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Merkins Wind Farm, West Dunbartonshire

Cultural Heritage

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Merkins Wind Farm, West Dunbartonshire

Cultural Heritage Assessment

12. CULTURAL HERITAGE

INTRODUCTION

- 12.1. This chapter considers the potential impacts of the proposed Merkins windfarm on cultural heritage interests. The ‘cultural heritage’ of an area comprises archaeological sites, historic buildings and other historic environment features, gardens and designed landscapes, historic battlefields and other sites, features or places in the landscape that have the capacity to provide information about past human activity, or which have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest can also be informed by their ‘setting’ within the wider landscape. The cultural heritage assessment was undertaken by CFA Archaeology Ltd.

Study Area Description

- 12.2. The cultural heritage study area consists of two parts as described below.
- 12.3. The site covers approximately 240 hectares (ha.) of land west of Dumbarton Moor, within which it is proposed to erect turbines and associated infrastructure, and an access track running from the unclassified Auchincarroch Road to the windfarm. This area constituted the study area for the identification of potential direct impacts. The site consists principally of upland rough pasture with some blocks of commercial forestry plantation around the perimeter. To identify all sites or features in existing records that might lie within the site, information was obtained from the West of Scotland Historic Environment Record (HER) for the whole of this site (within the application boundary) plus an area extending to 1km from the site boundary around the wind turbine area and a 200m wide corridor along the proposed site access route. Field survey was restricted to the ground within the application boundary and a 100m wide corridor along the proposed access.
- 12.4. A wider study area, extending to a 15km radius from the site, provided the study area for the identification of sites with statutory protection (and those with national or regional non-statutory designations) whose settings may be affected by the proposed windfarm (‘indirect impacts’).
- 12.5. The cumulative impact assessment has taken account of the windfarm developments within 30km the site as identified in **Chapter 7: Landscape and Visual Amenity (Figure 7.27)** in the assessment of cumulative landscape and visual impacts. A Cumulative ZTV has been run for the windfarms within 30km (**Figure 7.28**). The cumulative cultural heritage assessment considers potential impacts on setting of cultural heritage features within 15km of the site.

Impacts Assessed in Full

- 12.6. The following impacts have been assessed in full:
- Direct impacts on all cultural heritage interests, designated or non-designated, within the site boundary.

- Indirect impacts on designated cultural heritage sites including Scheduled Monuments; non-statutory register (NSR) sites, potentially of schedulable quality; Listed Buildings; Conservation Areas and Gardens and Designed Landscapes that have been identified from the ZTV to have a theoretical intervisibility with the turbines. Sites up to 15km distant have been identified and impacts on Scheduled Monuments, category A and B Listed Buildings, Conservation Areas and Inventory status Gardens and Designed Landscapes assessed. Assessment of the impact on the settings of non-statutory register sites (considered by the West of Scotland HER to be potentially of schedulable quality, but which are not currently scheduled have been assessed) has been restricted to those within 5km of the nearest turbine, where it is most likely that potentially significant impacts on their settings are likely to occur.
- Cumulative impacts on cultural heritage resources of the windfarm in combination with other existing or proposed schemes.

Impacts Scoped Out

- 12.7. On the basis of the desk based and survey work undertaken, the professional judgement of the assessment team, experience from other relevant projects and policy guidance or standards, the following topic areas have been ‘scoped out’ of detailed assessment:
- Disturbance from vibration, dewatering or changes in hydrology resulting in indirect impacts on cultural heritage sites and features.

ASSESSMENT METHODOLOGY

Assessment Structure

- 12.8. The assessment is structured around the consideration of potential impacts on the following:
- Direct impacts (construction phase): on non-designated and designated cultural heritage sites within the site: upstanding structures, and potentially as yet undetected buried remains.
 - Indirect impacts (operational phase): on the setting of cultural heritage receptors in the surrounding landscape.

Data Sources and Guidance

- 12.9. This assessment was conducted in accordance with the Institute for Archaeologist Code of Conduct (IfA 2010ⁱ), and Standard and Guidance for Archaeological Desk-based Assessment (IfA 2009ⁱⁱ).
- 12.10. Up-to-date information was obtained from the sources cited below on the locations of cultural heritage sites with statutory protection and non-statutory designations either within, or in the vicinity of, the site.

- 12.11. Details of the locations and extents of Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes were downloaded from Historic Scotland's Spatial Data Warehouseⁱⁱⁱ. Additional information was provided on known archaeological sites and features within the site from the West of Scotland Historic Environment Record (HER) and the National Monuments Record of Scotland (NMRS).
- 12.12. Ordnance Survey maps and other early maps held by the Map Library of the National Library of Scotland were examined, to provide information on sites of potential archaeological significance and historic land-use development.
- 12.13. An assessment was made of vertical aerial photograph collections held by the Royal Commission on Ancient and Historic Monuments of Scotland (RCAHMS). Sorties dating from 1947^{iv} at a scale of 1:9,800 were examined. Other vertical aerial photographs consulted were at scales too small to be of value for identifying relict cultural heritage features and provided no useful information.
- 12.14. Bibliographic references were consulted to provide background and historical information.
- 12.15. The online Historic Land-Use Assessment for Scotland (HLAMap^v), maintained by RCAHMS, was consulted for information on the historic land use character of the site.
- 12.16. The Scottish Palaeoecological Database (SPAD^{vi}) which records the distribution of known palaeoenvironmental sites across Scotland was consulted for information on data within, or adjacent to, the site.

Field Survey

- 12.17. A reconnaissance field survey of the site was undertaken in May 2010 to:
- Assess the baseline condition of the known cultural heritage features, previously identified through the desk-based assessment.
 - Identify any further features of cultural heritage interest not detected from the desk study and identify areas with the potential to contain currently unrecorded, buried archaeological remains.
- 12.18. Cultural heritage site locations were recorded using a Global Positioning System (GPS) and grid references provided are accurate to approximately +/- 10m.
- 12.19. No intrusive archaeological interventions have been carried out as part of this assessment.

Consultation

- 12.20. A scoping response was received from Historic Scotland on 10th May 2010. Responses were also received from the National Trust for Scotland (17th May 2010) and from West of Scotland Archaeology Service (WoSAS) (7th October 2010). A response to an informal consultation and request for information was received from Drymen and District Local History Society (12th October 2010). Details are provided in **Table 12.1** below.

Table 12.1: Consultation Responses

Consultee	Scoping/Other Consultation	Issue Raised	Response/Action Taken
Historic Scotland	Scoping	<p>Recommended contact with WoSAS.</p> <p>Confirmed that a windfarm proposal could be accommodated at the site.</p> <p>Provided a list of four sites within the vicinity of the site which may be subject to indirect impacts on their settings and which should be considered in the ES - Lang Cairn, chambered cairn and cairn, Gallangad Muir (2329); Gallangad Burn, long cairn 790m NE of junction with Knockupple Burn (2911); Stockie Muir, long cairn 2000m NNW of Burncrooks Reservoir (2281); and Balloch Castle (123).</p>	<p>Noted; consultation with WoSAS undertaken.</p> <p>Noted.</p> <p>Included in assessment. Photographs and wireframes provided for Lang Cairn (Figure 12.4) and Balloch Castle (Figure 12.7).</p> <p>Wireframes provided for Gallangad Muir long cairn (Figure 12.5) and Stockie Muir long cairn (Figure 12.6).</p>
The National Trust for Scotland	Scoping	<p>Advised that photomontages should be produced including from Ben Lomond. Advised that the Trust would not take an official position until the ES is submitted.</p>	<p>Photomontage from Ben Lomond included as Viewpoint 18 (Figure 7.23). Assessment included in Chapter 7: Landscape and Visual Amenity</p>
Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS)	Consultation by email (05 March 2010).	<p>No issues raised.</p> <p>Advised that there has been no recent RCAHMS programmed fieldwork in this area.</p>	<p>Noted.</p> <p>Field survey undertaken as part of data collection.</p>
WoSAS	Consultation by email (17 March 2010)	<p>Provided data from HER in GIS format for 5km radius of site.</p> <p>Advised that on the basis of records of nearby prehistoric sites, archaeological potential</p>	<p>Noted.</p> <p>Addressed within chapter.</p>

Consultee	Scoping/Other Consultation	Issue Raised	Response/Action Taken
		<p>should be regarded as moderate.</p> <p>In terms of direct impacts, the ES should consider assessment of archaeological potential.</p>	
Drymen and District Local History Society	Consultation by email (12 October 2010)	<p>No issues raised.</p> <p>Information provided on Dumbarton Muir Tryst (cattle fair).</p>	Included in assessment.

12.21. No scoping responses were received from either RCAHMS or the Garden History Society. As noted above however, follow up correspondence was undertaken with RCAHMS.

Assessing Significance

12.22. The impacts of the proposed windfarm on cultural heritage assets are assessed on the basis of their type (direct, indirect, cumulative), nature (beneficial, neutral or adverse), and longevity (reversible, short-term or long-term; irreversible, permanent). The assessment takes into account the sensitivity of the receptor and the magnitude of impact. Mitigation measures designed to prevent, reduce or offset significant adverse impacts are proposed, and residual impacts are assessed taking into account the likely effectiveness of the mitigation proposed.

Assessment of Direct Impacts

Sensitivity of Features to Direct Impacts

12.23. The assessment of the sensitivity of cultural heritage features reflects the relative weight which statute and policy attach to them, principally as published in Scottish Planning Policy (SPP) and Scottish Historic Environment Policy (July 2009). **Table 12.2** summarises the relative sensitivity of key cultural heritage resources

Table 12.2: Sensitivity of Cultural Heritage Resources

Sensitivity	Definition / criteria
High	<p>Sites of national or international importance, including:</p> <ul style="list-style-type: none"> • World Heritage Sites • Scheduled Monuments, and sites proposed for scheduling • Undesignated archaeological sites and areas of likely national importance identified in HERs/SMRs

Sensitivity	Definition / criteria
	<ul style="list-style-type: none"> • Category A Listed Buildings • Gardens and Designed Landscapes (Inventory sites) • Outstanding Conservation Areas • Designated Wreck Sites
Medium	Sites of regional importance, including: <ul style="list-style-type: none"> • Archaeological sites and areas of distinctive regional importance • Category B listed buildings • Conservation Areas
Low	Sites of local Importance, including: <ul style="list-style-type: none"> • Archaeological sites of local importance • Category C(S) listed buildings • Unlisted historic buildings and townscapes with local (vernacular) characteristics
Negligible	Sites of little or no importance, including: <ul style="list-style-type: none"> • Sites of former archaeological features • Unlisted buildings of minor historic or architectural interest • Poorly preserved examples of particular types of feature

Magnitude of Direct Impacts

12.24. Criteria for assessing the magnitude of direct impacts, which measure the degree of change to the baseline condition of a feature that would result from the construction of one or more elements of the proposed windfarm, are classified in **Table 12.3**.

Table 12.3: Magnitude of Direct Impacts

Level of Magnitude	Definition
High	A fundamental change to the baseline condition of the receptor, leading to total or major alteration of character.
Medium	A material, partial alteration of character.
Low	Slight, detectable alteration of the baseline condition of the receptor.

Imperceptible	A barely distinguishable change from baseline conditions.
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Significance of Direct Impacts

- 12.25. The sensitivity of the receptor and the magnitude of the predicted impact are then used to inform the professional judgement of the likely significance of the direct impact. **Table 12.4** summarises the criteria for assigning significance of a direct impact. Major and moderate impacts are considered to be significant in terms of the EIA regulations. Where a direct impact on a feature is likely, the assessment will contain a summary statement of the ‘cultural significance’ of that feature (following the guidance defined in Annex I of SHEP).

