



Chapter 11

Archaeology and cultural heritage

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Chapter 11

Archaeology and cultural heritage

11.1 Introduction

- The cultural heritage of an area comprises archaeological sites, historic buildings, Gardens and Designed Landscapes (GDLs), Historic Battlefields and other historic environment features (heritage assets). It also includes features or places which have the capacity to provide information about past human activity, or which have cultural significance due to associations with literary or artistic work, folklore or historic events. The setting of an asset within the wider landscape may contribute to its cultural heritage significance.
- This Chapter assesses the potential effects of the construction and operation of the proposed Development on heritage assets within the Site and surrounding area. The assessment has included consideration of all known designated and non-designated cultural heritage assets within the Site (**Figure 11.1**), and of regionally and nationally significant heritage assets within the Outer Study Area (the precise study area and selection basis are described below), (**Figure 11.2**).
- This assessment has been based on a range of data, including known heritage assets recorded by regional and national bodies, readily available secondary works and the results of a walkover survey of the Site.
- This assessment has been undertaken by SLR Consulting Ltd, which is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA).

11.2 Approach to assessment and methods

- Legislation, policy and guidance relevant to this assessment is provided in **Technical Appendix 4.1**.
 - The Ancient Monuments and Archaeological Areas Act 1979;
 - The Planning (Listed Buildings and Conservation Areas)(Scotland) Act 1997; and
 - The Historic Environment (Amendment) (Scotland) Act 2011.

11.2.1 Study areas

- This assessment employs an Inner Study Area and an Outer Study Area.

11.2.1.1 The Inner Study Area

- The Inner Study Area comprises land within the boundary of the proposed Development (as defined at the Scoping stage) and the existing Arcleoch Windfarm with a buffer of 250 m.

The extent of the Inner Study Area has been selected in order to identify assets within or very close to the application Site, and potential direct and indirect impacts upon them.

11.2.1.2 The Outer Study Area

- The Outer Study Area has been selected in accordance with scoping responses and identifies potential long-distance settings effects. Heritage assets have been assessed where the asset lies within the ZTV and is of a type where distant views to and from the asset may be important for the understanding and appreciation of the asset. Assets of regional and national importance have been assessed in the Area, where located up to 5km from the proposed locations of the turbines, while beyond 5km and up to 10km from the turbine locations only assets of national importance have been assessed. Criteria for regional and national importance are set out in **Table 11.2**.

- In addition, Dumfries and Galloway Council (D&GC) provided a list of assets considered to be of regional importance. No non-designated sites of national importance were identified in the part of the Outer Study Area that lies within Dumfries and Galloway. In the West of Scotland Archaeology Service (WoSAS) Historic Environment Record dataset (see Section 11.2.3 below), assessments of the Non-Statutory Register were taken into account (they only covered approximately one third of the 850 records). Assets were excluded from consideration where they are non-antiquities, duplicate records or other obviously erroneous records and records where attribution of site type was dubious, or outside the ZTV or do not have settings in which long distance views are potentially significant. The remaining assets were assessed for their heritage significance, and those of high or highest significance, within the specified distances and in locations likely to receive impacts were assessed for setting impacts.

11.2.2 Data sources

- The baseline conditions have been characterised from the following sources:
 - data held in the South Ayrshire and Dumfries and Galloway Historic Environment Records (HER);
 - data held in the National Record of the Historic Environment (NHRE, 'Canmore');
 - historic mapping on-line at the National Library of Scotland;
 - schedules, listings and inventories of designated assets held by Historic Environment Scotland (HES); and
 - appropriate published archaeological and historical works.
- Heritage assets within the Inner Study Area are numbered in this Chapter as set out in the gazetteer in **Technical Appendix 11.1: Gazetteer of Heritage Assets**. As this gazetteer is composed of records from a number of sources these have been combined into a single sequence with each assigned an SLR Number. References to other coding systems, e.g. South Ayrshire and Dumfries and Galloway Historic Environment Records (HERs) and Canmore are also included in the gazetteer. The designated assets within the Study Areas are listed separately within this Chapter and are identified by the number by which they are designated on the relevant statutory register or index.

11.2.2.1 Field survey

- A walkover survey examining the proposed turbine locations and access tracks, as well as a condition check on those recorded heritage assets where it was considered that there was the potential for impact, was undertaken on 4 February 2019. Due to the dense forestry not all potential turbine locations or all the recorded assets could be reached (See 11.2.7 Limitations of Assessment). No new assets were identified within the locations that were examined.

- Site visits to selected heritage assets in the Outer Study Area were undertaken on 26 March 2019 to assess the character and the contribution that the settings of heritage assets make to the heritage significance of the assets. The outcomes of the Site visits are described in the relevant sections for each of the visited assets. The heritage assets visited were those indicated by the ZTV to have theoretical views of the proposed Development, and where the nature of the asset suggested that there would be potential for indirect impacts due to change in the settings of heritage assets.

11.2.2.2 Consultation

- Scoping responses addressing cultural heritage matters were received from the West of Scotland Archaeology Service (WoSAS) on behalf of South Ayrshire Council (SAC), D&GC and HES. Further consultation by telephone and email was undertaken with consultees to agree the main study areas and to facilitate data acquisition. A summary of the consultation undertaken is provided in **Table 11.1**.

Consultee	Response	Method	Comment/Action Taken
WoSAS 20/11/2018	Need to consider a larger study area, out to 10km for some assets. Need to consider setting impacts on non-designated heritage assets of regional and national importance. Inner Study Area should be equivalent to scoping redline boundary buffered to 1km to ensure sufficient data is gathered.	Scoping response	Wider study area, limited to 10km, has been considered for selected assets. Setting impacts have been considered on selected non-designated heritage assets of regional importance (out to 5km) and national importance (out to 10km) Inner Study Area proposed at scoping includes 92 records of known heritage assets. This is fully

	Field survey should cover all areas that would be affected by construction and recorded heritage sites. Second-phase walkover after felling may be needed.		sufficient to understand the historic environment of the proposed Development. Field survey has covered these points where safely accessible. Second-phase walkover may be considered where feasible in technical and safety terms.
HES 28/11/2018	Recommend use of 'Managing Change: Setting' guidance note for setting assessment. Do not consider use of specifically defined distance for identifying assets, as more distant assets may be affected. Use of ZTV to identify potentially affected assets recommended. Need to consider that assets outside of the ZTV may still have turbines in views toward the asset at distance. Non-Exhaustive list of assets recommended for assessment provided: Balmalloch, chambered cairn (SM 2503) Carin Kenny, chambered cairn (SM 1925) Markdhu, cairn 1450m NNW of (SM 4861) Cairnderry, chambered cairn (SM 1007) Duniewick Camp, Knockdolian (SM 2887) Craigneil Castle (SM 5284) Kildonan House (LB 1052)	Scoping response	Guidance used for setting assessment Practical limit required: selected assets in ZTV beyond 5km from the turbines out to a limit of 10km will be considered: setting impacts beyond this distance very unlikely for this scale of development. ZTV will be used to assist in identifying potentially affected assets. Noted. These assets are among those considered and where appropriate assessed
D&GC 03/12/2018	Need to consider a larger study area, out to 10km for some assets. Need to consider setting impacts on non-designated heritage assets of regional and national importance, including sites assessed as of regional importance in the HER and Archaeological Sensitive Areas (ASA) Cumulative effects will also need to be considered	Scoping response	Wider study area, limited to 10km, has been considered for selected assets. Setting impacts have been considered on selected non-designated heritage assets of regional importance (out to 5km) and national importance (out to 10km) Cumulative effects included in assessment
D&GC 14/02/2019	Assessment scope further refined and HER data requirements confirmed	Telephone call	Confirmation of study areas required for assessment.

