial material. Located within upland moorland/rough pasture, adjacent to modern surface mining infrastructure and large forestry plantation. Localised setting. Other elements of industrial past within surrounding landscape.	Low (localised)	Low (localised)	Imperceptible: setting already compromised by modern industrial features and forestry. Localised setting, long distant views or intervisibility with other industrial features not key features of setting, and already inhibited by forestry.	Negligible
MDG21444	Glenwharrie Farmstead, Quarry, Ridge and furrow	NSR Site	271151	614620	3.6	21-24	21-24	Regional	Footings of sub-rectangular building, adjacent to a patch of rig and a quarry, recorded on oblique aerial photography. Located on south facing slope within semi-improved pasture, with commercial forestry plantation to north-west and north-east. Main views in southern arc, distant views restricted to north by presence of high ground and commercial forestry. Localised setting.	Moderate (localised)	Medium (localised)	Low: Localised rural setting. Long range views not important to understanding asset. No affect on archaeological or historical properties.	Minor

Appendix 10.3 External Receptors between 5 km and 10 km of the outermost turbines

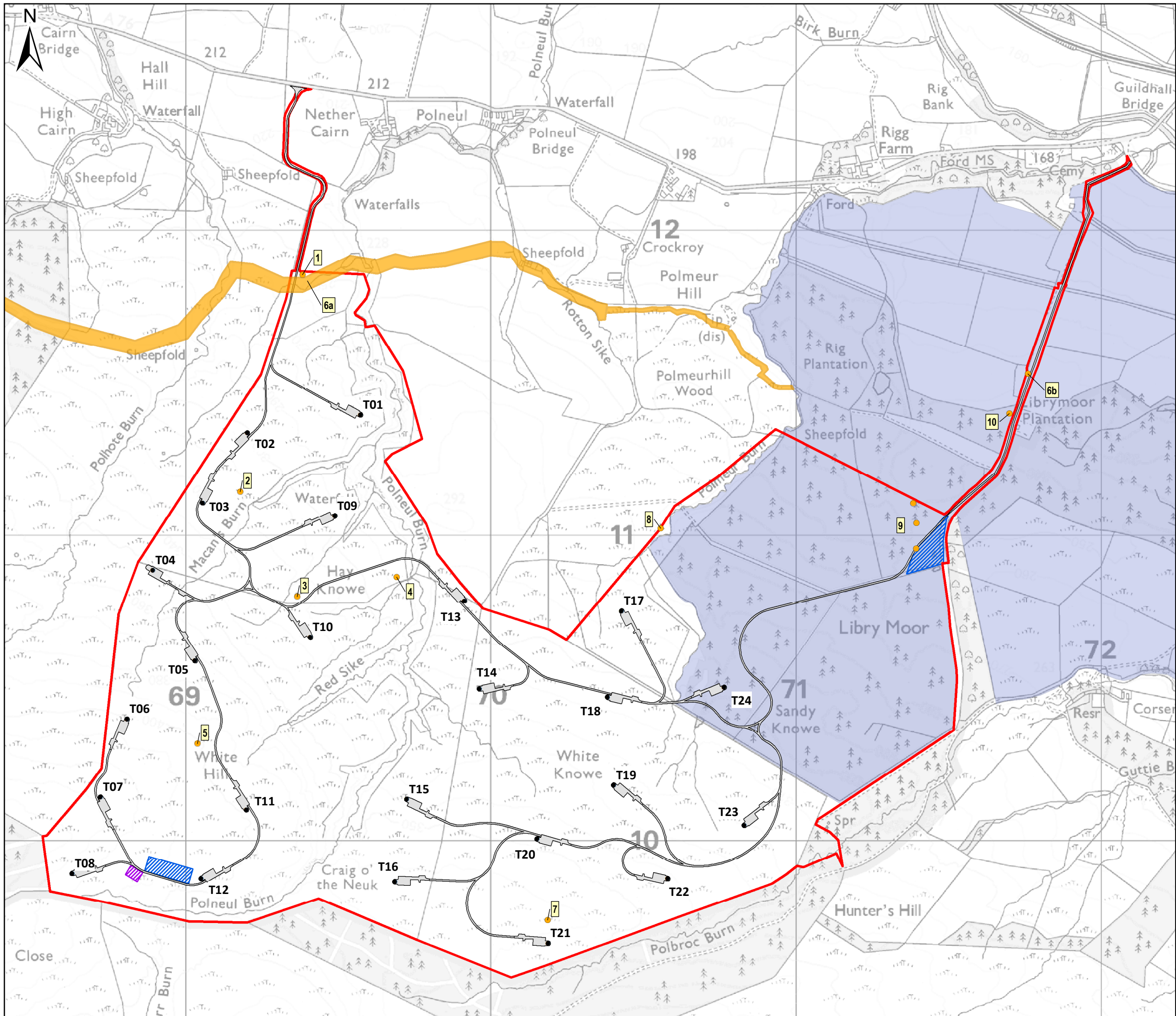
Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
656	Kemps Castle, fort 320 m SW of Euchar Bridge	Scheduled Monument	277286	608877	6.5	16-20	6-10	National	Earthwork remains of fort or motte (settlement site) occupying a long narrow flat-topped promontory between the Euchar Water and Barr Burn at 145 m AOD, within improved rural landscape. Located approximately 120 m west of Ulzieside Farm. Views screened by mixed woodland surrounding promontory, but will have good surrounding views, particularly to north-west and south-east along valley.	Moderate	Medium	Imperceptible: Only distant views of development visible in views to west-north-west and partially screened by intervening topography and surrounding trees. Turbines only visible in one arc of view from the monument. Presence of development will not affect ability to appreciate and understand setting of monument.	Negligible