Table 12.4: Significance of Direct Impacts

Magnitude of Impact	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Imperceptible	Minor	Negligible	Negligible	Negligible

Identification of External Receptors and Characterisation of their Setting

- 12.26. The setting of a heritage site, feature or area is defined as “*the immediate and extended environment that is part of, or contributes to, its significance and distinctive character*” (International Council on Monuments and Sites (ICOMOS 2005^{vii}). Beyond the physical and visual aspects, the setting includes interaction with the natural environment; past or present social or spiritual practices, customs, traditional knowledge, use or activities and other forms of intangible cultural heritage aspects that created and form the space as well as the current and dynamic cultural, social and economic context.
- 12.27. Historic Scotland’s guidance document *Managing Change in the Historic Environment: Setting* (2010)^{viii} 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*”. The guidance also suggests that if a proposed development is likely to impact on the setting of a cultural heritage 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.

- 12.28. The baseline setting of each relevant receptor or related group of receptors has been characterised on a case-by-case basis. Characterisation of setting of a receptor is based upon its properties and location, and took into account the factors set out in the guidance issued by Historic Scotland.
- 12.29. Targeted field visits were undertaken to assess the character and sensitivity of the settings of identified key receptors, and to assess the effects of the proposed windfarm on those settings. Wireframes of views from selected receptors were used to aid assessment.

Assessment of Impacts on Setting

- 12.30. For each receptor, where a potential impact on setting has been identified, the assessment of possible impacts has followed a four-stage approach:
- Identification of the characteristics of the setting of the receptor (see above).
 - Assessment of the sensitivity of that setting.
 - Identification of how the presence of the proposed windfarm will affect that setting (magnitude of impact).
 - Assessment of significance of impact.

Criteria for Assessing Sensitivity of Setting

- 12.31. Sensitivity of setting has been assessed by considering two factors:
- The relative weight which statute and policy attach to the receptor and its setting.
 - The degree to which the baseline setting contributes to the understanding and/or appreciation, and hence value, of the receptor.
- 12.32. The relative weight that statute and policy attach to the receptor and its setting is determined using the sensitivity of cultural heritage resources set out in **Table 12.2**.
- 12.33. The degree to which the baseline setting contributes to the understanding and/or appreciation of the receptor has been assessed according to the criteria set out in **Table 12.5**.

Table 12.5: Contribution of Setting to Understanding and Appreciation of a Cultural Heritage Receptor

Contribution	Definition
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

Contribution	Definition
	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 an industrial development, that are not relevant to understanding the context of the receptor).

12.34. These two criteria are combined to assess the overall sensitivity of a setting of a receptor, as set out in **Table 12.6**.

Table 12.6: Sensitivity of Setting of a Receptor

Sensitivity of Receptor	Contribution of Setting			
	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Negligible</i>
<i>High</i>	High	High	Medium	Low
<i>Medium</i>	High	Medium	Low	Low
<i>Low</i>	Medium	Low	Low	Low

Identification of Magnitude of Impact on Setting

12.35. Where it has been identified that the setting of a receptor is such that there is no potential for it to be affected by the presence of the windfarm, the receptor has not been considered further in the assessment. For the remaining sites, the magnitude of impact on setting has been assessed according to the thresholds in **Table 12.7**.

Table 12.7: Magnitude of Impacts on Setting

Level of Magnitude	Definition
High	Fundamental impacts obviously changing the surroundings of a receptor, such that its baseline setting is substantially or totally

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

Assessment of Impact Significance

12.36. The significance of an impact on setting depends on both the magnitude of the impact and the sensitivity of the setting of the receptor. **Table 12.8** presents a matrix that has been used together with professional judgement to determine the level of significance of an impact.

Table 12.8: Significance of Impacts on Setting

Magnitude	Sensitivity of Setting		
	<i>High</i>	<i>Medium</i>	<i>Low</i>
High	Major	Major	Minor
Medium	Major	Moderate	Minor
Low	Minor ¹	Minor	Negligible
Imperceptible	Negligible	Negligible	Negligible

12.37. Significance of impact is classified as major, moderate, minor or negligible, as defined in **Table 12.9**. Major and moderate impacts are considered significant in terms of the EIA Regulations.

Table 12.9: Significance Criteria

Significance of Impact	Definition
Major	A change to the fabric or setting that leads to a substantial and material impact on the character, quality or context of a receptor.
Moderate	Changes to the fabric or setting that lead to a partial and material impact on the character, quality or context of a receptor.

¹ A non-material change to baseline conditions cannot by nature lead to a significant impact. A significant impact arises from a material change to baseline conditions. This distinction explains why this particular significance assessment finding is not 'moderate'.

Minor	Changes to the fabric or setting that lead to a detectable but non-material impact on the character, quality or context of a receptor.
Negligible	Changes to the fabric or setting that lead to, at most, a negligible impact on the character, quality or context of a receptor.

PLANNING POLICY

- 12.38. Planning policies of relevance to this assessment are identified in **Chapter 6: Planning Policy**.

EXISTING CONDITIONS

- 12.39. Numbers in brackets in the following text, refer to site numbers provided on **Figure 12.1** and in **Appendix 12.1**.
- 12.40. Eighteen sites of cultural heritage interest (1 – 17 and 19) have been identified within the site and one (18) close to the proposed access route. **Figure 12.1** shows their locations and extents and **Appendix 12.1** provides detailed gazetteer information on the character and baseline condition of each site. **Figure 12.1** also shows other cultural heritage sites within 1km of the site boundary around the main turbine area that are recorded in the West of Scotland HER and locations of the two Scheduled Monuments closest to the proposed windfarm as this information has been used to assist in the understanding of the historic environment character and the archaeological potential of the area.
- 12.41. There are no Scheduled Monuments and no Listed Buildings present within the site (**Figure 12.1**) and no part of the site lies within a Conservation Area or Garden and Designed Landscape.
- 12.42. The NMRS records two sites: a cist (1) and a marker cairn (2), and WoSAS holds records for these and two other sites: lime kilns (3) and Fairview Cottage (18).
- 12.43. Examination of cartographic sources provided further information on the location of the lime kilns and led to the identification of three additional sites within the site. These are a drove road (4); the Lang Dyke (5), a natural feature; a track (6), the Common Loan; and a series of boundary markers (7).
- 12.44. No new sites were identified from the examination of vertical aerial photographic coverage.
- 12.45. Information was provided by Drymen and District Local History Society regarding the use of drove roads on Dunbarton Muir (Mitchell 2004^{ix}). The Common Loan (6) was identified as a former drove road and it is recorded that a tryst (cattle fair) was held on Dunbarton Muir in the late 18th century. In its early years (following 1762), the tryst was held in the vicinity of the Hill of Standing Stones and the Lang Dyke; by 1772/3, the site of the tryst had moved to Pappert Hill on Nobleston Muir.

- 12.46. The Historic Land-Use Assessment for Scotland records that the site comprises moorland and rough grazing, which could potentially preserve remains from the prehistoric to the present. The northernmost end of the proposed access track first passes through an area of amalgamated farm fields dating from the 19th century to the present before passing through the late 20th century landfill site and onto the rough grazing moorland.
- 12.47. The Scottish Palaeoecological Database contains no records specific to the site.
- 12.48. Field survey recorded the baseline condition of the sites identified through desk-based assessment and identified ten sites not identified from other sources. These include three quarries (8, 10 and 16), a pair of enclosures (9), two shieling huts (12 and 13) and an associated shieling ground (17); a hollow-way track (15); an area of peat cutting (14) and a mound (11), probably upcast from a drainage ditch.

Character of Cultural Heritage Resources within the Site

- 12.49. The cultural heritage resources identified by the baseline study are divided into chronological groups, each of which exerts varying degrees of influence over the character of the current landscape.

Prehistoric Features

- 12.50. A stone lined burial cist (1), Common Cist, was first identified in the 19th century west of the Hill of Standing Stones. The cist, which lies at the end of a 19th century stone wall, is all that remains of a probable Bronze Age burial cairn, the stone from which may have been used in the construction of the wall. The robbed remains of the cairn are of local archaeological interest and are of low sensitivity.
- 12.51. While the name 'Hill of Standing Stones' might be taken as suggestive of the former presence of a prehistoric stone circle or standing stones within the landscape, no such features are evident in the landscape. The name probably relates to the site's much later use as the meeting place for a cattle fair (tryst site), discussed below.

The Drove Road and other Tracks

- 12.52. A drove road (4) is depicted running west to east across the Hill of Standing Stones, on Thomson's map of 1832^x. The drove road is not marked on the Ordnance Survey 1864 Edition map^{xi}, neither is a track shown on that map, nor was any obvious alignment found during the field survey. Drove roads were not always defined highways or formal roads; they were often simply historical routes across the landscape and it is to be expected that no substantial remains survive. The route of a drove road was reported by the Historic Scotland Warden who last recorded the marker cairn (2) on Hill of Standing Stones, but no detail of the track was provided other than to state that it followed the alignment of a rock outcrop. A similar rock outcrop, the Lang Dyke (5), a little way east, also has a level terrace along its northern side and it is quite likely that these two rock outcrops acted as way-markers for the drovers. The route of the drove road is of local historic environment interest and is of low sensitivity.

- 12.53. A second track (6), running roughly north to south from Merkins Farm to Bar Toll and Dumbarton is also shown on Thomson's map and is partially shown on the later Ordnance Survey map (1864). Information provided by the Drymen and District Local History Society (Mitchell 2004) identifies this as a historic drove road known locally as the Common Loan. Only limited sections of this former track now survive, as a holloway on the south side of Hill of Standing Stones. Other tracks and holloways (15) can also be detected amidst the heather moorland that are presumably remnants of traffic across the hills associated with the cattle fairs and later shepherding. The surviving remains are of some local historical interest of low sensitivity.
- 12.54. A cattle fair (tryst) was held on Dumbarton Muir, in the vicinity of the Hill of Standing Stones and the Lang Dyke, between 1762 and 1801 (Mitchell 2004) before relocating across the Parish boundary to Pappert Hill. Cattle were brought to the site via the Drove Road (4) and Common Loan (6) for an annual spring sales fair lasting for up to four days in June. The fair drew local buyers and sellers and buyers from England, who would then move cattle to the Appleby Fair in Westmorland for resale and onward transport to markets further south. Typically, a cattle tryst saw cattle, sheep and horses arriving at the standing grounds with their drovers, together with their ponies and dogs; the drovers sleeping in the open or in portable bivouacs. The animals for sale would have been gathered in groups (hence the possible reference to Hill of Standing Stones (and see for example Site 2a, below)). Supporting the dealers, there would have been perhaps a tented village of banks, shops and taverns offering all manner of services (Scott 2005^{xii}). The tryst site is unlikely to have had substantial physical features associated with it, remains of which would mark its location, but it is quite probable that there are yet to be found discarded or lost items and perhaps some ephemeral buried remains of temporary structures. The tryst site is judged to be of local historical interest and of low sensitivity.

Buildings and Shielings

- 12.55. A roofed building (18) depicted on the Ordnance Survey 1st edition map (1864) may have been a cottage or some other type of farm outbuilding (barn or cart shed, for example). There are no surviving visible remains and the site is judged to be of lesser archaeological interest and of negligible sensitivity.
- 12.56. Two possible shieling huts (12 and 13) and an area of improved grassland (17) probably demarcate the extent of a former shieling ground. The remains of a further possible shieling hut (2c) (or perhaps a shepherd's shelter) survive near the cairn on Hill of Standing Stones. Two small rectangular structures (9), attached to a drystone boundary wall may also have been shelters (or possibly lambing pens); although their actual function is difficult to determine without further investigation. These features are likely to be of later 18th or 19th century date. The shieling huts are of local archaeological interest and low sensitivity whilst the improved grassland is of negligible sensitivity.

Quarries and Peat Cutting

- 12.57. Two lime kilns (and a possible third) together with a limestone quarry (3) lie close to the Finland Burn on the north slope of Hill of Standing Stones. These features are

associated with local agricultural lime production and probably relate to the period of agricultural improvements in the 18th - 19th century (Mitchell 1995^{xiii}). Mitchell explains that the period of lime working in this area was primarily the eighteenth century, and that this industry tailed off rather sharply after about 1815. The lime kilns and quarrying are of local historic environment interest and the features are of low sensitivity.