Table 11.1: Summary of scoping and consultation responses for cultural heritage

11.2.3 Approach to assessment of effects

15. Assessment of effects on heritage assets was undertaken taking cognisance of the guidance and best practice listed in **Technical Appendix 4.1**.
16. Impacts may be caused by the proposed Development where it changes the baseline condition of either the asset itself or its setting.

17. In accordance with EIA Regulations, the assessment identifies impacts and effects as either direct or indirect, adverse or beneficial, and short-term, long-term or permanent. Direct impacts are those which change the heritage significance of an asset through physical alteration; for the purposes of this assessment indirect impacts are those which affect the heritage significance of an asset by causing change within its setting.
18. Direct effects on the heritage significance of an asset have been assessed on the basis of a combination of the heritage significance of the affected asset (where known), the probability of further assets being located within the affected areas and their likely significance, and the magnitude of impact on those assets to be caused by the implementation of the proposed Development.
19. Indirect effects on the heritage significance of heritage assets have been identified and assessed with reference to Managing Change in the Historic Environment: Setting (HES 2016). Assessment has been carried out in the following stages:
- initial consideration of intervisibility and other factors leading to the identification of potentially affected assets;
 - assessment of the heritage significance of potentially affected assets;
 - assessment of the contribution of the setting to the heritage significance of those assets;
 - assessment of the magnitude of impact of the proposed Development due to causing change within the setting of the assets; and
 - prediction of the significance of the effect.
20. Assessment was undertaken separately for direct effects and indirect effects. The magnitude of the impact was assessed according to scale of impact, from High to Negligible.
21. Possible future small alterations to hub height and rotor length, have been considered (hub height 120m with blade length 70m and hub height 130m with blade length 80m) and it is not anticipated that such changes will affect the overall assessment reported in this chapter.
- 11.2.3.1 Heritage significance**
22. The heritage significance of heritage assets has been assessed using professional judgement, with reference to **Table 11.2** which has been devised by SLR, with reference to Historic Environment Scotland Guidance (HES 2016). Assessment of significance made by local authority HERs were taken into account where available. The heritage significance of a heritage asset is a measure of the value of a heritage asset based on its inherent qualities, including intrinsic, contextual and associative characteristics, such as age, state of preservation and level of supporting knowledge. These characteristics are independent of the differing potential impacts on the heritage assets.
23. **Table 11.2** shows the potential levels of heritage significance of an asset related to designation status and grading, and, where non-designated, to a scale of Highest to Negligible importance. This table acts as an aid to consistency in the exercise of professional judgement and provides a degree of transparency for others in evaluating the conclusions reached by this assessment.

Heritage significance	Explanation
Highest	Sites of national or international importance, including: <ul style="list-style-type: none"> World Heritage Sites; Scheduled Monuments; Category A Listed Buildings; Gardens and Designed Landscapes included on the national inventory; Designated Battlefields; and Non-designated assets of equivalent significance.
High	Site of regional importance, including: <ul style="list-style-type: none"> Category B Listed Buildings; Conservation Areas; Non-designated assets of equivalent significance.
Medium	Sites of local importance, including : <ul style="list-style-type: none"> Category C Listed Buildings; and Non-designated assets of equivalent significance.
Low	Sites of minor importance or with little of the asset remaining to justify a higher importance.
Negligible	Negligible or no heritage significance
Unknown	Further information is required to assess the significance of these assets.

Table 11.2: Heritage significance of heritage assets

11.2.3.2 Contribution of setting to heritage significance

24. Setting is 'the way the surroundings of a historic asset or place contribute to how it is understood, appreciated and experienced.' (HES 2016).
25. The setting of each heritage asset or heritage asset group is described, considering aspects such as location and orientation of the heritage asset, obvious views or vistas, both towards and from an asset, additional screening through small scale topographic variation and vegetation, how much change to the historic setting has occurred, integrity of the setting, topography, land use (including currently operational windfarms near-by and modern intrusive conifer plantations) and intervisibility to other contemporaneous and related heritage assets. All these aspects are considered in relation to how they affect the understanding, appreciation and experience of the heritage asset.
26. Once the setting of each heritage asset or heritage asset group has been defined and assessed, the ways the setting contributes to their heritage significance, and to what degree, are identified. This is not quantified on a scale but has been used to assist the assessment of the magnitude of impact.
- ### 11.2.3.3 Magnitude of impact
27. Determining the magnitude of any likely impacts requires consideration of the nature of activities proposed during the construction and operation of the proposed Development.
28. The changes could potentially include direct change (e.g. ground disturbance), and indirect change (the latter could include visible change, noise, vibration, traffic movements). Impacts may be beneficial or adverse, and may be short terms, long term or permanent. Magnitude of impact has been assessed with reference to the criteria set out in **Table 11.3**.

Magnitude of impact	Explanatory criteria
High Beneficial	The proposed Development would considerably enhance the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Medium Beneficial	The proposed Development would enhance to a clearly discernible extent the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Low Beneficial	The proposed Development would enhance to a minor extent the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Very Low Beneficial	The proposed Development would enhance to a very minor extent the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Neutral/None	The proposed Development would not affect, or would have harmful and enhancing effects of equal magnitude on the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Very Low Adverse	The proposed Development would erode to a very minor extent the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Low Adverse	The proposed Development would erode to a minor extent the heritage significance of the affected asset, or the ability understand, appreciate and experience it
Medium Adverse	The proposed Development would erode to a clearly discernible extent the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
High Adverse	The proposed Development would considerably erode the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.

Table 11.3: Magnitude of impacts on heritage assets

11.2.3.4 Significance of effect

29. The significance of effect is presented in **Table 11.4** below. This provides a matrix that relates the heritage significance of the asset to the magnitude of impact on its significance (incorporating contribution from setting where relevant), in order to establish the likely overall significance of effect. This assessment is undertaken separately for direct effects and indirect effects, the latter being principally concerned with effects on setting.

Magnitude of Impact	Heritage Significance (excluding negligible and uncertain)			
	Highest	High	Medium	Low
High beneficial	Substantial	Substantial	Moderate	Slight
Medium beneficial	Substantial	Moderate	Slight	Very slight
Low beneficial	Moderate	Slight	Very slight	Very slight
Very low beneficial	Slight	Very slight	Negligible	Negligible
Neutral/none	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil
Very low adverse	Slight	Very slight	Negligible	Negligible
Low adverse	Moderate	Slight	Very slight	Very slight
Medium adverse	Substantial	Moderate	Slight	Very slight
High adverse	Substantial	Substantial	Moderate	Slight

Table 11.4: Significance of effects on heritage assets

11.2.3.5 Zone of Theoretical Visibility (ZTV) analysis

30. Assessment of visual impact has been assisted by a ZTV calculation, prepared principally for the Landscape and Visual Impact Assessment and presented in **Figure 11.2**. The ZTV calculation methodology is set out in detail in **Chapter 7: Landscape and Visual**, but in summary it maps the predicted degree of visibility of the proposed Development from all points within a study area around the site, as would be seen from an observer's eye level 1.8 m above the ground. The degree of visibility is expressed as the theoretical vertical subtended angle of view (visible vertical angle, or VVA). The ZTV model presented in **Figure 11.2** is for the blade tips of the proposed Development.

31. The ZTV is theoretical because it is based on landform only and does not take into account the screening or filtering effects of vegetation, buildings or other surface features, and in that respect is likely to provide an over-estimate of the actual visibility. The width of the feature is not taken into account in the VVA; where relevant the corresponding visible horizontal angle (VHA) has been calculated or otherwise taken into account.

11.2.3.6 Potential cumulative effects

32. A cumulative assessment is presented in Section 11.4.3. Cumulative effects are assessed with regard to assets that have been assessed as receiving an impact from the proposed Development. The other contributor developments are considered to be other windfarm developments within 10km of the affected heritage asset that have been given planning consent, have an active planning application or are undergoing a planning appeal. Currently operational windfarms are considered as part of the baseline assessment.