687	Crichton Peel & Sanquhar Castle	Scheduled Monument	278526	609247	7.6	21-24	21-24	National	Ruinous 13 th century Castle with later 19 th century restoration. Stands on slightly elevated ground to the immediate south of Townfoot Burn and on the edge of Sanquhar within an improved pasture field. The main buildings of the castle are currently fenced off by a high wire fence. Modern housing estates, on the edge of Sanquhar stand approximately 80 m north and north-west of the ruins, on the opposite side of the Townfoot Burn, and sewage works are present around 300 m to the south-west. There are open views out to the surrounding farmland and across Sanquhar, to the north-west, although, some screening is provided by trees to the west of the ruins running along the side of Townfoot Burn. The ruins of the castle are visible whilst travelling along the A76, especially whilst approaching Sanquhar from the south-east; the castle ruins visible back-dropped by distant hills in these views and generally surrounded by Castle mains Cottage and housing on the edge of Sanquhar. Further distant views of the castle from the wider landscape are limited by intervening topography and trees edging fields.	Moderate	Medium	<i>Figure 10.4a-e</i> Low: Development visible on far horizon beyond castle and in wider landscape surroundings in views to the west-north-west. Presence of development will have little effect on ability to appreciate and understand setting of castle. <i>See ES Paragraphs 10.6.12-10.6.14 for detailed discussion.</i>	Minor
708	Ryehill, motte	Scheduled Monument	279407	608574	8.7	21-24	21-24	National	Earthwork remains of a probable early medieval motte (settlement site) on the edge of and improved pasture field overlooking the flood plain of the River Nith. The motte remains are turf covered and later quarrying has disturbed the north side of the earthworks. The main focus of the monument is along the River Nith valley, to the north-west and south-east; trees present along the western side of the motte partially screen views out in this direction. Visible from the A76 public road that passes the monument on its eastern side, whilst travelling north to Sanquhar.	Moderate	Medium	Low: Development visible on far horizon beyond motte and in wider landscape surroundings in views from the motte to the west-north-west. Presence of development will have little effect on ability to appreciate and understand setting of castle.	Minor
40540	Sanquhar, High Street, Tolbooth	Category A Listed	278090	609913	7.3	21-24	21-24	National	Early 18 th century Baroque Tolbooth/Town House with two-storeys. Within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
10241	Tower	Category B	275604	611952	5.1	21-24	21-24	Regional	Earlier 19 th century two-storey farmhouse. Located on south facing slope within improved rural	Moderate	Low	Imperceptible: Localised rural setting. Long range views not	Negligible

Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
		Listed							landscape. Stands immediately south of modern farm buildings and barns. Main views overlooking valley to south. Some screening provided by trees on south-west and eastern sides of house. Localised setting.	(localised)	(localised)	important to understanding asset.	
10276	Holm	Category B Listed	278270	611270	7.5	21-24	21-24	Regional	Late 18 th /early 19 th century two-storey stable block located on a south facing slope within improved pasture field and on the northern edge of Moor Plantation. The building was constructed for the Queensberry Estates as stables for the shooting lodge which is now demolished. The main façade of the building is aligned south-south-east. Woodland to the south (Moor Plantation) screens views out in that direction and provides a secluded setting for the stables. Localised setting.	Moderate (localised)	Low (localised)	Imperceptible: Localised rural setting. Long range views not important to understanding asset.	Negligible
10291	Crawick New Bridge	Category B Listed	277405	610722	6.6	21-24	21-24	Regional	Early 19 th century road bridge over Crawick Water. Localised setting on edge of Sanquhar within improved rural landscape. Views focused along river valley to south-west and north-east.	Moderate (localised)	Low (localised)	Imperceptible: Localised rural setting. Long range views not important to understanding asset.	Negligible
14246	New Cumnock, Martyrs Parish Church	Category B Listed	261731	613510	7.6	1-5	0	Regional	Church dating to 1833 with original pulpit. Semi-urban setting within wider rural landscape. Main views are onto main road, which runs north-south through New Cumnock.	Low (localised)	Low (localised)	Imperceptible: Localised semi-urban setting and some screening provided by surrounding buildings. Development only visible in distant views to south-east. Long range views not important to understanding asset.	Negligible
14247	New Cumnock, Castlehill, Ruins of Old Church and Churchyard	Category B Listed	261742	613761	7.7	1-5	0	Regional	Surviving walls of 1657 T-shaped church extant with Gothic Windows. Located on edge of New Cumnock; semi-urban setting within wider rural landscape. Surrounded by buildings on north, east and south side. Views to west overlook associated church and arable farmland.	Low (localised)	Low (localised)	Imperceptible: Localised semi-urban setting and screening provided by surrounding buildings. Long range views not important to understanding asset.	Negligible
14248	New Cumnock, River Nith, Nith Bridge	Category B Listed	261864	614069	7.7	1-5	0	Regional	Bridge with three low flat arches spanning River Nith. In use as road bridge. Localised semi-urban setting between Pathhead to north and New Cumnock to south. Distant views along Nith Valley to west.	Low (localised)	Low (localised)	Imperceptible: Very localised setting in semi-urban landscape.	Negligible
17254	Crawick, Viaduct	Category B Listed	277671	610976	6.9	21-24	21-24	Regional	Railway viaduct with six round arches spanning Crawick Water and B740. Localised semi-urban setting within wider rural landscape. Distant views out to surrounding arable fields and outskirts of Sanquhar, to south-east.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and long range views not important to setting or understanding of asset.	Negligible
17255	Menock, Eliock Bridge	Category B Listed	280395	608267	9.7	16-20	16-20	Regional	Single span bridge crossing River Nith. In use as road bridge. Localised rural setting, surrounded by woodland. Views focused along river valley to the west and east.	Moderate (localised)	Medium (localised)	Imperceptible: Very localised setting in rural landscape.	Negligible
40536	Blackaddie Bridge	Category B	277482	609683	6.7	6-10	0	Regional	Mid-19 th century road bridge over River Nith. Localised setting on edge of Sanquhar in improved	Moderate	Medium	Imperceptible: Localised setting and long range views not	Negligible

Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
		Listed							rural landscape	(localised)	(localised)	important to setting or understanding of asset.	
40537	Sanquhar, 2 Church Road	Category B Listed	278080	609934	7.3	21-24	21-24	Regional	Mid 18 th century two-storey building, listed as derelict. Within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Development visible only in distant views to north-north-west, not in principal views onto main street. Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40538	Sanquhar, Church Road, St Bride's Church	Category B Listed	277910	610181	7.1	21-24	21-24	Regional	Early 19 th century Gothic church with three-stage square tower at west gable. Built on site of earlier foundations, with grave monuments dating to 17 th 20 th century. In use as church. Within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Screening provided by surrounding trees, particularly in views to north and east. Views out to west overlook outskirts of Sanquhar with glimpses afforded to surrounding farmland.	Moderate (localised)	Medium (localised)	<i>Figure 10.5a-e</i> Low: Development visible only in distant views to west. Localised setting and distant views not important in understanding asset or relationship to other assets within CA. <i>See ES Paragraphs 10.6.15-10.6.16 for detailed discussion.</i>	Minor
40539	Crawick New Bridge	Category B Listed	277405	610722	6.6	21-24	21-24	Regional	Road bridge over Crawick Water. Localised setting on edge of Sanquhar in improved rural landscape.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and long range views not important to setting or understanding of asset.	Negligible
40547	Sanquhar, 39 - 41 High Street, Post Office and House	Category B Listed	278193	609873	7.4	21-24	21-24	Regional	Mid-18 th century two-storey house with rare bow-fronted shop. Post Office founded in 1712, oldest in world still operational. Within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Principal views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40548	Sanquhar, 63 High Street, Bank Of Scotland	Category B Listed	278258	609850	7.4	21-24	21-24	Regional	Earlier 19 th century Classical bank set back from street with two storeys. Within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40549	Sanquhar, 71, 73 High Street	Category B Listed	278303	609809	7.5	21-24	21-24	Regional	Mid-later 18 th century two-storey building within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40551	Sanquhar, St Ninian's Church	Category B Listed	278433	609694	7.6	21-24	21-24	Regional	Mid-19 th century rectangular-plan three bay Gothic church with principal gabled elevation to street, within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40554	Sanquhar, 26 High Street, Royal Bank Of Scotland	Category B Listed	278137	609864	7.3	21-24	21-24	Regional	Early 19 th century Classical bank set back from street with two storeys, within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets	Negligible

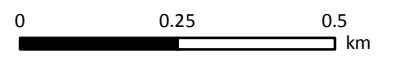
Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
									views by buildings/trees.			within CA.	
40557	Sanquhar, 74-76 High Street	Category B Listed	278258	609799	7.4	21-24	21-24	Regional	Earlier 19 th century two-storey building within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40558	Sanquhar, 78-86 High Street	Category B Listed	278277	609787	7.5	21-24	21-24	Regional	Mid-19 th century two-storey with shops at ground floor preserving original shop frontages. Within Sanquhar CA. Localised setting to Sanquhar in semi-rural wider landscape. Main views onto main street. Screening of distant views by buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Development visible only in distant views to - west, not in main views onto main street. Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40561	Sanquhar, Laurie's Wynd, Former Crichton School	Category B Listed	278299	609945	7.5	21-24	21-24	Regional	Mid-19 th century former school; single storey, stands within Sanquhar CA, on edge of the town. Localised setting to Sanquhar in semi-rural wider landscape. Main views to south overlooking town centre, with distant views afforded out to surrounding hills. Partial screening of wider landscape views by surrounding buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Development visible only in distant views to - west, not in main views overlooking town centre. Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40562	Sanquhar, Laurie's Wynd, Crichton Schoolhouse	Category B Listed	278299	609945	7.5	21-24	21-24	Regional	Mid-19 th century former school; single storey, stands within Sanquhar CA, on edge of the town. Localised setting to Sanquhar in semi-rural wider landscape. Main views to south overlooking town centre, with distant views afforded out to surrounding hills. Partial screening of wider landscape views by surrounding buildings/trees.	Moderate (localised)	Medium (localised)	Imperceptible: Development visible only in distant views to - west, not in main views overlooking town centre. Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40563	Sanquhar, Queensberry Square, School	Category B Listed	277942	610116	7.1	21-24	21-24	Regional	Ruined shell of late 19 th -early 20 th century school buildings sanding within Sanquhar CA. The building and surrounding wasteland are proposed for redevelopment. Localised setting to Sanquhar in semi-rural wider landscape. Main views focused on surrounding townscape, with distant views afforded out to surrounding farmland and surrounding hills. Partial screening of wider landscape views by surrounding buildings/trees.	Low (localised)	Low (localised)	Imperceptible: Development visible only in distant views to west, beyond surrounding townscape. Localised setting and distant views not important in understanding asset or relationship to other assets within CA.	Negligible
40565	Sanquhar, Sanquhar House, Walled Garden	Category B Listed	277539	610223	6.7	21-24	21-24	Regional	19 th century two-storey former manse and associated walled garden. Situated on low lying ground on the western edge of Sanquhar. Main elevations of house orientated north-west to south-east. Views out principally screened by surrounding trees. Localised setting within wider improved semi-rural landscape on edge of Sanquhar.	Moderate (localised)	Medium (localised)	Low: Proposed Development visible in distant views to the west and glimpses of the proposed turbines may be afforded from upper floors of house. Some screening provided by surrounding trees. Main elevations of house unaffected. Relationship between house and associated walled garden will be	Minor