- 12.58. Three other quarries (8, 10 and 16) were also recorded by the field survey. Two (8 and 10) mostly likely served as a source of stone for construction of the parish boundary walls on Pappert Hill. Another (16) may be associated with a group of quarries recorded in the NMRS as associated with a small farmstead (HER ref 7802) on Auchenreoch Muir. These quarries are of lesser historic environment interest and of negligible sensitivity.
- 12.59. Two areas of former peat cutting (2b and 14) were identified during the field survey; both are small and probably represent casual exploitation rather than regular exploitation of a resource. These sites are of lesser historic environment interest and negligible sensitivity.

Boundary Markers / Marker Stones

- 12.60. A series of former Boundary Markers (7) probably marked the otherwise undefined parish boundaries (Bonhill, Dumbarton and Kilmarnock) that converge on Hill of Standing Stones and it is quite possible that the name refers to these marker stones. It is certainly recorded that a stone pillar (described in the records as a fence or gate post) stands atop the marker cairn (2a), which marks a change in direction of the boundary between Dumbarton and Kilmarnock parishes. In a booklet entitled 'March Stones in the Kilpatrick Hills – A Feuars' Dispute of the 1850s', Prof Robert A. Rankin^{xiv} describes these markers as being cattle stance markers (that at the cairn being marked No 1, whilst approximately 900m further to the east-north-east and near the Lang Dyke is a further marker (No 3). It is assumed that an intermediate stone (No 2) formerly lay midway between these two. It is also worth noting that Hill of Standing Stones is marked on Blaeu's Atlas^{xv} as 'Standingstoppe', perhaps providing further evidence in support of this interpretation and for the use of the site as a cattle tryst from the 17th century. Field survey recorded that 2m east of the cairn is an engraved stone with two names carved into it. As former parish boundary markers or tryst markers, the surviving pillars and stones are of local historic environment interest and low sensitivity.

Assessment of Cultural Heritage Potential of the Site as a Whole

- 12.61. The majority of the cultural heritage features identified within, or within 1km of, the site, relate to 18th and 19th century use of the landscape. One site (1), a cist, is all that remains of what was originally a Bronze Age burial cairn.
- 12.62. The site has not been extensively developed, and today is mainly utilised for rough pasture. Two former drove roads once crossed Auchenreoch Muir: one running from Bonhill and Alexandria in the west towards Strath Blane and the south flanks of the Campsie Fells in the east; the other running from Dumbarton, in the south to

Drymen, in the north. These met on Dumbarton Muir, which was the site of an annual cattle fair (Mitchell 2004).

- 12.63. Data obtained from the West of Scotland HER (**Appendix 12.2**) shows that within 1km of the site boundary, there are numerous records pertaining to sites and features of post-medieval date. Amongst these records are: lime kilns and quarries (7975, 62628 and 59903), relicts of local and small scale 18th century agricultural lime production; small farmsteads and associated rig (7788, 7802, 22378, 22380, 22382, 22383 and 39974); millstones and millstone quarries (7976 and 7978); old roads (14720 and 14721); and, a group of dams on Auchincarroch Muir (21376-77). Other records include: a building (7967) and former shielings (39976-77).
- 12.64. Two HER records relate to prehistoric features: a cairn and burial cist (19036), of probable Bronze Age date and potentially contemporaneous with that recorded within the site (1); and a flint flake find-spot (7794), from near the Gallangad Burn and which could be of a similar or earlier (Neolithic) date.
- 12.65. Given the known cultural heritage baseline of the site and taking into consideration the topography of the study area, it is considered that there is some, limited, potential for as yet undetected remains to survive as buried remains. The archaeological potential of the moorland is considered to be moderate on the basis of the presence nearby of prehistoric burial cairns of Neolithic and Bronze Age date. Overall, given the limited areas that will be affected by the construction works, it is considered that there is a low to moderate probability for the discovery of undetected remains within the site.
- 12.66. The proposed access track will follow an existing track, part of which has already been upgraded for lorries travelling to, and from, the landfill site. Beyond the landfill site, the track follows a rubble-based farm track, which will require upgrading as part of the development. No visible remains of any site or feature of cultural heritage significance were identified within a corridor extending to 50m either side of the proposed access. There are no surviving visible remains of the former farm building or cottage (18) shown on the Ordnance Survey 1st edition map (1864).
- 12.67. It is considered that the potential for as of yet, undetected remains of cultural heritage significance being present within the access track corridor is low.

External Receptors

- 12.68. There are five Scheduled Monuments and three NSR sites within 5km of the proposed outermost turbines that have predicted visibility of one or more turbines. The locations of these sites are shown on **Figure 12.2** and **Appendix 12.3** provides a tabulated assessment of the significance of the predicted impact on each.
- 12.69. There are 11 category A Listed, 40 category B Listed and 30 category C(S) Listed buildings within 5km of the outermost turbines that have predicted visibility of one or more turbines. The locations of these are shown on **Figure 12.2** and **Appendix 12.3** provides a tabulated assessment of the significance of the predicted impact on each.

12.70. Beyond approximately 5km, the landscape to the south of the proposed windfarm becomes increasingly urbanised and the various sites and monuments in those areas are dominated by the urban and industrial environment along the River Clyde. To the north-west, most of the designated sites and monuments lie along the A82 trunk road corridor along the west shore of Loch Lomond. In none of these cases will the proposed windfarm significantly affect their settings. To the north-east, the sites and monuments and Listed Buildings cluster in, or around, the many small towns and villages, such as Drymen, Killearn and Balfron; with a notable cluster in, and around, Buchanan Castle designed landscape at Drymen. None of these sites is sufficiently close to the proposed windfarm, or of especially high cultural heritage importance such as to require detailed assessment of the impact on its setting. These sites are therefore simply listed for reference in **Appendix 12.4** and displayed on **Figure 12.3**.

The ‘Do Nothing’ Scenario

12.71. The identified cultural heritage sites and features occupy an upland setting of heather moorland and rough grazing that has no development pressure upon it; the landscape is used only for summer grazing of livestock. The surviving sites and features are relicts of former pastoral farming activities, long since abandoned, and remains of former stone quarrying and lime production operations. If the windfarm was not to proceed, there would be no change to the baseline condition of the sites and features within the landscape. The current pasture land-use would be likely to continue, limiting the disturbance to cultural heritage assets, and only natural decay would affect the upstanding remains. There would be no change to the setting of external cultural heritage receptors.

WINDFARM LAYOUT CONSIDERATIONS

12.72. The results of the desk-based study and reconnaissance field survey were provided to the windfarm design team, with the locations of cultural heritage features highlighted. Sites and features were recorded as (i) point locations: for small individual features such as marker cairns or sheepfolds; (ii) linear representation: for individual trackways and field boundaries; or (iii) areas: where a number of related features form integrated sites or where a site was found to cover a detectable extent. Where linear features had been identified from cartographic sources but were not detectable on the ground, their courses were provided as dashed lines.

12.73. The layout of the windfarm, including the positioning of the turbines, access tracks and other infrastructure elements, has been designed through a series of iterative stages to develop the best layout within the context of all environmental and technical constraints. The layout shown on **Figure 12.1** therefore embeds design based mitigation into the siting of the turbines and ancillary development constraints wherever possible. The final design has avoided all but two of the known cultural heritage sites; both are linear routes which could not be avoided but which do not have a high visible presence on the ground.

IMPACT ASSESSMENT

12.74. The assessment of impacts is based upon the development description outlined in **Chapter 5: Scheme Description** and is structured as follows:

- Construction impacts.
- Operational impacts.
- Cumulative impacts.

CONSTRUCTION IMPACTS

Predicted Impacts

- 12.75. Any ground-breaking activities associated with the construction of the windfarm (such as those required for turbine bases and crane hardstandings, access tracks, cable routes, compounds, 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 impacts on the cultural heritage.
- 12.76. The Common Cist cairn (1) lies close to turbine T2 and the proposed site access tracks. It is possible that vehicle movements (or temporary storage of materials) during construction works in this area could, without mitigation, inadvertently damage the site. The site is the remains of burial monument (the primary burial having been removed) and is of low sensitivity. Any direct impact is likely to be of no more than medium magnitude and would therefore be of no more than minor significance.
- 12.77. Two of the previously identified and recorded features will be directly affected by the construction works. The onsite access tracks will cross the course of the former drove road (4) and the route of the Common Loan (6), also a probable drove route, as marked on the 1864 Ordnance Survey map, but there are few traces of either feature surviving on the ground. The Drove Road and route of the Common Loan are of low sensitivity and are long linear routes. Only a small part of either will be affected by the windfarm, therefore the predicted impact on these features is of low magnitude and negligible significance.
- 12.78. There is some potential that evidence of the location's former use as a cattle tryst (19) may be encountered, particularly in the area of the three northernmost turbines. It is also possible that evidence of earlier, prehistoric, activity may be encountered during topsoil removal for access tracks, turbine bases and crane hardstandings. It is considered that there is a low to moderate probability for the discovery of undetected remains within the site. Were new features to be discovered, it is considered that the significance of any direct impact could potentially be of moderate significance, but that any impact could be offset by appropriate mitigation through archaeological recording.

Proposed Mitigation

- 12.79. In accordance with the guidance contained in PAN 2/2011^{xvi} and in Local Plan policy BE 5 (see **Chapter 6**) the preferred option for mitigation is preservation of important remains in situ where practicable and by record where preservation is not possible. The mitigation measures presented below take account of this planning guidance and offer various options for recording and ensuring that, where practical, upstanding sites and features are preserved intact to retain the present historic elements of the landscape.
- 12.80. An appropriate strategy for archaeological mitigation will be presented in a Written Scheme of Investigation (WSI) and agreed in advance of construction with WoSAS. The WSI will include the elements outlined below.

Preservation in-situ/Fencing off

- 12.81. The Common Cist cairn (1) will be marked out during construction works. This feature lies in close proximity to turbine T2. It will be avoided as far as is practical to ensure its preservation in situ and to prevent accidental damage occurring during construction activities in its vicinity. High visibility markers will be placed a minimum of 5m from the visible extent of the site and facing the working area.

Watching briefs and excavation

- 12.82. Any requirements for archaeological mitigation through pre-construction trial trench evaluation or construction phase monitoring of works through watching briefs would be agreed in consultation with WoSAS. Archaeological monitoring may be required along proposed access track routes, at proposed turbine locations and at proposed borrow pit locations², particularly where there is a possibility that construction activities may reasonably be expected to encounter buried remains, particularly in the area where two former drove roads (4 and 6) meet at the site of the old cattle tryst site (19) and around the site of the Common Cist burial cairn (1). The area around turbine T1, T2 and T3 is the most likely location for finds associated with the cattle tryst site. The locations of any watching briefs would be agreed with WoSAS.
- 12.83. If important discoveries are made during archaeological monitoring, and preservation in situ of any sites or features is not possible, provision would be made for the excavation, where necessary, of any archaeological remains encountered. This provision would include the consequent production of written reports on the findings, with post-excavation analyses and publication of the results of the works, where appropriate.

Residual Impacts

- 12.84. The consideration of cultural heritage interests in progressing the windfarm design has resulted in the preservation in situ of known sites of cultural heritage interest within the proposed site. There are, however, predicted low magnitude direct impacts on two sites of local cultural heritage importance and low sensitivity, where these are crossed by access tracks. These impacts are considered to be of negligible

²As stated in **Chapter 1**, the borrow pits will form part of a separate application.

significance. There is also a predicted potential impact of moderate significance on any possible surviving remains associated with the cattle tryst site (19). Following mitigation, the residual impact resulting from loss of any in situ remains would be of minor significance.

- 12.85. There may be residual impacts on any hitherto undiscovered buried features or deposits that might be discovered during any watching brief that may be required. In line with the requirements of national and regional planning policy, any archaeological remains that are identified will be either preserved in situ (where this may be justified by their importance) or excavated and recorded to a standard agreed with WoSAS, leading to the accrual of archaeological information and preservation by record. Any residual impact, through loss of any in situ remains, is likely to be of minor significance.