11.2.3.7 Mitigation

33. A statement of the proposed mitigation of the identified impacts follows the assessment. The main approach to mitigation is through design: avoidance of direct impacts on heritage assets has been a consideration throughout the design process, and post consent this would continue, e.g. through micro-siting. Direct impacts may also be mitigated by preservation by record. Screening to avoid impacts on the setting of assets is rarely feasible for wind turbines, but has been considered where other effects from other infrastructure may be mitigated in this way.

11.2.3.8 Residual effects

34. A statement of the residual effects has been given following consideration of any further site specific mitigation measures, where these have been identified.

11.2.3.9 Statement of significance

35. The cultural heritage assessment concludes with a Statement of Significance associated with the proposed Development, summarising the predicted significance of the effects arising from the proposed Development. Effects that are considered to be significant in EIA terms are those that are assessed to be moderate or substantial, in accordance with the suggestion contained in current guidance (EIA Handbook (Section 11.6: Historic Environment Scotland and Scottish Natural Heritage, (2018)).

11.2.3.10 Limitations to the assessment

36. The assessment is based on the sources outlined in Section 11.2.3 and therefore shares the same range of limitations in terms of comprehensiveness and completeness as those sources. The densely afforested nature/dense brash cover of much of the Site has meant that many of the proposed turbine locations or recorded heritage assets within these areas could not be reached during the Site visit. This does not significantly affect the validity of the findings, as the size of the Inner Study Area has generated sufficient records of known heritage assets for a robust assessment for the potential for unknown assets to be within the area of the proposed development.

11.3 Baseline conditions

11.3.1 Introduction

37. The current landscape character of the proposed Development and its immediate vicinity consists largely of conifer plantation. The more distant landscape consists of some unimproved moorland, and mixed farming across improved and unimproved pasture with occasional areas of crop raising. To the immediate west of the proposed Development lies the Arcleoch Windfarm. A full description of the proposed Development and environs is given in **Chapter 1: Introduction, Chapter 2: Site Description and Design Evolution and Chapter 3: Description of the Development**.

11.3.2 Designated heritage assets

38. There are no World Heritage Sites or inventoried Battlefields within 10 km of the proposed turbines.

39. There are no designated heritage assets within the proposed Development area.

40. Within the Inner Study Area there is a single Listed Building, Glenour (SLR No. 9LB6451, Category B). Within 20 m beyond the edge of the Inner Study Area is a Scheduled Monument, Cairn Kenny (SM1925). The Cairn Kenny scheduled area lies outside of the Inner Study Area, but the non-designated part of the asset (defined in the HER record held by D&GC) extends into the Inner Study Area; the asset has been treated as lying in the Outer Study Area in this assessment.

41. There are 30 designated assets within the Outer Study Area and within 5km of a proposed turbine. These are listed in **Table 11.5**.

Name	Type and category	Index / reference number	Distance to nearest turbine
Miltonise, hut circle and cairns 800m NE of	Scheduled Monument	SM6009	4.9km
Miltonise, cairns 670m NNE of	Scheduled Monument	SM6010	4.8km
Miltonise, burnt mound 1430m N NE of	Scheduled Monument	SM6013	4.1km
Markdhu, hut circle 730m NE of	Scheduled Monument	SM4843	4.8km
Markdhu, hut circles and field system 100m NE of	Scheduled Monument	SM4848	4.8km
Markdhu, burnt mound 1090m NNE of	Scheduled Monument	SM4859	4.3km
Markdhu, cairn 1450m NNW of	Scheduled Monument	SM4861	4.3km
Maur's Cairn, enclosure 1100m NNW of	Scheduled Monument	SM4869	4.7km
Markdhu, hut circles and field system 1250m NNE of	Scheduled Monument	SM4893	4.2km
Markdhu, hut circle 1370m N of	Scheduled Monument	SM4911	3.9km
Markdhu, hut circle 1020m NE of	Scheduled Monument	SM5066	4.5km
Craigneil Castle	Scheduled Monument	SM5284	4.5km (Non-ZTV)
Cairn Kenny, chambered cairn	Scheduled Monument	SM1925	4.1km
Colmonell, 65 Main Street	Listed Building, Category C	LB103	4.9km (Non-ZTV)
Colmonell, 41 Main Street	Listed Building Category C	LB1045	4.9km (Non-ZTV)
Colmonell, 43 Main Street	Listed Building, Category C	LB1045	4.9km (Non-ZTV)
Colmonell, 39 Main Street	Listed Building, Category C	LB1045	4.9km (Non-ZTV)
Colmonell, 55 Main Street	Listed Building, Category C	LB1046	4.9km (Non-ZTV)
Colmonell, 59 Main Street	Listed Building, Category C	LB1047	5.0km (Non-ZTV)
Colmonell, 61 Main Street	Listed Building	LB1047	5.0km (Non-ZTV)
Colmonell, 57 Main Street	Listed Building, Category C	LB1047	5.0km (Non-ZTV)
Colmonell, 63 Main Street	Listed Building, Category C	LB1047	5.0km (Non-ZTV)
Colmonell Bridge	Listed Building, Category B	LB1050	4.6km (Non-ZTV)

Name	Type and category	Index / reference number	Distance to nearest turbine
Barrhill, Kildonan House	Listed Building, Category A	LB1052	3.6km
Ballochmorrie House	Listed Building, Category B	LB1053	3.4km
Barrhill, Martyrs' Tomb	Listed Building	LB1054, Category B	3.7km (Non-ZTV)
Pinwherry Castle	Listed Building	LB1057, Category B	4.9km
Barrhill, former Arnsheen Church	Listed Building	LB51617, Category C	3.6km
Bardochat House	Listed Building	LB52072, Category C	4.1km (Non-ZTV)
Colmonell	Conservation Area	CA83	4.8km (Non-ZTV)

Table 11.5: Designated assets within the outer study area and within 5km of a proposed turbine

42. Those designated heritage assets that have been identified in **Table 11.5** as not being within the ZTV have not been assessed for potential effects on setting.

43. In response to consultation with HES, designated heritage assets at a distance greater than 5 km from the proposed turbine locations have been considered where there are such assets whose location and nature indicates that the proposed Development would be visible from the asset, and where long distance views might be of importance to setting of the asset. HES has suggested a number of heritage assets for assessment. Those at greater than 5 km from the proposed Development consist of: Balmalloch, chambered cairn, SM2503 (7.0 km from nearest turbine), Cairnderry chambered cairn, SM1007 (11.1 km from nearest turbine), Duniewick camp, dun, SM2887 (7.0 km from nearest turbine). As Cairnderry chambered cairn is greater than 10 km from the proposed turbines, it will not be further assessed, in accordance with consultee responses.

11.3.3 Regionally significant assets in the outer study area

44. In response to consultee responses, specifically those of WoSAS and D&GC, non-designated heritage assets assessed as being of regional importance, that is High heritage significance as noted in **Table 11.2**, and that are of types for which longer distance views are likely to make a significant contribution to the setting of the asset.

45. The heritage significance of these assets has been assessed with reference to the data provided by WoSAS and D&GC, in order to determine the heritage significance and relevance of long distance views as part of setting. After following the selection process outlined in paragraphs 8 and 9, the heritage assets listed in **Table 11.6** have been assessed for potential setting effects.

Name	Type	Reference number	Period	Distance to nearest turbine
Miltonise	Cairnfield	MDG1891	Bronze Age	4.0km
Miltonise	Cairnfield	MDG1888	Bronze Age	4.3km
West Altermannoch	Cairn	11562	Prehistoric	3.6km
White Cairn, Laggish	Cairn	11480	Prehistoric	2.9km
Auchenflower	Designed Landscape	53505	Post-medieval	3.3km

Table 11.6: High heritage significance non-designated assets selected for assessment within the outer study area

11.3.4 Nationally significant assets within the outer study area

46. In response to consultee responses, specifically those of WoSAS and D&GC, non-designated heritage assets assessed as being of national importance, that is Highest heritage significance as noted in **Table 11.2**, and that are of types for which longer distance views are likely to make a significant contribution to the setting of the asset.