Site Ref	Site Name	Status	Easting	Northing	Distance to nearest turbine (km)	Number of turbine tips visible (range)	Number of turbine hubs visible (range)	Importance of Asset	Setting Description	Contribution of Setting	Sensitivity of Setting	Magnitude of Impact	Significance of Effect
												unaffected.	
	Sanquhar	Conservation Area	270830	610051	7.0	21-24	21-24	Regional	CA centred on historic core of Sanquhar, provides setting for several category B listed buildings or 18 th and 19 th century date, within modern Sanquhar. Located within broad valley, with high ground immediately to north-east, and visible to south-west. Views from CA are generally confined by buildings lining main north-west to south-east aligned street. High ground to north-west is partially visible when looking north-west along main street. More open and distant views to high ground to south-west and north-west possible from the north-west edge of CA.	Moderate (localised)	Medium (localised)	Low: Development visible in distant views mainly from south-west edge of CA. Views of development largely screened when within CA, and long range views not important to understanding and appreciating character of CA and listed buildings within it.	Minor



Key

- Site Boundary
- Turbine Location
- Access Track and Hardstanding
- Construction Compound
- Substation
- Cultural Heritage Site (Point)
- Cultural Heritage Site (Area)
- Open-cast Coal Mine Extraction Area



Scale 1:12,000 @ A3

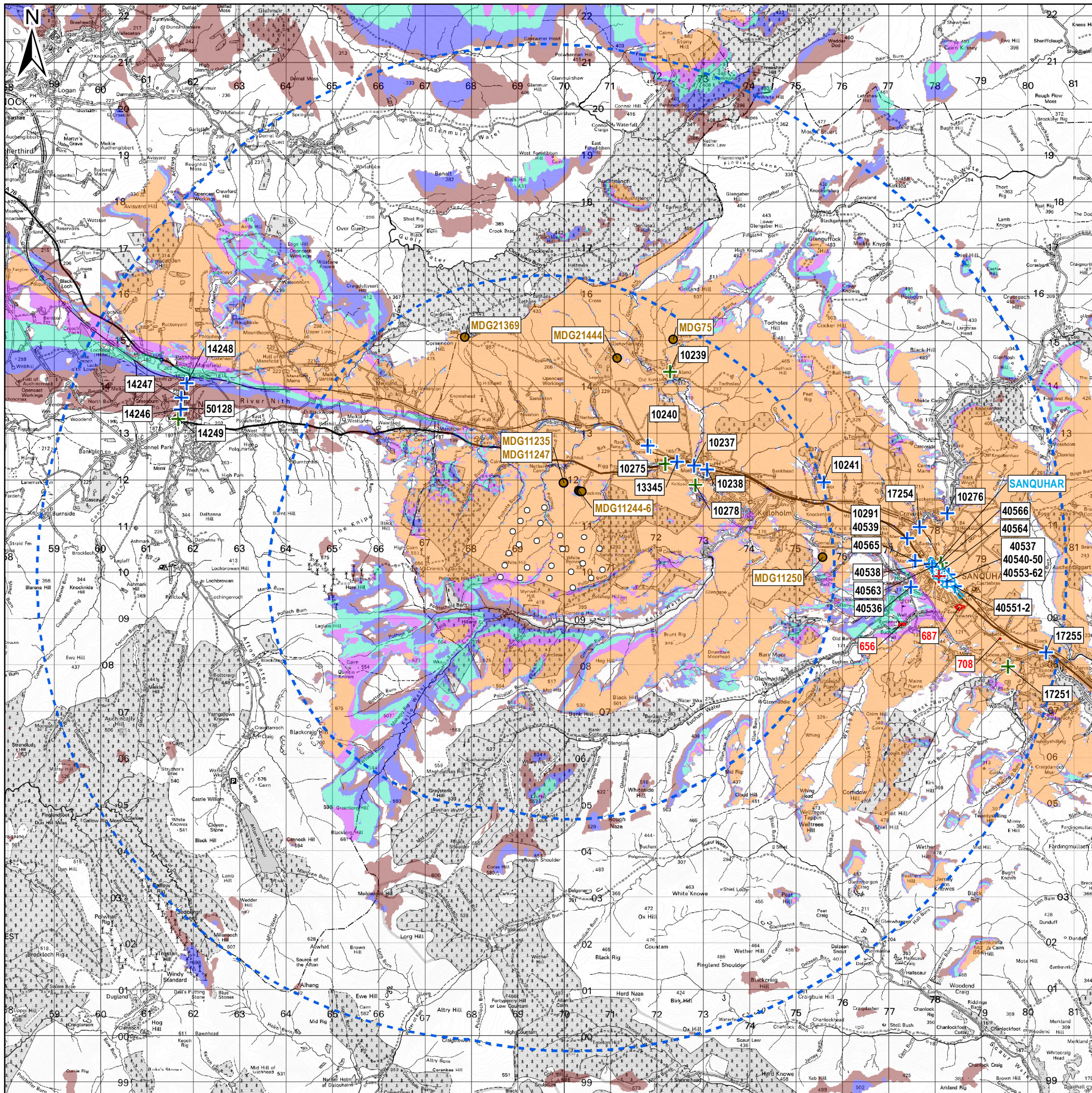


Sandy Knowe Wind Farm
Environmental Statement

Figure 10.1
Cultural Heritage - Constraints

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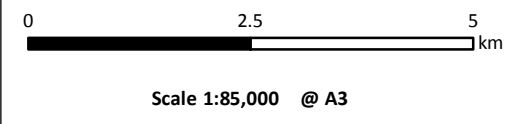


Key

- Turbine Locations
- 5 km and 10 km Study Areas
- Scheduled Monument
- Category A Listed Building
- Category B Listed Building
- Category C Listed Building
- Conservation Area
- NSR site

- 1 to 5 Turbines Visible (02.88% of Study Area)
- 6 to 10 Turbines Visible (02.09% of Study Area)
- 11 to 15 Turbines Visible (01.43% of Study Area)
- 16 to 20 Turbines Visible (00.75% of Study Area)
- 21 to 24 Turbines Visible (03.93% of Study Area)