OPERATIONAL IMPACTS

Predicted Impacts

- 12.86. The presence of windfarm features can have indirect impacts on the settings of cultural heritage sites 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 other cultural heritage sites and areas in the vicinity of the proposed windfarm.
- 12.87. External receptors within 15km of the proposed windfarm and predicted by the ZTV to have views of one or more turbines are shown on **Figures 12.2 and 12.3**.
- 12.88. **Appendix 12.3** contains a list of those key receptors within 5km of the outermost turbines, where significant impacts on the settings of receptors are considered most likely to occur. The appendix also provides a summary assessment of the predicted impacts, on a site-by-site basis, using the criteria and approach detailed above (**Tables 12.2 and 12.5 - 12.9**). Receptors between 5km and 15km are listed in **Appendix 12.4**.
- 12.89. Those sites identified specifically by Historic Scotland in their scoping response are addressed in detail below. Other sites where, on the basis of the preliminary assessment in **Appendix 12.3**, impacts of major or moderate significance are predicted, are also discussed in detail.
- 12.90. The assessment of magnitude of impact provided in **Appendix 12.3**, and therefore the significance of impact predicted, has been based on analysis of the blade tip ZTV, taking into account the distance of the assessed site from the proposed windfarm and the number of turbine blade tips visible, combined with a basic appraisal of the site's current landscape setting. The ZTV model is, however, a coarse predictive tool, based on bare-earth surface topography and maximum blade-tip heights. It 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 arrive at the final conclusions drawn in the following assessments.

Scheduled Monuments and NSR Sites (within 5km of outermost turbines)

- 12.91. Three Scheduled Monuments were identified by Historic Scotland as requiring assessment of the impacts on their settings.
- 12.92. The **Lang Cairn (2329)** is a chambered long cairn of the Clyde group type (Henshall 1972^{xvii}). It measures 56.4m in length by 15.2m in maximum width and is aligned east-south-east to west-north-west. At its eastern end, where it stands 1.8m high, there is a façade constructed of orthostats with panels of dry-stone walling between them. In front of the façade is an area of paving of flat slabs that forms a forecourt (possibly having been the focus of ritual activity). The monument is of Neolithic date. About 5.5m to the south-west of the Lang Cairn is a small round cairn 7m in diameter, which is likely to be of Bronze Age date.
- 12.93. The alignment of the long axis of Lang Cairn is likely to have been deliberate, and important to the monument's function. Views eastwards from the façade would have been slightly restricted by the presence of the higher ground of Tombocle Hill and views westwards from the west end of the cairn by rising ground on Merkins Muir and Blairquhomrie Muir; the local topography limits long views to the surrounding landscape to those towards the north. It is most likely that the alignment of the cairn is designed such that the eastern façade is oriented towards the midwinter solstice sunrise. The cairn lies just to the east-south-east of a waterfall on the Gallangad Burn and this too may have been important in the choice of location for the cairn.
- 12.94. The cairn now stands in heather moorland just outside the northern edge of a block of commercial forestry, which provides screening of the immediate setting of the cairn from views of the proposed turbines and which is itself a modern intrusion on the setting of the cairn. The cairn's current setting makes a moderate contribution to understanding and appreciating the site's function. The photograph (**Figure 12.4**) shows the effect of the screening, although the wireframe indicates that, were the forestry not present, parts of all ten turbines would be visible, although these would be partly screened by rising ground. The hubs of eight of the turbines and the blade tips of two others would be visible above the skyline. The nearest turbine would be 2.3km to the south-west. The setting of the cairn is assessed as being medium, being already affected by the presence of the commercial forestry, and the magnitude of the impact on the cairn's setting is assessed as being low; a slight, but detectable impact that does not alter the baseline setting of the receptor materially.
- 12.95. The presence of the modern commercial forestry goes some way to both reducing and mitigating the impact on the setting of this Scheduled Monument, which is assessed as being of minor significance. The presence of the windfarm will not appreciably diminish the character of the monument's setting or affect the important alignments and vistas.
- 12.96. **Gallangad Burn long cairn (2911)** is another chambered long cairn of the Clyde group. In 1972, it was recorded as being a mound orientated east north-east to west-south-west and measuring 13.4m long with a maximum width of 7.9m at the eastern façade. The cairn was later recorded as having been destroyed by quarrying during the construction of a forestry road. However, there seems to be some doubt

about this, as a later report suggests that the site is as recorded in 1972. The site was not visited as part of this survey and its current condition has not been verified.

- 12.97. The cairn lies at a higher altitude than the Lang Cairn and the two may originally have been intervisible. The cairn now lies in a clearing surrounded by modern commercial forestry, which restricts views outwards in all directions. The topographic setting of the cairn is similar to that of the Lang cairn; that is, that long views to the surrounding landscape, except to the north, are restricted by the local topography. As with the Lang Cairn, it is likely that the alignment of the cairn is oriented with the eastern façade facing towards the midwinter solstice sunrise. Also similarly to the Lang Cairn, the cairn lies just to the east-south-east of a waterfall on the Gallangad Burn and again this may have been relevant in the choice of location for the cairn.
- 12.98. The wireframe for this site (**Figure 12.5**) indicates that were the forestry not present, the hubs and blades of all ten turbines would be visible on the skyline in views to the west-south-west. The nearest turbine will be 2.1km away. The sensitivity of its setting within commercial forestry is assessed as being low and localised. The magnitude of the impact on the cairn's setting is assessed as being low; a slight, but detectable impact that does not alter the baseline setting of the receptor materially.
- 12.99. The presence of the modern commercial forestry goes a long way to both reducing and mitigating the impact on the setting of this Scheduled Monument, which is assessed as being of minor significance. The presence of the windfarm will not appreciably diminish the character of the monument's setting or affect the important alignments and vistas.
- 12.100. **Stockie Burn long cairn (2281)** is a further chambered long cairn of the Clyde group and like the others described above is aligned east-north-east to west-south-west. It measures 18m in length from the portal stones, which stand at the head of a shallow forecourt at the east end, and it tapers from a width of 11.5m at the eastern façade to 7.5m wide at the western end. It is recorded that, although the cairn has been severely disturbed, the remains of a chamber are visible at the east end. The site was not visited as part of this survey on account of its distance from an easily accessible location so its current condition has not been verified; there is, however, no reason to doubt the last record of its condition reported by RCAHMS.
- 12.101. The cairn lies in open heather moorland and is not intervisible with either the Lang Cairn or the Gallangad Burn Cairn. However, like the other two, the topographic setting is similar, in that long views to the surrounding landscape, except to the north, are restricted by the local topography. Also, as with the other two, it lies just to the east-south-east of a waterfall, on the Carnock Burn, and is oriented with the eastern façade facing towards the midwinter solstice sunrise.
- 12.102. The wireframe for this site (**Figure 12.6**) indicates that if the forestry on the west bank of the Carnock Burn was not present, the hubs and blades of nine turbines would be visible beyond the skyline in views to the west-south-west. The nearest turbine will be 4.3km distant and the commercial forestry, which lies at a higher altitude than the cairn, will provide additional screening to that provide by the intervening topography. The setting of the cairn is assessed as being high, being in an

open moorland location, and the magnitude of the impact on the cairn's setting is assessed as being low; a slight, but detectable impact that does not alter the baseline setting of the receptor materially.

12.103. The impact on the cairn's setting is judged to be of minor significance. The presence of the windfarm will not appreciably diminish the character of the monument's setting or affect the important alignments and vistas.

12.104. One further Scheduled Monument: **Balloch Castle, earthwork, Loch Lomond Park (3385)** lies within the Balloch Castle designed landscape, and is 4.9km from the nearest proposed turbine. This is the site of the original 12th century Balloch Castle. All that now remains is a large, irregularly shaped natural mound, measuring 50m by 45m, with a ditch running round it, situated at the southern end of Loch Lomond and on the east side of the River Leven. The site's setting includes the designed landscape within which it lies and its association with the present Balloch Castle. As such, the contribution of the site's setting to its heritage value and its sensitivity are considered to be high but localised; being limited to the immediate setting of the designed landscape. The impact on the setting of the former Castle's remains, within the designed landscape, arising from the introduction of the proposed windfarm in the wider landscape is assessed as being of imperceptible magnitude and of negligible significance. The presence of the windfarm, 4.9km distant in the hills to the south, will not appreciably diminish the character of the monument's setting or affect its relationship with the later Castle.

12.105. The three NSR sites include: the denuded remains of a single building, enclosure and corn-drying kiln (7974), in open pasture farmland; the badly overgrown site of a former mill (7977), in scrub woodland alongside the Carrochan Burn; and, the remains of a probable Bronze Age burial cairn (7979), in rough heathland in the former Blairbeich Plantation. In none of these cases is it considered that the setting of the features will be significantly affected by the proposed windfarm, sited in the hills to the south of the features, between 2.3km and 3km distant. The sensitivity of their individual settings is assessed as being high but localised and the impacts arising from the introduction of the windfarm in the wider landscape are assessed as being of imperceptible magnitude and negligible significance.

Listed Buildings (within 5km of outermost turbines)

12.106. One Listed Building, Balloch Castle, was identified by Historic Scotland as requiring assessment of the impacts on its setting.

12.107. **Balloch Castle (123)** is category A Listed and stands at the centre of a designed parkland landscape on the south-east shore of Loch Lomond. The main elevation of the castle is east-facing to south-east-facing, with views over a small courtyard and parking area to an area of broadleaf woodland which substantially screens long landscape views in those directions at ground floor level. There are longer views to the west from the castle over open parkland dotted with mature broadleaf trees to the shore of Loch Lomond and the hills beyond; the best views of the castle are also obtained from the west, from the lower lying ground down towards the loch.

- 12.108. The castle's setting, formed by its designed parkland landscape, provides a high contribution to its appreciation and this setting is considered to be of high sensitivity. Longer distance views from the castle are, however, judged not to be especially important to understanding the character of the castle or appreciation of its setting, which is predominantly focussed on Loch Lomond to the west and in this setting has high scenic value. The site is open to the public and well used by visitors as a recreational resource. Views of the castle that may be obtained from the waters of Loch Lomond may include the wind turbines, which could be visible above and beyond the castle in its parkland setting.
- 12.109. From the upper levels of the castle, and from the roof parapets and towers, longer views over the tree tops to the distant Dumbarton Muir hills are obtainable, beyond the suburban housing on the eastern edge of Balloch and intervening farmland. The visibility of the proposed windfarm in this view is represented by a photograph and wireframe (**Figure 12.7**). The hubs and blades of nine turbines will theoretically be visible on the skyline, the nearest turbine being 4.9km distant, but the photograph shows that the view in that direction will be screened by intervening trees at close quarters.
- 12.110. Taking account of the limited locations from which there will be simultaneous views of the castle and the proposed windfarm, the impact on its setting is assessed as being of imperceptible magnitude and of negligible significance.
- 12.111. The majority of the other Listed Buildings within 5km of the outermost turbines lie within urban or suburban locations along the River Leven and A82 corridor. Individually and collectively, it is this built environment that constitutes the settings of these various Listed Buildings. The presence of the proposed windfarm in the hills above the towns and villages will not appreciably diminish their heritage value or significantly affect their close settings. In other cases, the buildings are mostly simple farm buildings or small country houses in enclosed farmyard, garden or parkland settings and their heritage values will not be diminished by the proposed windfarm in the hills around them. The nearest Listed Buildings are all more than 3km from the nearest turbines and it is considered that their settings will not be significantly affected by the windfarm. Overtoun House (24907) lies 3.2km to the south of the site, within a surrounding designed landscape. The ZTV indicates that one turbine tip will be theoretically visible from the house, but tree cover on the rising ground to the north of the house and along the Overtoun Burn will screen views of the windfarm and the setting of the house will not be affected.