47. The heritage significance of these assets has been assessed with reference to the data provided by WoSAS and D&GC, in order to determine the heritage significance and relevance of long distance views as part of setting. After following the selection process outlined in paragraphs 8 and 9, the heritage assets listed in **Table 11.7** have been assessed for potential setting effects.

Name	Type	Reference number	Period	Distance to nearest turbine
Darnaconnar	Cairn	11522	Prehistoric	8.7km
High Altermannoch	Hut circle, small , cairns, possible barrow	11491/11493	Bronze Age/Iron Age	4.2km
Balnowlart Hill	Cairn	11370	Prehistoric	8.0km
Balmalloch	Small cairns	11523	Prehistoric	7.4km

Table 11.7: Highest heritage significance non-designated assets selected for assessment within the outer study area

11.3.5 Known heritage assets within the Inner Study Area

11.3.5.1 Prehistoric and Roman

48. There are 12 heritage assets that may be dated with varying degrees of confidence to the prehistoric period (SLR No. 14, 15, 18, 27, 35, 48, 62, 69, 70, 71, 72, 92). Relatively few of these can be seen as settlement sites, though one is a possible hut circle (SLR No 70). It is possible that some of the spreads of smaller cairns may have been clearance cairns associated with agricultural activity (e.g. SLR No 71), but in the absence of other features associated with agricultural activity of the prehistoric period such as relict field systems this interpretation must be regarded as very tentative.

49. Many of the heritage assets thought to be of prehistoric date are cairns (SLR No 3, 62, 69), including three assets identified as chambered cairns, which may be dated more closely to the Neolithic (SLR No. 18, 35, 72). A standing stone has been dated to the prehistoric period (SLR No 27), though in contrast with other prehistoric assets within the study area it is absent from the earlier editions of the Ordnance Survey Maps. There are also tentatively identified cup marks (SLR No 4, 14), and a possible burnt mound (SLR No 48), a type which generally dates to the Bronze Age. The impression gained from this range of heritage assets is landscape where over the prehistoric period uses associated with ceremony and ritual activity have left more traces in the landscape than agriculture and settlement.

50. No heritage assets from the Roman period have been identified within the Inner Study Area.

11.3.5.2 Early Medieval and Medieval

51. No heritage assets that can be dated to these periods have been found in the Inner Study Area.

11.3.5.3 Post-Medieval and Modern (1800 onwards)

52. There are 35 heritage assets within the Inner Study Area that can definitely or tentatively dated to the Post-Medieval period, 31 that date either to the Post-Medieval or the Modern Period and four that are dated to the modern period. The majority of the Post-Medieval and Post-Medieval/Modern assets relate to agricultural activity, specifically the extensive rearing of sheep, or rural settlement. Examples include stock enclosures (SLR No. 8, 10, 11, 16, 20, 24, 25, 55, 57, 89), sheepfolds (SLR No. 5, 6, 17, 22, 23, 46, 47, 61, 63, 64, 65, 67, 73, 77), field systems or elements of field systems such as head dykes and clearance cairns (SLR No. 13, 21, 30, 37, 38, 40, 41, 42, 45, 53, 56, 60, 75, 76, 78, 80, 81, 82, 83, 84, 86, 87,) and farmsteads and associated buildings (SLR No. 1, 2, 9, 19, 31, 32, 33 , 46, 50, 51, 79, 88). Seasonal/temporary sites are not common, but, there the relatively extensive and moderately well preserved shieling site at Loch Hill (SLR No. 34). Other activities include traces of peat cuttings (SLR No. 52, 91) and quarrying (SLR No 44).

53. Most of these heritage assets are the result of agricultural activity, perhaps reflecting the changing rural economy, with the head dykes associated with at least limited crop raising at the beginning of the Post-Medieval period with a move to an extensive livestock (especially sheep) over the course of the Post-Medieval period and into the Modern period.

54. Not all of the heritage assets relate to the economy. One natural feature, a rock outcrop, is referred to as Peden's Mount, and is traditionally the preaching location of the Reverend Alexander Peden (1626-1686) a Covenanting minister who led illegal religious services in defiance of the Restoration church settlement in Scotland.

55. Modern sites are few but varied, mostly reflecting continuity with the Post-Medieval period with assets such as a sheepfold (SLR No. 39), but more recent patterns of activity are reflected in the form of a modern, possibly walkers', cairn (SLR No. 66) and the Lig Viaduct (SLR No. 54).

11.3.6 Historic mapping

56. A review of the online historic mapping available at the National Library of Scotland was undertaken. The only pre-Ordnance Survey map found to be of suitable scale and level of detail was the Roy map.

57. The earliest map examined was General Roy's map (1741-1745). The proposed Development area has little detail. It has few indications of enclosed agriculture and none of woodland within the area of the proposed Development. The only area of settlement noted within the Inner Study Area is named Strawarren: this is presumably somewhere in the vicinity of Strawarren Fell, possibly corresponding with the remains of post-medieval activity noted around Arcleoch itself (SLR No. 16, 20, 21).

58. The Ordnance Survey Ayrshire Sheet LXVII, Six Inch 1st edition 1856/58 shows the development area as open land, mostly as rough grazing, with small areas of improved as in the vicinity of SLR 27/28 (which are not depicted). Also depicted are structures associated with agricultural/herding, some active features, others already ruined. On the western edge of the current forestry old land division boundaries depicted in this map are preserved, but fewer are preserved moving westwards across the Site. There are no appreciable changes in the 2nd Edition (1894) or the 3rd Edition (1907/1910).

11.3.7 Potential for unknown heritage assets

59. Within the area of the proposed Development there is the potential for unknown archaeological sites that could be impacted by activities associated with the construction of the proposed Development. The known assets within the Inner Study Area are mostly from recent historic periods and are mostly associated with agricultural and rural settlement. This pattern partly reflects information from readily available historic maps. The potential for unknown heritage assets will have been affected through the impacts of intensive conifer afforestation over most of the proposed Development, which will have affected the level of survival of assets.

60. The record of prehistoric activity is spread across the Inner Study Area. It is considered that the potential for unrecorded heritage assets of prehistoric assets is moderate. This would include native sites of the Roman period.

61. There are no records of Roman period activity in the Inner Study Area. It is considered that the potential for unrecorded Roman heritage assets is low.

62. There are no records of early medieval or medieval activity in the Inner Study Area. It is possible that some of the undated heritage assets that appear to have had an agricultural function may be of medieval date. It is also possible that some of the post-medieval assets may have medieval origins. It is considered that the potential for unrecorded medieval assets to survive within the proposed Development is low to moderate.

63. There is a relatively high number of assets of post-medieval and modern date. The assets from the modern period have been extensively mapped, and the historic mapping shows relatively little change in the distribution of assets over time. It is therefore unlikely that there are many new locations where post-medieval and modern assets may be found, though individual features dating to these periods may well extend from the recorded assets. The potential for heritage assets from these periods to be found at locations away from the recorded post-medieval and modern assets is therefore judged to be low.

11.4 Assessment of effects

64. A total of 91 heritage assets has been recorded within the Inner Study Area, of which 27 are within the boundary of the proposed Development, including 11 distributed along the main access tracks that project beyond the main area of development, (Figure 11.1). These heritage assets have been assessed and assigned a heritage significance using the

approach described in 11.2. The heritage significance of each of the assets within the Inner Study Area is provided in **Technical Appendix 11.1**.