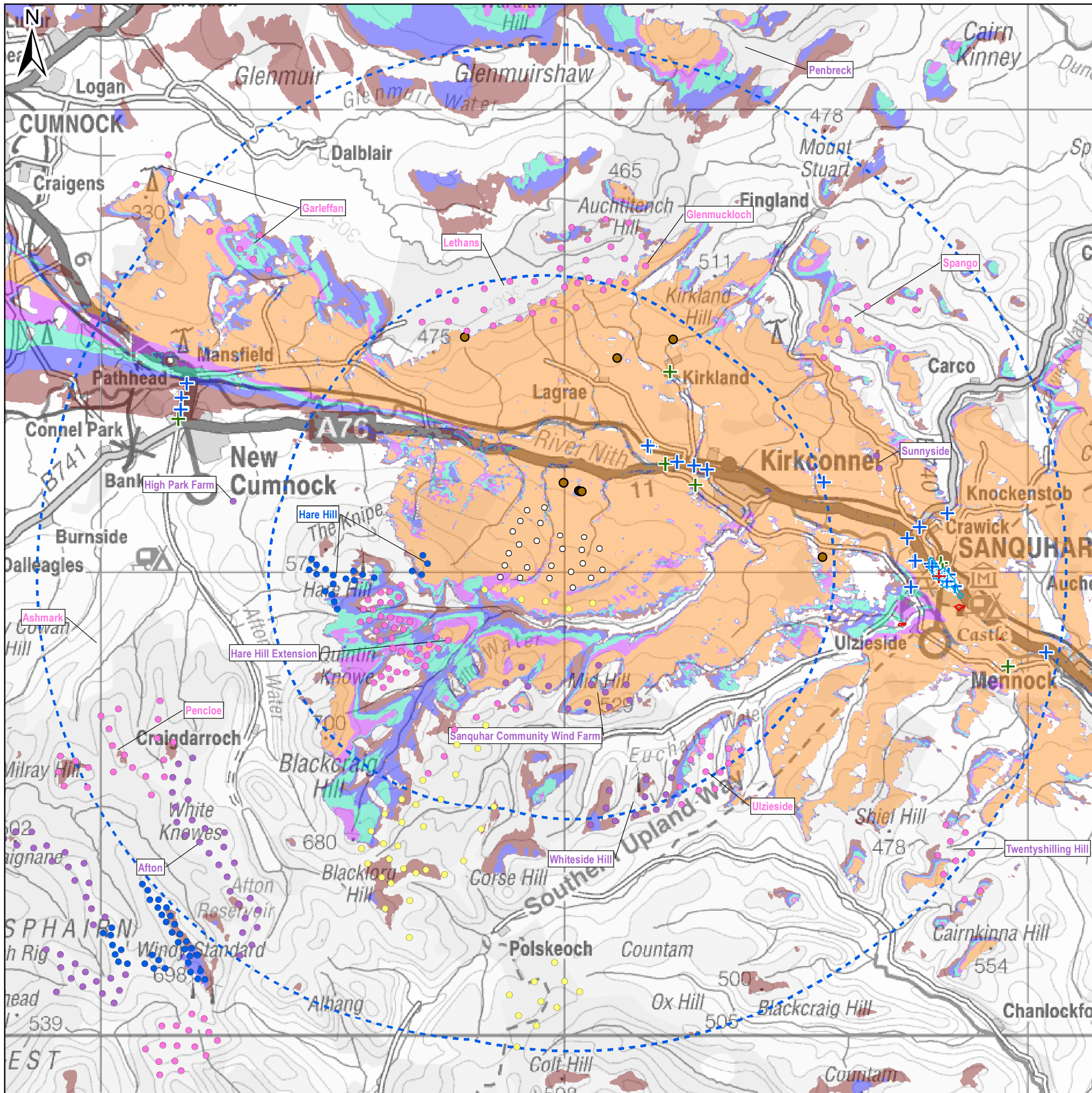
- Notes**
1. Predicted visibility is defined from an observer eye level of 2m above ground.
 2. Largely created using Ordnance Survey Landform Panorama dataset at 50m grid intervals. (The 20km x 20km height data tile which contains the site has been updated with Ordnance Survey Landform Profile dataset at 10m grid intervals.)
 3. The analysis does not take into account intervening screening vegetation or buildings.
 4. Reproduced from Landranger 1:50,000 scale by permission of Ordnance Survey.
 5. Earth's curvature and light refraction has been included in the calculation.
 6. The software used to create this ZTV does not use mathematically approximate methods.
 7. Radii shown on the ZTV are taken from the smallest radius (1250m) which encompasses the wind farm.
 8. For further information regarding viewpoint locations, please refer to Figure 6.1.



Sandy Knowe Wind Farm
Environmental Statement

Figure 10.2
Cultural Heritage -
External Receptors to 10 km

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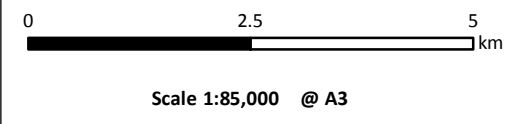
Key

- Turbine Locations
- 5 km and 10 km Study Areas
- Scheduled Monument
- Category A Listed Building
- Category B Listed Building
- Category C Listed Building
- Conservation Area
- NSR Site
- 1 to 5 Turbines Visible (02.88% of Study Area)
- 6 to 10 Turbines Visible (02.09% of Study Area)
- 11 to 15 Turbines Visible (01.43% of Study Area)
- 16 to 20 Turbines Visible (00.75% of Study Area)
- 21 to 24 Turbines Visible (03.93% of Study Area)

Cumulative Turbines

- Operational
- Consented / Under Construction
- In Planning / At Appeal
- Scoping

- Notes**
1. Predicted visibility is defined from an observer eye level of 2m above ground.
 2. Largely created using Ordnance Survey Landform Panorama dataset at 50m grid intervals. (The 20km x 20km height data tile which contains the site has been updated with Ordnance Survey Landform Profile dataset at 10m grid intervals.)
 3. The analysis does not take into account intervening screening vegetation or buildings.
 4. Reproduced from Landranger 1:50,000 scale by permission of Ordnance Survey.
 5. Earth's curvature and light refraction has been included in the calculation.
 6. The software used to create this ZTV does not use mathematically approximate methods.
 7. Radii shown on the ZTV are taken from the smallest radius (1250m) which encompasses the wind farm.
 8. For further information regarding viewpoint locations, please refer to Figure 6.1.



Sandy Knowe Wind Farm
Environmental Statement

Figure 10.3
Cultural Heritage -
Cumulative

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