Conservation Areas

- 12.112. The nearest Conservation Areas to the site are Knoxland Square, in Dumbarton town centre, 5.1km from the nearest turbine; and, Kirktonhill, on the Clyde at Dumbarton, and 6km from the nearest turbine (as shown in **Figure 12.3**). It is considered that there will be no significant impact on any of the designated Conservation Areas, because they are either part of a larger urban environment (in the case with Knoxland Square and Kirktonhill) or are at such a distance from the site (between 8.5km and 14.5km) that the windfarm will not be a prominent visual feature adjacent to, or in immediate proximity of, any of the Conservation Areas and will not be detrimental to their characters.

Gardens and Designed Landscapes

- 12.113. There are two Inventory status Gardens and Designed Landscapes (GDLs) that lie within 5km of the outermost turbines. Balloch Castle GDL lies 4.9km to the north-west and Overtoun GDL lies 3.5km to the south-south-west.
- 12.114. The Inventory states that the setting of **Balloch Castle** and its designed landscape is of exceptional scenic quality. The GDL is situated on the south-east shore of Loch Lomond on the edge of the designated National Scenic Area, just north of the town of Balloch, is bounded to the west by Loch Lomond and the River Leven, to the north by the Burn of Balloch, and to the east by its woodland belts. The parkland slopes gently westwards down to Loch Lomond, and the castle is set on a high point taking full advantage of the spectacular views over the south end of Loch Lomond. The designed landscape was laid out in the 19th century and has retained the same structure since.
- 12.115. Balloch Castle GDL has some historical value through associations with the Lennox family; it provides the setting for the scheduled remains of the old castle of the Lennox family, a mound surrounded by a moat in the south-west of the Park and for the present 19th century Gothic-style castle. The Inventory notes that it is its outstanding architectural value, providing the setting for a house of exceptional architectural interest, its outstanding scenic value, and the ornamental gardens and the use of the setting in the design that give Balloch Castle GDL its real value. It is also an important recreational resource.
- 12.116. The proposed windfarm will be located in the hills 4.9km to the south-east of the GDL. Whilst the turbines will be partially visible above the skyline (see **Figure 12.6**) they will be neither prominent nor dominant features in these distant views. Although the windfarm will be visible from various points within the parkland it is considered that the impact on the setting of the GDL will be of imperceptible magnitude and negligible significance and that the presence of the turbines in the wider landscape will not diminish the site's value.
- 12.117. **Overtoun House GDL**, 3.5km south-south-west of the site, is described in the Inventory as a good representative example of a mid to late 19th-century parkland landscape with picturesque burnside walks and the remnants of a contemporary garden. There are views from the house and formal garden southwards over the Firth of Clyde, and views from Dumbarton of the backdrop of planting of the Overtoun estate; the Lang Craigs, to the east of Overtoun, forming a dramatic backdrop to the setting of the house and the designed landscape. Rising ground and the wooded character of the northern part of the grounds, along the Overtoun Burn, screens views of the hills of Dumbarton Muir and the proposed windfarm will not be prominent or dominant in any of the key views from the house. It is possible that from some open ground locations within the GDL, the turbines may be partly visible above and beyond the woodland, but it is considered that the impact on the setting of the GDL will be of imperceptible magnitude and negligible significance and that the presence of the turbines in the wider landscape will not diminish the site's character or value.

- 12.118. Five other Inventory status GDLs and from which there is predicted theoretical visibility of the windfarm, lie between 5km and 15km of the proposed windfarm.
- 12.119. **Rossdhu** lies on the west shore of Loch Lomond and is now the location for the Loch Lomond Golf Club; the historic buildings have been incorporated into the layout of the course. The policies are bounded by the policy wall along the A82(T) to the west side, and by the loch on the north, east and south sides and the setting enables views along Loch Lomond in both directions and across the loch to Ben Lomond. The surrounding landscape of loch and islands, with its backdrop of hills, is important to the designed landscape. Views into the park from the landward side are limited by the high policy walls but Rossdhu is an attractive landscape feature from the loch. The proposed windfarm will lie 10.9km to the south-southeast beyond the southern end of Loch Lomond and, at that distant, will not be a dominant visual feature. Views of the designed landscape from the loch would be unaffected, and the proposed windfarm will have a negligible impact on the setting of Rossdhu GDL.
- 12.120. **Ross Priory** GDL lies on the east shore of Loch Lomond, 7.4km from the proposed windfarm, and forms the setting for a category A Listed Building. The Inventory describes how views are gained across the loch to the mountains beyond providing a magnificent setting to the designed landscape. The situation of the site is secluded, nestling on the low shores of Loch Lomond. The proposed windfarm will lie 7.4km to the south and will not be visible from within the main part of the grounds. The proposed windfarm will have an impact of negligible significance on the setting of Ross Priory GDL.
- 12.121. **Finlaystone House** GDL is situated on the south bank of the Firth of Clyde and is 8.9km from the proposed windfarm. To the north, across the Firth of Clyde, lies Dumbarton Rock and the town of Dumbarton, beyond which views are gained to the Kilpatrick Hills. Views can also be gained along, and across, the Clyde, particularly from the terraced garden around Finlaystone House. The Inventory records that Finlaystone has outstanding architectural value as it provides the setting for architectural features of exceptional interest and historical value through association with the Earls of Glencairn. The proposed windfarm will be visible on the skyline of the hills on the north of the River Clyde but its presence in distant landscape views will not diminish the site's character or value. It is therefore considered that the proposed windfarm will have an impact of negligible significance on the setting of Finlaystone House GDL.
- 12.122. The Garden and Designed Landscape at **Formakin** is an early 20th century landscape designed by Sir Robert Lorimer; it forms the setting for several Listed Buildings. The proposed windfarm will lie 8km to the north of the gardens and across the River Clyde but its presence in distant landscape views will not diminish the site's character or value. It is therefore considered that the proposed windfarm will have an impact of negligible significance on the setting of Formakin GDL.
- 12.123. **Buchanan Castle** GDL lies 8.4km north of the proposed windfarm and is described in the Inventory as a much degraded designed landscape most notable for providing the setting for the now derelict Buchanan Castle. The designed landscape also provides the setting for several other Listed Buildings including Buchanan Old House, now converted into the Golf Clubhouse. The proposed windfarm will be visible on

the skyline on the hills in views to the south but its presence in distant landscape views will not diminish the site's character or value. It is therefore considered that the proposed windfarm will have an impact of negligible significance on the setting of Buchanan Castle GDL.

Proposed Mitigation

12.124.No further mitigation would reduce or offset the predicted operational impacts.

Residual Impacts

12.125.During its operational lifetime, the residual impacts of the windfarm on the settings of the various sites and monuments within the study area will be the same as the predicted impacts.

CUMULATIVE IMPACT ASSESSMENT

12.126.This section considers the indirect operational impacts of the proposed windfarm on the setting of cultural heritage features in combination with other proposed, consented and application windfarms within the 30km cumulative ZTV³ (**Chapter 7, Figure 7.28**). The cumulative ZTV extends to 30km as beyond this, significant cumulative impacts with Merkins windfarm are not considered likely.

12.127.The cumulative ZTV includes the following windfarms within 30km of Merkins Windfarm:

- Two operational windfarms (Earlsburn Windfarm (15 turbines) and Craigenelt Windfarm (8 turbines)).
- Three consented windfarms (Earlsburn North Windfarm (9 turbines), Middleton Windfarm (6 turbines) and Cathkin Braes Windfarm (3 turbines)).
- Five windfarms where applications have been submitted (Muirpark Windfarm (11 turbines), Neilston Community Windfarm (4 turbines), Harelaw Windfarm (40 turbines), Moorhouse Farmers Windfarm (19 turbines), Waterhead Moor Windfarm (29 turbines).
- One windfarm under appeal (Wings Law Windfarm).
- One windfarm at the design/scoping stage (Loaninghead Windfarm).

Predicted Cumulative Effects

12.128.**Figure 12.8** provides a cumulative ZTV showing the distribution of cultural heritage assets within the 15km cultural heritage study area which have theoretical intervisibility with the proposed development, and the combined visual influence of

³ The assessment considers submitted windfarm applications, consented schemes, and windfarms that exist or which are in the process of being constructed, as of a 'cut-off' date of 1st April 2011. It was also agreed with SNH and the Loch Lomond and the Trossachs National Park Authority that Loaninghead Windfarm (scoping stage) would be included in the assessment.

other considered windfarms within the 30km landscape and visual study area. Loaninghead is the closest to the proposed development and the only one within the 15km cultural heritage assessment study area.

12.129. **Appendix 12.5** provides a list of the nationally important heritage assets within the 15km assessment zone and a column identifying the number of other windfarms theoretically visible from each location, based on blade tip heights. It should be noted that this represents the 'maximum case' scenario and that in practice not all of each of these windfarms may be visible.

12.130. In the response to Scoping, Historic Scotland requested assessment of the effects of the proposed development on the following sites:

- Lang Cairn, chambered cairn and cairn, Gallangad Muir (2329).
- Gallangad Burn, long cairn 790m NE of junction with Knockupple Burn (2911).
- Stockie Muir, long cairn 2000m NNW of Burncrooks Reservoir (2281).
- Balloch Castle (123).

These sites are therefore also considered in relation to the potential for cumulative impacts on their settings.

12.131. Of the three chambered burial cairns in close proximity to the proposed development turbines only one, **Lang Cairn, chambered cairn and cairn, Gallangad Muir (2329)**, would have any visibility of any other windfarm, that being the Loaninghead scheme, currently at the scoping/design stage and approximately 10km to the NNE of the cairn. There would be no significant cumulative impact from the two schemes in combination; the effect on the setting of the cairn being no greater than that from the Merkins proposal in isolation. The cumulative ZTV indicates that there would be no visibility of any other windfarm in combination from either **Gallangad Burn, long cairn 790m NE of junction with Knockupple Burn (2911)** or from **Stockie Muir, long cairn 2000m NNW of Burncrooks Reservoir (2281)**.

12.132. The cumulative ZTV indicates that, from category A listed **Balloch Castle (123)** and its surrounding designed landscape, there would be theoretical visibility of two other windfarms in combination with the Merkins proposal (windfarms from the 'Middleton group', 25-30km south of the site; see **Chapter 7** and **Figure 7.33**). The Merkins development would be approximately 5km from Balloch Castle (4.9km to the nearest turbine) and the next closest development would be the proposed Loaninghead scheme, almost 15km to the northeast of the Castle. There would be no significant cumulative impact from the various schemes in combination; the effect on the setting of the castle and its designed landscape being no greater than that from the Merkins proposal in isolation.

12.133. Of the 32 Scheduled Monuments with predicted visibility of the proposed development, eight would have no intervisibility with any other scheme. Only one - Carman fort (**717**), northwest of Renton - would have visibility of all ten windfarms considered in the cumulative assessment within 30km of the Merkins scheme. None

of the other schemes would be any closer than the Merkins proposal (5.8km to the nearest turbine); the next closest would be the Loaninghead scheme, approximately 17km distant to the northeast and the Waterhead proposal, 19km to the southwest. The cumulative impact on the setting of the fort would be negligible and therefore not significant. Seventeen other scheduled monuments (in addition to Lang Cairn, discussed above) would have theoretical visibility of between one and five other developments but the separation distances between the monuments and the schemes (and the likely degree of visibility of the various wind turbines) would be such that there would be no significant impact on their settings. None of the NSR sites of potential national importance would have intervisibility with more than five other schemes and none of those other schemes would be any closer than the Merkins proposal; the next closest being the Loaninghead proposal, approximately 11km to the ENE. There would be no significant cumulative impact on the settings of any NSR site.

12.134. Eleven of the 36 category A listed buildings identified within 15km of Merkins proposal would have no intervisibility with any other windfarms. From one of the category A buildings (Dalmoak House, 45600) there would be theoretical visibility of seven other windfarms, but none of those would be closer than 17km. The cumulative impact on the setting of the building would be negligible and not significant.