65. The assets within the Inner Study Area are in various states of preservation, from below ground archaeology and low earthworks to standing buildings. The majority of the assets are of post-medieval or modern age, with a few being of unknown age and the rest of prehistoric date. Although it is possible to form some understanding of the relationships between the various heritage assets, particularly those dating to the post-medieval and modern periods in terms of the operation of the pre-afforestation working landscape, the afforested nature of the area of the proposed Development has removed some assets and obscures others, both making them difficult to record properly and to visually relate them to one another. This, combined with the relatively limited level of preservation and the commonness of the heritage asset types of the post-medieval and modern periods has led to the majority being assessed as having Low or Negligible heritage significance. The heritage assets of prehistoric date are mostly assessed as being of medium or high heritage significance.

11.4.1 Potential construction (direct) effects

66. The assessment of the potential direct impacts on heritage assets is based on the maximum likely impact that would be caused by the construction of the proposed Development.

67. It is considered that the construction of the proposed Development could have potential direct impacts on below ground archaeology within the Site. Direct impacts would derive from any ground works which form part of the construction phase of the proposed Development. Specific components which have the potential to cause impacts in this way include:

- excavation of turbine bases, substation foundations, crane hardstandings, borrow pits and cable trenches;
- forestry operations associated with the proposed Development, particularly where these entail stump and root removal; and
- construction and upgrading of access tracks, working compounds and laydown areas.

Where significant ground disturbance takes place these activities would remove or change any heritage assets within the area of ground disturbance. This damage would be irreversible and permanent.

68. There is only one recorded asset that lies within the footprint of the proposed Development, Asset 46, a sheepfold. During the Site visit it was observed that the location in which this asset was recorded has been subject to substantial disturbance in the form of quarrying and the formation of a pond/lagoon. As such the asset has been removed, and any further ground works in the area would not have any impact.

11.4.1.1 Embedded measures

69. Mitigation in relation to most heritage assets has been embedded into the design of the proposed infrastructure and has therefore avoided or reduced the risk of direct impacts wherever possible. This mitigation has taken the form of input to the design process, in order to avoid siting turbines and associated infrastructure on known heritage assets, and where possible increasing separation distances from assets in order to reduce the potential for setting impacts.

11.4.1.2 Proposed mitigation

70. Appropriate mitigation would be undertaken in the form of:

- fencing off and avoidance of known assets that could otherwise be accidentally damaged during construction works; and
- a watching brief on the elements of the ground works that have the potential to have a direct impact on unrecorded buried archaeology.

71. The precise scope of the watching brief would be negotiated with WoSAS on behalf of SAC and the agreed mitigation programme would be documented in an agreed Written Scheme of Investigation.

11.4.1.3 Residual effects

72. The completion of the archaeological mitigation programme outlined in paragraph 70 would minimise the loss of the archaeological resource that could occur as a result of the construction of the proposed Development. No significant residual effects are anticipated in relation to direct effects from the construction of the proposed Development.

11.4.2 Potential operational (indirect) effects

73. The assessment of the potential indirect impacts on heritage assets is based on the maximum likely impact that would be caused by the operation of the proposed Development. The potential setting impacts of the proposed Development would largely stem from the visibility of the turbines themselves.

11.4.2.1 Potential effects within the inner study area

74. Within the Inner Study Area there are a number of heritage assets that the ZTV demonstrates would have no intervisibility with the proposed Development. This includes the following assets which will not be further assessed for setting impact: SLR No. 54, 56, 81, 82, 83, 86, 87, 88.

75. Within the Inner Study Area a number of assets lie close to the access track from the area of Ballochmorrie. As this is an established route which would not undergo significant change, these assets would not be subject to permanent setting change from the access track, nor would they be intervisible with relatively nearby elements of new infrastructure such as sub-stations or borrow pits. This includes the following assets: SLR No. 73, 74, 75, 76, 77, 78, 79, 80, 84, 85.

76. Within the Inner Study Area there are a number of heritage assets that have been assessed as having negligible heritage significance. Under the adopted methodology, these impacts cannot have significant effects, and therefore the following assets are not assessed further: SLR No. 4, 18, 26, 28, 39, 43, 52, 66, 69, 89, 91.

77. The current setting of the heritage assets within much of the proposed Development consists of dense areas of conifer plantation. Even in those areas that are currently felled, the ground currently shows clear signs of forestry ploughing and tree stumps and brash form the current visual environment, with unfelled forestry blocking any longer sight lines.

78. The non-designated possible hut circle at Long Loch (SLR No. 70) and the potentially related area of small cairns (SLR No. 71) are two of the assets situated within dense forestry. For this type of asset, the principal setting is the immediate vicinity, where any associated field systems or other, related, habitation might be found. Under current densely wooded conditions the assets have no effective setting. At such time as the forestry is felled, the resulting landscape effects would severely compromise the setting contribution of the immediate area. These effects would include creating areas of churned up ground through machine tracking, covering the felled areas with a blanket of brash and larger items of felling waste such as stumps, upturned root masses and discarded large branches/small trunks. These latter items may also be laid to form temporary crossing points and tracks. Such effects would mask and distract from the landscape, including potentially the locations of sub-surface or low-level heritage assets. These changes would compromise the immediate landscape setting of the assets. It is therefore predicted that the construction and operation of the proposed wind turbines would not therefore make any additional impact on the setting of the assets.

79. A non-designated mound of medium heritage significance located at Kirkie Loch (SLR No. 48) is positioned on the side of a short narrow valley sloping down from east to west; it stands on a localised ridge on the northern valley side overlooking boggy ground to the south which leads west to a small pond approximately 230m west of the mound. The valley floor is open but it is surrounded by forested land on all sides except the western end. The mound may comprise two possible cairns and may be a 'burnt mound', postulated functions for this type of feature include prehistoric ritual and/or as a 'sauna'. The nature of the mound and its topographical siting suggest a focus on the small valley in which it is located (which itself faces west, away from the proposed turbines), with no wider intended outlook. It is likely that one or more turbines would be visible from the asset, but the intrusive existing forestry would be much nearer. The proposed development would not affect the heritage significance of the asset, or the ability understand, appreciate and experience it, and the significance of effect would be nil.

80. The standing stone at Loch Hill (SLR No. 27) is located in a limited opening within the forestry (see Plate 1), which blocks all long distance views except for a limited gap in the forestry to the north east, giving a view to the more distant hills, including some distant wind turbines. The scale of the stone and its position set back from the nearest break of slope to the east suggests that the stone was not positioned in order to be highly visible over long distances. Under current conditions the asset has a limited setting, and at such time as the forestry is felled, the resulting landscape effects would severely compromise the setting contribution of the immediate area, as described in paragraph 77. The proposed turbines would be located within the currently forested area. Given the various effects of the forestry on the setting, the additional effect of these turbines would be limited to distraction effects, and would have an impact magnitude that would be low adverse, resulting in a very slight adverse but permanent effect on the ability to understand, appreciate and experience the asset.



Plate 1: Standing Stone (SLR No.27) looking to the south.

81. Craigance chambered cairn (SLR No 72) is currently covered by dense forestry. In addition, the location of the cairn in a depression with three hills surrounding it suggests that long distance views do not constitute an element of the setting of the asset. Under current conditions the setting makes no contribution to the understanding, appreciation and experience of the asset, and at such time as the forestry is felled the resulting landscape would compromise the setting contribution of the immediate area. It is therefore assessed that the construction and operation of the proposed wind turbines would not therefore make any additional impact on the setting of the assets.