12.135. Overall, the cumulative impact on key cultural heritage receptors arising from Merkins windfarm in combination with any, or all, of the other operational, consented or proposed windfarms considered in the cumulative assessment would be of imperceptible magnitude and any cumulative impact would be of negligible significance.

Proposed Mitigation

12.136. No further mitigation would reduce or offset the predicted cumulative impacts.

Residual Cumulative Effects

12.137. During its operational lifetime, the residual cumulative impact on the settings of the various sites and monuments in the study area arising from Merkins Windfarm in combination with any, or all, of the other windfarms considered will be as the predicted impacts for the Merkins Windfarm in isolation.

SUMMARY OF IMPACTS

12.138. **Table 12.10** below summarises the predicted impacts of the windfarm on cultural heritage.

Table 12.10: Summary of Predicted Impacts

Predicted Impacts	Significance	Mitigation	Significance of Residual Impacts
Construction			

Predicted Impacts	Significance	Mitigation	Significance of Residual Impacts
Potential for damage during construction works in the area of Common Cist (1)	Minor	Mark-off prior to construction works commencing	Negligible
Passage of access track across former Drove road route (4)	Negligible	None specifically for this feature (see below, site 19)	Negligible
Passage of access tracks across route of former hill track/drove road - Common Loan (6)	Negligible	None specifically for this feature (see below, site 19)	Negligible
Disturbance to and loss of buried archaeological remains (e.g. Cattle Tryst site (19)) due to ground disturbing excavation associated with construction works	Unknown - potentially Moderate	Archaeological monitoring in sensitive area and follow up mitigation if important new discoveries are made	Minor
Operation			
Indirect impacts on the setting of Scheduled Monuments, NSR sites, Listed Buildings, Conservation Areas and Gardens and Designed Landscapes	Minor – Negligible	None	Minor – Negligible
Cumulative			
Indirect cumulative impacts on the setting of Scheduled Monuments, NSR sites, Listed Buildings, Conservation Areas and Gardens and Designed Landscapes	Negligible	None	Negligible

REFERENCES

- ⁱ IfA (2010) 'Code of Conduct'. Institute for Archaeologists. London
- ⁱⁱ IfA (2009) 'Standards and Guidance for a Desk-based Assessment'. Institute for Archaeologists. London
- ⁱⁱⁱ Historic Scotland GIS download website (<http://hsewsf.sedsh.gov.uk>)
- ^{iv} CPE/UK/0256 (11/08/47) Frame No's 5080 - 5084; 5300 - 5296
- ^v Historic Land-Use Assessment for Scotland website: <http://www.rcahms.gov.uk>
- ^{vi} SPAD website: <http://xweb.geos.ed.ac.uk/~ajn/spad>
- ^{vii} ICOMOS (2005) 'Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas'. Adopted in Xi'an, China by the 15th General Assembly of International Council on Monuments and Sites (2005).
- ^{viii} Historic Scotland (2010) 'Managing Change in the Historic Environment - Setting'. Historic Scotland, Edinburgh
- ^{ix} Mitchell, J (2004) 'The Great Dumbarton Muir Tryst'. Scottish Local History No 61 p22-24
- ^x Thomson, J (1823) 'Dunbartonshire'
- ^{xi} Ordnance Survey (1864) 'Dunbartonshire. sheet XVIII'. six inch to one mile
- ^{xii} Scott, J (2005) 'The Falkirk Trysts' <http://www.falkirklocalhistorysociety.co.uk/home/index.php?id=99>
- ^{xiii} Mitchell, J (1995) 'Old Cornstone Workings in Dunbartonshire and West Stirlingshire, with Notes on their Associated Flora' Glasgow Naturalist, Volume 22(5), pp485-494
- ^{xiv} Rankin, Prof Robert A (1993) 'March Stones in the Kilpatrick Hills - A Feuars' Dispute of the 1850s'
- ^{xv} Blaeu, J (1654) 'Levinia – Dunbarton'
- ^{xvi} Planning Advice Note PAN 2/2011 (2011) 'Planning and Archaeology'. The Scottish Office, Environment Department. Edinburgh
- ^{xvii} Henshall, A S (1972) 'The chambered tombs of Scotland, vol.2'. Edinburgh

APPENDIX 12.1 – Sites and Monuments within the Proposed Development Area (Figure 12.1)

Site No	Site Name / Type	NGR	NMRS / SMR Ref	Source	Description	Sensitivity
1	Auchenreoch Mains Cairn / cist	NS 4318 8034	NS48SW 4 / 7981	NMRS; SMR; Maps; Aerial photographs; Field Survey	<p>The NMRS and SMR record a cist, first recorded in the 19th century and which appears on the Ordnance Survey 1st edition map (1864) named as Common Cist. In 1956 the Ordnance Survey recorded that removal of the upper layers of stones packing a fence-post at this point revealed the remains of the cist, consisting of three upright flat slabs, 0.2m thick, enclosing a space 0.9m long x 0.6m wide x 0.5m deep and oriented east to west. The western end-slab was found to be missing and, although fragments of flat stones were found scattered in the vicinity, it was not possible to identify any of them as being part of the missing end-slab or cover stone. In 1977 the cist was recorded as roofless. Two stones, on the outer rim of the cairn were also recorded and interpreted as kerb stones.</p> <p>The name 'Common Kist' is annotated on Thomson's 1820 map.</p> <p>The cairn is visible on the 1947 aerial photograph.</p> <p>Field survey recorded no change in the baseline condition of the cist from that previously recorded. The two possible kerb stones are 0.6m high. A later stone wall lies directly north of the cist and it is possible that the cairn material was used to construct this wall.</p>	Low
2	Marker Cairn; Shieling (possible); Mound or Shooting Butt (possible)	NS 43593 80461	NS48SW 5 / 7982	NMRS; SMR; Maps; Field Survey	<p>The NMRS and the SMR records a modern marker cairn (2a), measuring 2m in diameter by 1m high, topped by what may have been a stone fence or gate post with a square hole drilled through it. (This feature was originally thought to be a prehistoric burial cairn, but in 1996 a Historic Scotland Inspector stated there is no evidence of any earlier cairn and that there are no stone dykes in the area to suggest total robbing of any cairn which may once have occupied the site). Around 45m to the east of the cairn is a small, heather covered mound (2c), 4m in diameter by 0.3m high, which was recorded as composed of smallish stones of a consistent size. An oval, earth and stone mound (2d) which may</p>	Low

Site No	Site Name / Type	NGR	NMRS / SMR Ref	Source	Description	Sensitivity
					<p>have been a shooting butt was recorded 6m from this mound.</p> <p>The cairn is depicted on the Ordnance Survey 1899, 1923 and 1958 edition maps.</p> <p>Field Survey recorded there was no change in the baseline condition of the features described above. Approximately 2m east of the marker cairn (at NS 43598 80458), is a stone with the now weathered words - 'Bower' and 'M. Brown' carved onto the exposed face. A small area of former peat cutting (2b), 5m by 2m and 0.2m deep, was recorded at NS 43623 80422.</p>	
3	Finland Burn Lime Kiln Quarries	NS 4396 8077	59691	SMR; Maps; Field Survey	<p>The SMR records that a pit, which measures approximately 10m by 4m, is set into the foot of a NNE-facing slope, with its long axis parallel to the bottom of the slope. The pit is open on its northern side - a ruined structure stands at the eastern end of the opening, and another at the western end. Both structures consist of blocks of red sandstone. The eastern structure (possibly a lime-kiln) is oval in shape, and measures 2.0m by 1.8m. It is made up of fairly irregular blocks, and is raised up on its southern side, where it rests upon a grass-covered mound. The western structure is made of larger and more regular blocks, and is better-preserved. It measures 3.0m by 1.3m. Evidence of possible limestone quarrying is visible in the immediate area. Just 40 metres to the south, a pool (NS 4397 8074) occupies a pit that is crossed by a wall-like rock formation. The pit is overlooked on its southern side by limestone outcrops, and may be the result of limestone quarrying. Likewise, there are signs of small-scale quarrying along two lines of limestone outcrops (NS 4362 8053) that run east to west along the northern slopes of the Hill of Standing Stones. In addition, a large crescent-shaped pit is located 200m to the north of the red sandstone ruins, at NS 4403 8098.</p> <p>A rectangular structure, annotated as an 'old lime kiln', is shown at this location on the Ordnance Survey 1st edition map (1864). This map also depicts an old quarry some 40m to the south.</p>	Low

Site No	Site Name / Type	NGR	NMRS / SMR Ref	Source	Description	Sensitivity
					Field Survey recorded the two kilns (3a), recorded by the SMR and an area of grassed over quarrying (3b) measuring 60m by 30m and 3m deep. A possible third kiln (3c), at NS 44003 80756, was also recorded. This third kiln (6m by 4m and 1m deep) is defined by grassed over banks 1m high, 1m wide and there is an opening on the north side.	
4	Drove Road (unnamed)	NS 426 805 to 440 807		Maps	<p>Thomson's 1820 map depicts a track, annotated as a drove road passing west to east across the ground between Auchincarroch Hill and Common Kist along the north side of the Dumbarton parish boundary. No such track is depicted on the 1864 Ordnance Survey map.</p> <p>A Historic Scotland Monument Warden reportedly found an alignment of this drove road to the north of Common Kist cairn (1) and a broad terrace along the north side of Lang Dyke (5) may also have been used by drovers.</p>	Low
5	Lang Dyke (natural feature)	NS 4404 8060 to 4440 8062		Maps; Field survey	<p>A linear feature approximately 300m long and annotated 'Lang Dyke' is depicted on the Ordnance Survey 1864 map.</p> <p>Field survey recorded that a natural ridge of outcropping bedrock follows the alignment of the 'Lang Dyke' depicted on the Ordnance Survey 1st edition map (1864). A broad flat terrace runs along the north side of the outcrop.</p>	Negligible
6	Track (Common Loan)	NS 4325 7925 to 4393 8017		Maps; Documentary ref; Field Survey	<p>A track which passes northwards across Auchenreoch Muir before terminating abruptly north of Knockshanoch is depicted on the Ordnance Survey 1st edition map (1864). The track is also shown on Thomson's 1820 map, running north to south from Merkins to Barnhill.</p> <p>Documentary sources (Mitchell 2004) records that this track, known locally as Common Loan, was part of a network of drove roads leading to a cattle tryst site (19) on Dumbarton Muir.</p> <p>Field survey recorded two short surviving sections of the track (6a and 6b).</p>	Low
7	Boundary Markers	NS 4318		Maps;	Five boundary markers (annotated B.M.) are depicted on the	Low

Site No	Site Name / Type	NGR	NMRS / SMR Ref	Source	Description	Sensitivity
		8034		Field Survey	<p>Ordnance Survey 1st edition map (1864) marking an otherwise undefined Parish boundary.</p> <p>Field survey found no sign of the boundary markers. The boundary is now marked by a dilapidated post and wire fence. However, the position of one of the boundary markers coincides with the fence or gate post inserted into the remains of the Common Kist cairn (1) and a similar stone pillar (described as a possible distance marker) was found at the marker cairn (2) a little way to the east. Thomson's 1820 map shows that the boundaries of four parishes meet on Auchincarroch Muir and it is very probable that these pillars are in fact relict boundary markers. This interpretation is supported by the alignment of the parish boundaries shown on the 1898 Ordnance Survey one inch to the mile map (sheet 30).</p>	
8	Quarry (possible)	NS 42737 80547		Field Survey	Field survey recorded a possible quarry 5m in diameter and 1m deep.	Negligible
9	Enclosures	NS 43163 80365 and NS 43174 80352		Field Survey	Field Survey recorded the remains of two dry-stone built cell-like features attached to a boundary wall close to the cairn (1) known as 'Common Kist'. One, at NS 43163 80365, is 2m x 2m x 0.6m high; the other, at NS 43174 80352, is 3.5m x 2.5m x 0.3m high.	Negligible
10	Quarry	NS 42828 80334		Field Survey	Field survey recorded a disused quarry 25m long x 9m wide x 1.5m deep cut into a natural rocky knoll alongside the drystone wall that constitutes the boundary between the parishes of Bonhill and Dumbarton.	Negligible
11	Mound	NS 42796 80172		Field Survey	Field survey recorded an L-shaped stony mound measuring 4m x 3m x 0.6m high, 10m to the south of a large drainage ditch.	Negligible
12	Shieling hut (possible)	NS 42900 80002		Field Survey	Field survey recorded the remains of a roughly circular structure approximately 6m in diameter over an encircling bank 1m wide x 0.6m high on a grassy plateau overlooking a small burn. There is an entrance on the north side.	Low
13	Shieling hut (possible)	NS 43198 79989		Field Survey	Field survey recorded the remains of an oval structure on a small ridge on the south side of an un-named burn. The feature (8m long x 6m wide) is defined by grassed over stone banks spread to	Low

Site No	Site Name / Type	NGR	NMRS / SMR Ref	Source	Description	Sensitivity
					1m wide and 0.3m high.	
14	Peat cutting	NS 43826 79626		Field Survey	Field survey recorded an area of old peat cutting, 9m long x 4m wide x 0.3m deep. The peat cutting lies 200m east of the track (6) depicted on historic maps.	Negligible
15	track	NS 4392 8027 to 4425 8023		Field Survey	Field survey recorded two sections of east to west aligned track surviving as hollow-ways. Each is 100m to 150m long and 2.5m to 3m wide.	Negligible
16	Quarry	NS 42986 79522		Field Survey	Field survey recorded a disused quarry 6m long x 4m wide x 1m deep on the south-west slope of Knockshanoch. This may be an outlier of the quarrying recorded north of Auchentreoch farmstead (SMR ref 7802).	Negligible
17	Shieling ground	NS 43155 79920		Field Survey	Field Survey recorded an area of improved pasture covering an area 52m by 37m with a drainage ditch and bank marking its eastern edge. There was no apparent associated rig and furrow. This is likely to have developed as the result of seasonal pasturing, represented by the nearby shieling huts (12, 13).	Negligible
18	Fairview (cottage)	NS 41755 81244	51522	SMR; Maps	The SMR records a farmstead depicted on the Ordnance Survey 1864 map. The Ordnance Survey 1st Edition map (1864) depicts a rectangular roofed building, aligned NNW-SSE with a rectangular garden plot attached to the WSW side.	Low
19	Dumbarton Muir Tryst (site of)	NS 440 804		Documentary ref	Mitchell (2004) records that a cattle fair was held on Dumbarton Muir, in the vicinity of the Hill of Standing Stones and the Lang Dyke from 1762 until some time between 1801 and 1821. The original site on Hill of Standing Stones was used from 1762 until around 1772/3 when its location moved across the Parish boundary onto Pappert Hill before relocating to some other part of the Levenside Estate and finally to Carman Hill.	Low

Appendix 12.2 - WoSAS HER Sites within 1km of Site Boundary (Figure 12.1)

WoSASpin No	Site Name / Type	Easting	Northing	Description
7788	Farmstead	245250	679950	On the east bank of Knockupple Burn, beneath the rocky crag, is a rectangular steading with a small oval store shed to east.
7794	Flint Flake	245250	679750	Used, struck flake of grey flint recovered from quarry base on east bank of Knockupple Burn.
7802	Millstone; Deserted Farmstead (possible)	242800	679500	A drystone built longhouse approximately 30m by 5m at NS 4271 7926 with a sub-rectangular enclosure to south of the east end. Indications of associated field banks to north and north-east of main range and possible second structure at NS 4275 7931. Millstone quarry at NS 4300 7936 is approximately 50m by 40m - traces of quarrying in vicinity stretch as far as other outcrops some 250m to NNW of main quarry. A millstone was found approximately 125m NNE of the long house.
7805	Lime Kilns	244100	678700	A rectangular enclosure surrounded by upcast turf walling, has two lime kilns inset into it on the north. A single kiln lies on the nearby north bank of the Black Burn, and a further kiln to south of the main site.
7967	Building	245450	680650	A single rectangular building of dry-stone construction recorded by RCAHMS 1978.
7975	Lime Kiln (possible)	243225	681415	A possible lime-kiln recorded by RCAHMS 1978.
7976	Millstone	244550	681150	A single unfinished millstone just less than 1.5m dia. made of relatively soft material, (upper old red sandstone).
7978	Millstone	244000	680900	An unfinished millstone lies some 275m south-west of that described above (7976).
14720	Old Road	244100	678700	At Little White Hill, a precisely engineered road, 10.6m wide between heavy block kerbs, with one small pillar mile-marker, inscribed '3', still in position. This is possibly an 18th-century estate road.
14721	Old Road	245030	680000	On the north bank of Gallangad Burn, a road (a possible continuation of 14720) deflects north-east as it passes west of the Gallangad Burn long cairn (2911). Beyond the Cameron Burn, where the cobbled base survives, the road gradually fades in rough moorland
19036	Cist; Cairn (possible)	242550	679640	Possible cist contained in a roughly oval rise measuring about 7m by 6m by 0.2m high. One large stone on the west side of the cist may represent an in situ kerb stone.
21376	Dam	242410	681280	A dam, about 100m long by 2.5m wide by up to 1.5m high, constructed of turf, clay and some stone. The dam is shown on the Ordnance Survey 1st edition 6" map with a reservoir, feeding a lade leading to Fairview (site of) and West Auchincarroch farmsteads. Topographical earthwork survey and archaeological evaluation of a dam at Auchencarroch Landfill; one of a number of similar 18th or 19th century water

WoSASpin No	Site Name / Type	Easting	Northing	Description
				management systems in the Bonhill area (North Pennines Archaeology Ltd; 2008).
21377	Dam	242220	681150	A dam (see related dam, 21376, above) preserved on the north side of a gully, about 5m by 3m wide by 2m high, located about 200m down the lade leading from site 21376.
22378	Shieling-hut	242140	679300	40m north of where Hazel Glen joins Murroch Glen, on level ground on the floor of a steep sided glen, is a single circular earth and stone banked structure, probably the remains of a shieling-hut. Overall it measures about 7m in diameter and stands up to 1m high, though it may be on a slight mound. The entrance is on the west, facing the burn which is only 3m away. The earth and stone bank is 1.5m wide and 0.3m high on the north, but elsewhere much more substantial measuring up to 3m wide and 1m high on the south and east.
22380	Rig	242050	679070	An area of rig-and-furrow cultivation, measuring about 80m in diameter.
22382	Rig	242120	679180	An area of rig-and-furrow cultivation, measuring about 150m east to west by 60m north to south.
22383	Rig	242540	679660	An area of rig-and-furrow cultivation, wavelength about 4m, measuring about 120m east to west by 40m north to south.
39974	Rig	242540	679660	Cultivation remains (rig and furrow)
39976	Rig	242050	679070	Cultivation remains (rig and furrow)
39977	Shieling-hut	242140	679300	Shieling
40146	Dam	242410	681280	Auchincarroch Muir Dams.
62628	Lime Kiln	242680	678640	In the upper reaches of Auchenreoch Glen, 210 metres ESE of the ruined farmstead of Auchenreoch, and enclosed within a small loop in the burn, are the remains of a lime kiln. The lime-kiln ruin appears very similar to others (located not far away, alongside the Murroch Burn) that are annotated as 'old limekiln' on the Ordnance Survey 1st-edition 6" map (1864), indicating that they fell into disuse before the mid-nineteenth century.

Appendix 12.3 - External Receptors within 5km of Proposed Development Area (Figure 12.2)