82. Three other cairns or chambered cairns within the Inner Study Area are currently covered by or closely surrounded by dense forestry, which means the setting makes no contribution to the understanding, appreciation and experience of the assets, these assets being Cairn Hill of the Moil (SLR No 3), Loch Hill (SLR No. 15 with possible adjacent cup-markings (SLR No. 14)), and Cave Cairn (SLR No 35). Felling around these assets would open up some sight lines, but would create a visual environment in the near vicinity of the assets described in paragraph 77. In addition, the forestry will continue to be managed in blocks, creating felled and then replanted areas, forming a mosaic of felled areas and blocks of woodland of different ages. This would continue the landscape pattern which has masked parts of the historic landscape and interfered with sight lines. In the case of Cairn Hill of the Moil (SLR No 3), Loch Hill (SLR No 15 with possible adjacent cup-markings (SLR No. 14)) and Cave Cairn (SLR No 35) long distance views would be directly away from to the proposed turbines, with the turbines of the current windfarm generally intervening. Taking into account the effects of felling on the landscape, as described in paragraph 77, and presence of the current turbines, the incremental increase in the number of turbines would not create a noticeable change in the setting of these assets.

83. The White Cairn, positioned on the slopes above Daltangan Park, was probably positioned to be prominent in views from the base of the valley. Views to and from the cairn to the valley are, however, now completely screened by permanent woodland, and views upslope of the cairn are also substantially screened by woodland. Other elements of the landscape do not make a noticeable setting contribution to the asset. Although the proposed turbines are likely to be visible from the cairn, they would not further detract from the already compromised setting.

84. Each of the post-medieval and modern heritage assets that illustrate the former agricultural regime would form the main setting element for the others. The change from the open landscape in which these assets functioned to the current landscape with substantial blocks of forestry and felled woodland, which block sight lines, and mask or distract from the historic landscape means that the setting makes no contribution to the heritage significance of these types of heritage assets. The construction and operation of the wind turbines would not therefore make an appreciable additional impact on the contribution

of the setting to the heritage significance of the following heritage assets, which are all post-medieval and modern assets with former agricultural functions: SLR No. 1, 2, 5, 6, 8-12, 16, 17, 19-25, 29, 30, 32, 36-38, 40, 46, 47, 49, 50, 53, 55, 57-61, 63, 65, 67, 68, 90. In addition, there are a number of heritage assets from the same period and also of agricultural function that are not within forestry, but are close to areas of forestry and which have therefore had their visual association with other post-medieval and modern agricultural heritage assets significantly disrupted by the forestry, and which would therefore not receive additional impacts on their setting from the construction and operation of the wind turbines: SLR 13, 33, 41, 42, 45, 51, 64. Two of the post-medieval agricultural heritage assets are relatively isolated in terms of their spatial relationship with similar assets and are at a considerable distance from the proposed turbines: given the relatively close nature of the settings of such assets it is assessed that these assets would not receive impacts on their setting from the construction and operation of the wind turbine.

85. The complex of shieling huts and associated wall on Loch Hill (SLR 34) is set within a more open area, though still bounded by dense forestry, especially to the east and west. Turbines of the current Arcleloch Windfarm are visible to the south to south west of the asset (see Plate 2). Each shieling hut forms part of the setting of the others, demonstrating the relatively dense nature of seasonal settlement. Another setting element is the Water of Tig, demonstrating the importance of water sources for both the human inhabitants and for watering stock. The presence of the current wind turbines constitutes a small distraction from the asset, but does not materially change the understanding of the Site. The proposed wind turbines would form a small incremental increase on the existing visual distraction from the setting. Although the asset itself is assessed to be of high heritage significance, the contribution of the setting in its current state to the understanding, appreciation and experience of the asset is limited. The additional distraction from the setting resulting from the operation of the proposed Development is assessed as an impact of very low adverse magnitude, resulting in an effect of negligible significance.



Plate 2: View from shieling hut complex (SLR No 34), looking south west

86. In two cases the setting is constrained to the immediate vicinity of the heritage asset: one of these is a former quarry (SLR No. 44), for which longer distance views are not relevant. The other is the natural landform of Peden's Mount (SLR No. 7). This location is situated towards the base of a stream valley, and appears to be naturally concealed, and was presumably selected

for this reason in order allow illegal preaching to take place undetected. The assets would also therefore not receive impacts on their setting from the construction and operation of the wind turbines.

11.4.2.2 Potential effects within the outer study area

87. A number of the designated assets identified within the Outer Study Area are of types and original functions in which the setting is generally the immediate area of the asset itself, such as hut circles, field systems, burnt mounds and cairns and enclosures where these can be demonstrated to be of probable agricultural function. On this basis it is assessed that the following designated heritage assets would not receive setting impacts: SM 6009, SM6013, SM4843, SM4848, SM4859, SM4869, SM4893, SM4911, SM5066. In addition, the cairns 670 m NNE of Miltonise are completely screened from the proposed Development by the railway embankment that runs passed 20 m to the west of the asset, and therefore will not be further assessed.
88. The scheduled chambered cairn at Cairn Kenny (SM1925) is located approximately 4.1 km from the nearest proposed turbine, though there are existing turbines within approximately 800 m. The cairn is situated in a slight embayment in the slopes to the immediate west and south west. There are gentler slopes to the north, with views towards the nearest turbines. Midrange views extend to a line extending from Corly Craig, Drumkare and round to the north east. There are also longer distance views in this direction. The windfarm at Kilgalloch is clearly discernible from the cairn. In views to the north and north west forestry forms a dominant element. There is no intervisibility with the nearest cairn, 1450 NNW of Markdhu, SM 4861. The current Arcleloch turbines form a slight distraction from views outwards from the cairn. The proposed new turbines would be a small additional increment in the horizontal extent of the turbines visible (See **Figure 11.2**, Plate 3). They would not lead to encirclement of the asset with turbines, and would not directly intrude into the main long distance views to the east in the direction of Corly Craig and Drumkare. The contribution of the landscape setting to the heritage significance of the asset is limited other than in this direction, with the cairn having more limited views in other directions, and itself being largely concealed in the embayment. The contribution of the wider landscape to the asset is assessed as being of medium heritage significance. The magnitude of impact from the proposed Development is assessed as being very low adverse, leading to an effect of negligible significance.



Plate 3: View towards area of proposed Development from Cairn Kenny, SM1925.

89. The nearest designated asset to Cairn Kenny is the cairn 1450m NNW of Markdu, SM4861. As noted above, this cairn is not intervisible with Cairn Kenny. The asset is situated on the end of a ridge that runs approximately south west to north east, and is concealed from view along the length of the ridge. The ridge is the lowest of a series of slopes running down from High Murdochee. The views are similar to those described for Cairn Kenny, but the location is slightly more elevated. Furthest views are to the east, between Corly Craig and Drumkare. The current turbines at Arcleoch Windfarm are clearly visible, and create a small distraction from the principal view from the assets. The turbines of Kilgallioch Windfarm are readily discernible and also of Mark Hill. The proposed new turbines would be a small additional increment in the horizontal extent of the turbines visible (See Plate 4). They would not lead to encirclement of the asset with turbines, and would not directly intrude into the main long distance views to the east between Corly Craig and Drumkare. The contribution of the landscape setting to the understanding, appreciation and experience of the asset of the asset is limited other than in this direction, with the cairn having more limited views in other directions. The magnitude of impact is from the proposed Development is assessed as being low adverse, leading to an effect of very slight significance.



Plate 4: View towards area of proposed Development from cairn 1450m NNW of Markdhu, SM4861

90. Balmalloch chambered cairn scheduled monument is approximately 7 km from the nearest turbine of the proposed Development. It is in close proximity to the small cairns at Balmalloch (WoSAS PIN 11523), one of the non-designated heritage assets assessed to be of national importance. The potential setting issues relating to these assets are assessed together. The scheduled monument and small cairns are within a small open area within a larger area of dense forestry. The scheduled monument is situated at the north western head of a small valley or depression orientated north west to south east. The small cairns are to the south of the scheduled monument on a ridge that forms one edge of the depression. Views to the north west of the assets are largely blocked by a ridge orientated south west to north east, though the turbines of the Mark Hill Windfarm are clearly visible from the assets. The principal views to and from the scheduled monument is along the depression, an impression that is exaggerated by the presence of dense forestry, particularly where this delineates the north eastern edge of the depression (see Plate 5). The small cairns are not readily discernible from the scheduled monument, but the monument is visible from locations within the area of the small cairns, which may indicate the relative status of these assets during the period of their construction and use. The turbines of the Mark Hill Windfarm do impinge to a limited extent on

this visual relationship. The current Arcleoch Windfarm turbines are not visible from the assets. Although the proposed turbines are modelled to be visible from these assets, they would be at a considerable distance from the assets and they would not impinge of the principal elements of the setting, that is the views to and from the scheduled monument along the depression, or the views towards the scheduled monument from the small cairns. The proposed turbines area therefore assessed as having no impact on the setting of these assets and therefore no effect on them.



Plate 5 View towards Balmalloch chambered cairn SM2503

91. Duniewick camp, a scheduled monument (SM2887) is approximately 7 km from the nearest proposed turbine (See **Figure 11.2**). It is a small fort positioned on the northern shoulder of Knockdolian Hill. The entrance of the fort appears to be in the western side of the ramparts. The principal views from the fort are west towards the sea and north east along the valley of the River Stinchar. There would only be partial visibility with the proposed turbines, with the western part of the fort being completely outside of the ZTV, and over the rest of the fort the blade tips of between four and eleven turbines being visible. The proposed turbines would not impinge on the principal views from the fort. Therefore the potential impact on the setting is assessed to have no magnitude and therefore no effect.
92. Kildonan House is a category A listed building (LB1052). It was designed by James Miller in the English Manorial Revival style. Accounts vary as to the precise date of construction, with the earliest date of completion being 1923. The interiors of the house were never completed to the original plan. The house is set in the remains of a designed landscape (WoSAS PIN53453). The setting is relatively visually constrained, being surrounded by established parkland trees. These include a number of conifer specimen trees along the line of the River Duisk. The principal views from the house are from the south western frontage and a large multipaned window probably serving a staircase on the south eastern side of the house. Although the ZTV model indicates that the blade tips of eight turbines would be visible from the house, these would be partially screened by the local topography (See **Figure 11.3**). In addition the closely planted policy woodland would entirely screen the house, and views outwards from the designed landscape. Therefore the potential impact is assessed to have no magnitude and therefore no effect.

93. Ballochmorrie House is a category B listed building (LB1053). It was built in 1833 by William Macadam, and is a two storey building, with an ashlar front with two splayed bays. The frontage faces south east. The setting of the house is the policy woodland, that is the improved land immediately surrounding a country house, that is closely planted around most of the house, screening views in most directions, including towards the proposed Development. The ZTV model indicates that the blade tips of eight turbines would be visible from the house: in practice the policy woodland would entirely screen the house. Therefore the potential impact is assessed to have no magnitude and therefore no effect.
94. Pinwherry Castle is a category B listed building (LB1057) approximately 4.9 km from the nearest proposed turbine. It is a 16th century L-shaped towerhouse with courtyard. The towerhouse is situated on a small, probably natural, mound, overlooking the River Duisk near its confluence with the River Stinchar. It is probable that the towerhouse was located in order to control the crossing of the rivers at this point. There are a number of more modern buildings close to the ruined towerhouse. To the west is the A714 and beyond that the railway, running along a substantial embankment. The principal views from the towerhouse are along the river valley, particularly towards the confluence. According to the ZTV model, five of the proposed turbines would be visible from the towerhouse, but this does not take into account the effect of the railway embankment, which would at least partially screen the towerhouse from the proposed Development, and which has also compromised the setting of the towerhouse by blocking views to the west. Taking account of the effects of the railway embankment on the setting, and the relative importance of the view along and across the river valley which would not be affected by the proposed Development, the magnitude of impact of the proposed Development on the setting of the asset is assessed as being neutral, and therefore as having no effect on the asset.
95. The cairnfields at Miltonise, one of five cairns (MDG1891) and one of six cairns (MDG1888) are two of the non-designated heritage assets assessed as being of high heritage significance, and are types of asset that might receive setting impacts. They are approximately 4 km and 4.3 km respectively from the nearest proposed turbine. They are located approximately 200m apart from each other. The cairnfields are set on west facing slopes overlooking the Cross Water of Luce. To the west of this views are dominated by the nearby slope of Corly Craig, and the double summits of Far Cairn and Near Cairn to the east also form dominant elements in the landscape. The cairnfields may form important elements in each other's setting, as may similar nearby assets, such that the spatial and visual relationships of the cairnfields reflects a more locally focussed historic landscape with a ritual aspect. The proposed turbines would not impinge on these relatively short distance relationships and the dominant topographic elements within 2 km of the assets. It is therefore assessed that the magnitude of impact would be nil and therefore there would be no effect on the heritage significance of the assets.
96. The cairn at West Altermannoch (WoSAS PIN 11562) is located in an area of improved pasture, surrounded by areas of rough grazing. The cairn is approximately 700 m from the village of Barrhil, and 600 m from two roads. Agricultural buildings also form a noticeable element in the immediate surroundings. Turbines belonging to the Mark Hill and Arcleoch Windfarms are discernible from the asset. The cairn is situated on a low eminence near the confluence of the Cross Water and the River Duisk. To the south there are a series of small hills, across the Cross Water and River Duisk the land rises to greater altitudes, and these tend to guide the viewer to the confluence of the rivers. Given the topographic position of the cairn and the contrast between the quality of the land the cairn is situated on and that immediately surrounding it, it is possible that the cairn acted as a claim on the better agricultural land and that this local landscape variation is the key aspect of the setting of the asset. The general landscape setting does not make much contribution to the heritage significance of the asset in terms of understanding and appreciating it. The proposed Development would increase the number of turbines visible from the asset, but would not appreciably change the setting, in particular it would not impinge on the visual relationship with the immediate landscape. The magnitude of impact on the setting of the asset is assessed as being nil, and therefore there would be no effect on the heritage significance of the assets.
97. The White Cairn at Laggish (WoSAS PIN 11480) is currently under forestry which means the setting makes no contribution to the understanding, appreciation and experience of the asset. Felling around this asset would open up some sight lines, but would create a visual environment in the near vicinity of the cairn described in paragraph 77. In addition, the forestry will continue to be managed in blocks, creating felled and then replanted areas, forming a mosaic of felled areas and blocks of woodland of different ages. This would continue the landscape pattern which has masked parts of the historic landscape and interfered with sight lines. Long distance views would be directly away from to the proposed turbines. Taking into account the effects of felling on the landscape and the orientation of the asset away from the proposed turbines, their construction and operation would not create a noticeable change in the setting of this asset.
98. The designed landscape at Auchenflower (WoSAS PIN 53505) appears to partially survive in the form of the current woodland, which may have formed part of the policy woodlands associated with the mansion at Auchenflower. The currently mapped eastern extent of the designed landscape follows the valley of the Water of Tig. It appears to consist of mature woodland lining the relatively steep sides of the valley. The principal views from within the designed landscape would have been along the line of the valley. The ZTV indicates that some of the blade tips of the proposed turbines would be visible within the designed landscape, but over most of the area within 5 km of the proposed turbines this would rarely be more than four turbines, and in much of the eastern arm of the designed landscape that is within 5 km of the proposed turbines there would be no intervisibility. The constrained nature of the principal view, the substantial screening by the woodland and the limited intervisibility of the proposed turbines leads to the assessment that the magnitude of impact would be very low adverse, resulting in an effect of very slight significance.
99. The undesignated cairn at Darnaconnar (WoSAS PIN 11522) has been assessed as being of highest heritage significance. The cairn is situated towards the top of the north eastern slopes of the valley of the Cammock Burn, and potentially has commanding views into the valley and would also be visible from there. It would also have limited views towards the next valley to the south west, that of the River Duisk. The cairn is currently closely bounded by forestry to the west, south and east, blocking the long distance views to and from the cairn over the Cammock Burn valley, substantially curtailing the current setting of the asset. Felling around this asset would open up some sight lines, but would create a visual environment in the near vicinity of the cairn described in paragraph 77. In addition, it is likely that the forestry will continue to be managed in blocks, creating felled and then replanted areas, forming a mosaic of felled areas and blocks of woodland of different ages. This would continue the landscape pattern which has masked parts of the historic landscape and interfered with sight lines. Some longer distance views would be toward the proposed turbines. Taking into account the effects of felling on the landscape the construction and operation of the proposed turbines could create a change in the setting of this asset in the form of potential distraction from the views towards the Cammock Burn, though they would not distract from views towards the cairn from the valley. The magnitude of this impact would be very low adverse, on a setting that makes some contribution to the understanding, appreciation and experience of the asset, resulting in an effect of very slight significance.
100. At High Altermannoch there is a collection of heritage assets, including a hut circle, small cairns, bank and enclosure, together with a possible barrow (WoSAS PIN 11491). These assets have been assessed as having the highest heritage significance. The main elements of the Site are domestic and agricultural remains that would not be considered to be likely to have significant long distance settings. However the presence of the small cairns and in particular the possible barrow means that consideration of longer distance settings is appropriate. The assets are clustered towards the top of a low hill in an area of rough grazing. The area is somewhat better drained and drier than the immediately surrounding landscape. Conifer forestry forms a dominant element in the landscape. The turbines of the Arcleoch, Mark Hill and Kilgallioch Windfarms are clearly visible. There does not appear to be intervisibility with other heritage assets that might have had a funerary or ritual function. Long distance views do not, therefore, form a significant element in the setting of the assets, and make little contribution to their heritage significance. The construction and operation of the proposed turbines would constitute a relatively small incremental change in the visual environment of the asset (see Plate 6) and one that would not have an appreciable effect on the setting as described above. The magnitude of impact on the asset is therefore assessed as nil, and therefore there is no effect significance.
101. The cairn at Balnowlart Hill (WoSAS PIN 11370) has been assessed as being of highest heritage significance. The cairn is located on the north western slope of the valley of the River Stinchar, overlooking the river. The principal views are along the river valley, directly across the river to the higher slopes that form the south eastern side of the river valley, and north east to the hill of Knockdolian. Although here the ZTV models intervisibility with the proposed turbines, the intervening ridges would probably limit this to blade tips only. The proposed turbines would not be within the direct view lines across or along the river valley, or in the view towards Knockdolian. The proposed turbines would be sufficiently removed from these viewlines that it is assessed that they would not form a distraction from the main setting of the cairn. The proposed turbines are therefore assessed to have no impact on the setting of the cairn.



Plate 6: View from High Altercannoch (WoSAS PIN 11491) towards the area of the proposed turbines.

11.4.2.3 Embedded measures

102. As part of the design process, the location of turbines and other infrastructure have been adjusted where possible to reduce the potential for setting impacts on nearby heritage assets.

11.4.2.4 Proposed mitigation

103. For assets outside the Inner Study Area mitigating impact on setting is limited, particularly as the historic landscape over much of the region is relatively open, and most forms of screening, such as tree planting, might also impact negatively on the understanding and appreciation of the setting of heritage assets. As the predicted significance of effect for setting impacts is negligible to minor, no additional mitigation is suggested.

11.4.2.5 Residual effects

104. The significance of operational effects on setting for the heritage assets in the study areas are negligible to very slight. As noted above, mitigation of setting impacts is limited and may be detrimental in its own right and no mitigation of operational effects on setting is proposed. Therefore the residual effects of the operation of the proposed Development would be negligible, except for SLR No 27 (Loch Hill Standing Stone), Markdhu Cairn (SM4861), the Auchenflower designed landscape (WoSAS PIN 53505), and the Darconnar cairn (WoSAS PIN 11522) which would have effects of very slight significance.

11.4.3 Cumulative effects

105. Cumulative effects have been considered with regard to any windfarm developments that are:

- consented or are in the planning process either as an original submission or in appeal, and
- within 10 km of heritage assets that are predicted to receive an effect from the proposed Development.

106. There are two proposed windfarm developments within 10 km of heritage assets assessed to be of highest significance or are within the Inner Study Area that are predicted to receive setting effects from the proposed Development. The windfarm developments and the specific heritage assets with which they have been assessed is shown in **Table 11.8**.

Development	Status	Assessed with respect to
Stranoch	Consented	SLR No 27 (standing stone), Cairn Kenny (SM1925)
Chrimorrie	Consented	SLR No 27 (standing stone), Cairn Kenny (SM1925)

Table 11.8: Cumulative sites used in heritage assessment

107. The standing stone at Loch Hill (SLR No.27) is considered in detail above at Section 11.4.2.1. With respect to the cumulative effect on the Stranoch and Chrimorrie windfarms no significant views would be possible due to the assets isolated position within the limited opening within the forestry and associated topography. However, the wireframe visualisation given in **Figures 11.5b and 11.5c** demonstrates some partial visibility of the Chrimorrie site but at a distance and as part of a wider concentration of turbines. The Stanoch turbines would be barely visible with the exception of blade tips (**Figure 11.4b**). Therefore, the cumulative effect on SLR no 27 (standing stone) would be negligible.

108. The scheduled monument of Cairn Kenny (SM1925) is considered in detail at Section 11.4.2.2. With respect to the cumulative effect on the Stranoch and Chrimorrie windfarms the wireframe (**Figure 11.4b – 4d**) notes that the monument would have an outlook toward Chirmorie Turbines. However, this additional cumulative impact is considered negligible when considered against the impact of the proposed Arcleloch extension turbines and other current turbines across this horizon. The monument would see little impact on Stranoch turbines as the wireline (**Figure 4d**) only notes 2 of the turbine blade tips visible over the topography.

11.5 Summary and statement of significance

109. This assessment has considered data from a diverse range of sources in order to determine the presence of heritage assets which may be affected by the proposed Development. The potential effects on the identified assets, mitigation measures for protecting known assets during construction and recording of currently unknown features which could be lost and the residual effect of the proposed Development have been considered.

110. In summary, the landscape of the Site is heavily forested but contains relict features of post-medieval agriculture with some prehistoric assets surviving within this context. Considered alongside data from the study areas it is apparent that the Site lies within a landscape which prior to afforestation has been farmed and settled over a long period with assets dating from the later prehistoric to the present day. The potential for unknown assets dating from the prehistoric period is moderate, from the medieval period low to moderate and for all other periods the potential is low.

111. There are no predicted significant construction or operational effects on heritage assets or their settings resulting from the propose Development.

11.6 References

Chartered Institute for Archaeologists (2014). *Standard and Guidance for Historic Environment Desk Based Assessment*

Historic Environment Scotland (2016). *Managing Change in the Historic Environment: Setting*

Historic Environment Scotland (May 2016). *Historic Environment Circular*

Historic Environment Scotland (June 2016). *HES Policy Statement*

Historic Environment Scotland and Scottish Natural Heritage, (2018). *Environmental Impact Assessment Handbook*
Scottish Government, (2011) *Planning Advice Note 2/2011: Planning and archaeology*

Map	Date	Sheet	Scale
Roy Military Survey	1755	n/a	1: 36 000
Ordnance Survey 6 inches to the mile 1 st Edition	Survey 1856, publication 1858	LXVII	1: 10 560
Ordnance Survey 6 inches to the mile 2 nd Edition	Publication 1894	LXVII	1: 10 560
Ordnance Survey 6 inches to the mile 3 rd Edition	Survey 1907, publication 1850	LXVII	1: 10 560

Table 12.9: Map sources used for EIA