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
2911	Gallangad Burn, long cairn 790m NE of junction with Knockupple Burn	Scheduled Monument	2.1	10	High	Clearing in commercial forestry; east side of Gallangad Burn	Negligible	Low (localised)	Low	Minor
2329	Lang Cairn, chambered cairn and cairn, Gallangad Muir	Scheduled Monument	2.3	10	High	High, heather moorland adjoining north edge of commercial forestry	Moderate	Medium	Low	Minor
2281	Stockie Muir, long cairn 2000m NNW of Burncrooks Reservoir	Scheduled Monument	4.3	10	High	High, open heather moorland on east bank of Carnock Burn	High	High	Low	Minor
3385	Balloch Castle, earthwork, Loch Lomond Park	Scheduled Monument	4.9	10	High	Balloch Castle Designed Landscape. Semi wooded parkland setting on east shore of Loch Lomond	High	High (localised)	Imperceptible	Negligible
7974	Merkins, Building;	NSR code V	2.3	1	High	Pasture farmland	High	High (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
	Enclosure; Corn-drying Kiln					alongside small watercourse. Slight earthworks				
7977	Mill of Haldane, Mill	NSR code V	3.0	6	High	Low lying farmland to south-east of residential housing. In wooded location on south side of small watercourse	High	High (localised)	Imperceptible	Negligible
7979	Blairbeich Plantation, Cairn	NSR code V	3.0	10	High	Open wooded plantation in farmland location	Moderate	High (localised)	Imperceptible	Negligible
24907	Overtoun Hospital	Category A listed	3.2	1	High	Overtoun Designed Landscape; Parkland setting; views from front elevation to north-east	High	High	Low	Minor
823	Strathleven House, Dovecot	Category A listed	3.5	1	High	Small, wooded parkland location on	Moderate (localised)	High (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
						east bank of River Leven, close to Industrial Estate.				
115	Strathleven House	Category A listed	3.6	1	High	Small, wooded parkland location on east bank of River Leven, close to Industrial Estate. Main elevation faces south-east	Moderate (localised)	High (localised)	Imperceptible	Negligible
127	Alexandria, North Main Street, Argyll Motor Car Factory, Lodge	Category A listed	4.2	10	High	Alexandria town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
127	Alexandria, North Main Street, Argyll Motor Car Factory	Category A listed	4.2	10	High	Alexandria town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
1135	Alexandria, Gilmour Street, Masonic Hall	Category A listed	4.2	10	High	Alexandria town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
127	Alexandria, North Main Street, Argyll	Category A listed	4.2	10	High	Alexandria town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
	Motor Car Factory, House									
1176	Renton, Main Street, Millburn Church	Category A listed	4.2	10	High	Renton town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
1168	Renton, Main Street, Smollet Monument	Category A listed	4.4	10	High	Renton town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
123	Balloch Castle	Category A listed	4.9	10	High	Balloch Castle Designed Landscape. Parkland location. Main, front, elevation of Castle faces to south-east; screened views at ground level.	High	High	Imperceptible	Negligible
24877	Dumbarton, Station Road, Dumbarton Central Station	Category A listed	5.0	10	High	Dumbarton town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
43911	Auchenlarich	Category B listed	3.3	10	Medium	Rural, farmland location adjoining woodland plantation. Main	High (localised)	High (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
						elevations oriented south-east and north-west				
43911	Auchenlarich, Stables	Category B listed	3.3	10	Medium	Adjacent to Auchenlarich house	High (localised)	High (localised)	Imperceptible	Negligible
1137	Jamestown, Main Street, Jamestown Parish Church	Category B listed	3.5	8	Medium	Jamestown town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
43193	Alexandria, Bank Street, Vale Of Leven Bingo Club	Category B listed	3.6	1	Medium	Alexandria town centre	Moderate (localised)	High (localised)	Imperceptible	Negligible
1127	Westerton House, Walled Garden	Category B listed	3.6	10	Medium	Adjoining Westerton House	Moderate (localised)	High (localised)	Imperceptible	Negligible
1127	Westerton House	Category B listed	3.7	10	Medium	Rural farmland location in small wooded parkland setting	Moderate (localised)	High (localised)	Imperceptible	Negligible
824	Vale Of Leven Industrial Estate, Entrance	Category B listed	3.7	3	Medium	Small, wooded parkland location on east bank of River Leven,	Moderate (localised)	High (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
						entrance to Industrial Estate.				
1136	Alexandria, Main Street, St Andrew's Parish Church, Churchyard, Smollett Mausoleum	Category B listed	3.9	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
1136	Alexandria, Main Street, St Andrew's Parish Church, Churchyard	Category B listed	3.9	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
1136	Alexandria, Main Street, St Andrew's Parish Church	Category B listed	3.9	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
24913	Dumbarton, Stirling Road, Dumbarton Cemetery	Category B listed	3.9	5	Medium	Dumbarton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
1134	Alexandria, Main Street, Smollett Fountain	Category B listed	4.0	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43210	Alexandria, Main Street, St Mungo's Episcopal Church	Category B listed	4.1	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
1096	Alexandria,	Category B	4.1	10	Medium	Alexandria	Moderate	Medium	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
	Gilmour Street, Public Library	listed				town centre	(localised)	(localised)		
43210	Alexandria, Main Street, St Mungo's Episcopal Church, Hall	Category B listed	4.1	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43221	Balloch Castle, South Lodge	Category B listed	4.1	10	Medium	Balloch Castle Designed Landscape. Roadside location at southern entrance gates to Estate	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43203	Alexandria, North Main Street, Bellville	Category B listed	4.2	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43196	Alexandria, Christie Park, Lodge	Category B listed	4.2	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
24911	Overtoun Hospital, Overtoun West Lodge, Gate Piers	Category B listed	4.2	7	Medium	Overtoun Designed Landscape	High	High (localised)	Imperceptible	Negligible
24910	Overtoun Hospital, Overtoun West Lodge	Category B listed	4.2	4	Medium	Overtoun Designed Landscape	High	High (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
43204	Tullichewan Castle, Main Lodge	Category B listed	4.2	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43218	Balloch, Lomond Road, River Leven, Lomond Bridge	Category B listed	4.2	10	Medium	Balloch, urban location, over River Leven	High (localised)	High (localised)	Imperceptible	Negligible
43197	Alexandria, Christie Park, War Memorial	Category B listed	4.3	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43219	Balloch, Lomond Road, Fisherwood	Category B listed	4.3	10	Medium	Balloch, urban location	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
42920	Renton, Alexander Street, Church Of Scotland Trinity Church	Category B listed	4.3	10	Medium	Renton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
42928	Renton, 127 Main Street, Central Bar	Category B listed	4.3	10	Medium	Renton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43215	Balloch, Balloch Road, River Leven, Balloch Bridge	Category B listed	4.4	10	Medium	Balloch, urban location	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
42927	Renton, Main Street, War Memorial	Category B listed	4.4	10	Medium	Renton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43206	Alexandria, Vale Of Leven Cemetery, Gates	Category B listed	4.4	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
	And Gate Piers									
43206	Alexandria, Vale Of Leven Cemetery	Category B listed	4.5	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
7631	Ashfield House, Walled Garden	Category B listed	4.6	10	Medium	Adjoining Ashfield House	High (localised)	High (localised)	Imperceptible	Negligible
7631	Ashfield House	Category B listed	4.6	6	Medium	Roadside location (A811), facing south-east onto main road	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43206	Alexandria, Vale Of Leven Cemetery, Bridge	Category B listed	4.6	10	Medium	Alexandria town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
24868	Dumbarton, Bonhill Road, Cobalt House And 43 Bonhill Road	Category B listed	4.6	9	Medium	Dumbarton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43222	Balloch Castle, Walled Garden	Category B listed	4.6	10	Medium	Balloch Castle Designed landscape. Parkland setting	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
42921	Dalmoak House, North Gates And Gate Piers	Category B listed	4.8	10	Medium	At entrance driveway to Dalmoak House,	Moderate (localised)	Medium (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
						beside A812.				
91	Tullichewan Castle, North Lodge	Category B listed	4.9	10	Medium	Alongside A82 trunk road and modern housing	Low	Low	Imperceptible	Negligible
24915	Dumbarton, Strathleven Place, Drumoyne	Category B listed	5.0	10	Medium	Dumbarton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43230	Tullichewan Estate, Stables Cottage	Category B listed	5.0	10	Medium	Alongside A82 trunk road and modern housing	Low	Low	Imperceptible	Negligible
24914	Dumbarton, Strathleven Place, St Patrick's Roman Catholic Church	Category B listed	5.0	10	Medium	Dumbarton town centre	Moderate (localised)	Medium (localised)	Imperceptible	Negligible
43226	Jamestown, Main Street, Jamestown Primary School	Category C(S) listed	3.5	8	Low	Jamestown town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43232	Westerton House, Westerton Lodge	Category C(S) listed	3.5	10	Low	Roadside location at south-west entrance to Westerton House. Main elevation open views facing south-	High (localised)	Medium (localised)	Low	Minor

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
						east				
43195	Alexandria, Bridge Street, Vale Of Leven Baptist Church	Category C(S) listed	3.7	5	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
24909	Overtoun Hospital, South Drive, Lodge	Category C(S) listed	3.7	3	Low	Overtoun Designed Landscape. Southern entrance to Parkland	High (localised)	Medium (localised)	Imperceptible	Negligible
43192	Alexandria, Bank Street, Post Office	Category C(S) listed	3.7	6	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43194	Alexandria, Bank Street, Vale Of Leven Constitutional Club	Category C(S) listed	3.8	7	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43216	Balloch, Drymen Road, The Cottage	Category C(S) listed	3.9	10	Low	Balloch, urban location	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43191	Alexandria, Albert Street, Alexandria Methodist Church	Category C(S) listed	3.9	9	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43201	Alexandria, 252 Main Street	Category C(S) listed	4.0	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43198	Alexandria, 304 Main Street, Ardenlee	Category C(S) listed	4.0	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
43200	Alexandria, 127-133 Main Street, Bank Of Scotland	Category C(S) listed	4.0	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43199	Alexandria, 308 Main Street, Niagra	Category C(S) listed	4.0	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43202	Alexandria, 354 Main Street	Category C(S) listed	4.1	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43212	Alexandria, Upper Smollett Street, Alexandria House	Category C(S) listed	4.2	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43205	Alexandria, Overton Road, Manse	Category C(S) listed	4.2	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
6610	Alexandria, Middleton Street, Vale Of Leven Academy	Category C(S) listed	4.3	10	Low	Alexandria town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
42926	Renton, Main Street, Sullivan's Bar	Category C(S) listed	4.3	10	Low	Renton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
42924	Renton, Main Street, Argyle Cottage	Category C(S) listed	4.3	10	Low	Renton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
42929	Renton, 20, 22 Main Street	Category C(S) listed	4.4	10	Low	Renton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
42929	Renton, 18 Main Street	Category C(S) listed	4.4	10	Low	Renton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43217	Balloch, Balloch	Category	4.4	10	Low	Balloch,	Moderate	Low	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
	Road, Tullichewan Hotel	C(S) listed				urban location	(localised)	(localised)		
42925	Renton, Main Street, Public Library	Category C(S) listed	4.5	10	Low	Renton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43916	Caldarvan House	Category C(S) listed	4.5	10	Low	Rural farmland location adjacent to small woodland. Main elevations face north-west and south-east	Moderate (localised)	Low (localised)	Imperceptible	Negligible
24912	Dumbarton, 16-18 Round Riding Road, Greenfield	Category C(S) listed	4.5	9	Low	Dumbarton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
43220	Balloch Castle, North Lodge	Category C(S) listed	4.5	10	Low	Balloch Castle Designed Landscape. Roadside location at eastern entrance to Estate.	High (localised)	Medium (localised)	Imperceptible	Negligible
24903	Dumbarton, Latta Street, Hartfield House	Category C(S) listed	4.7	9	Low	Dumbarton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible

Ref No	Site Name	Status	Distance to nearest turbine	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor	Setting	Contribution of Setting	Sensitivity of Setting	Impact Magnitude	Significance of Predicted Effect
24884	Dumbarton, 209 Glasgow Road	Category C(S) listed	4.9	10	Low	Dumbarton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
24884	Dumbarton, 207 Glasgow Road	Category C(S) listed	4.9	10	Low	Dumbarton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
24884	Dumbarton, 205 Glasgow Road	Category C(S) listed	4.9	10	Low	Dumbarton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
24883	Dumbarton, 67, 69 Glasgow Road, District Council Offices	Category C(S) listed	5.0	10	Low	Dumbarton town centre	Moderate (localised)	Low (localised)	Imperceptible	Negligible
	Balloch Castle	Inventory GDL	4.9	10	High	South end of Loch Lomond north of Balloch. Lochside location and views across loch.	High (localised)	High (localised)	Imperceptible	Negligible
	Overtoun	Inventory GDL	3.5	9	High	Rural location on outskirts of Dumbarton. Burnside location and views southwards to River Clyde	Moderate (localised)	High (localised)	Imperceptible	Negligible

Appendix 12.4 - External Receptors between 5km and 15km of Proposed Development Area (Figure 12.2)

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
9654	St Serfs Church, Dumbarton	Scheduled Monument	5.7	10	High
90107	Dumbarton Castle	Scheduled Monument	5.8	10	High
717	Carman, fort, Renton	Scheduled Monument	5.8	10	High
2568	High Finnich, mound 640m S of	Scheduled Monument	6.2	10	High
6341	Cameron Home Farm, chambered cairn 720m S of	Scheduled Monument	6.3	10	High
3011	Cameron Home Farm, cairn 360m SW of	Scheduled Monument	6.6	10	High
2553	Knockinhaglish, church & cashel	Scheduled Monument	6.7	10	High
4326	Bishopton, aqueduct NW of	Scheduled Monument	6.8	5	High
1652	Whitemoss Roman fort	Scheduled Monument	7.3	10	High
5275	Kilmaronock Castle	Scheduled Monument	7.5	10	High
3312	Catter Law, motte	Scheduled Monument	7.6	3	High
6576	Inchmurrin Castle, castle and kiln-barn	Scheduled Monument	8.4	9	High
7037	Drumquhassle, Roman fort & annexe 300m NNW of Easter Drumquhassle	Scheduled Monument	8.5	10	High
6998	Gartfairn, enclosure 100m WNW of	Scheduled Monument	9.8	10	High
6999	Loch Lomond, crannog, The Kitchen	Scheduled Monument	10.0	10	High
3318	Barochan Hill, Roman fort	Scheduled Monument	10.4	10	High
90230	Newark Castle	Scheduled Monument	11.3	10	High
4379	Craigmarloch Wood, fort	Scheduled Monument	11.4	10	High
5271	Rossdhu Castle	Scheduled Monument	11.6	10	High
5274	Rossdhu Chapel	Scheduled Monument	11.7	10	High
6997	Arrochymore, dun 350m WNW of	Scheduled Monument	11.8	10	High
3913	Houston, North Mound, cairn 400m NW of Houston	Scheduled Monument	12.2	10	High
2388	Houston, market cross	Scheduled Monument	12.6	10	High
2973	Ballindalloch House, sundial	Scheduled Monument	13.1	10	High
4510	Strathcashell Point, crannog	Scheduled Monument	13.3	10	High
1755	Strathcashell Point, cashel	Scheduled Monument	13.4	10	High
1749	Craigmaddie Castle	Scheduled Monument	14.0	3	High
2239	Woodend, motte	Scheduled Monument	14.4	10	High
7957	Black Hill, Cairn	NSR code C	6.7	10	High
7061	Cameron Home Farm, Chambered Cairn	NSR code V	6.3	10	High

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
46721	Drumkinnon Bay, Balloch Pier, Slipway And Engine House	Category A listed	5.1	10	High
1125	Balloch, Luss Road, Hamilton House	Category A listed	5.1	10	High
24873	Dumbarton, Castle Street, Ship Model Experiment Tank	Category A listed	5.2	10	High
45600	Dalmoak House	Category A listed	5.2	10	High
24874	Dumbarton, Church Street, Burgh Hall	Category A listed	5.3	10	High
24890	Dumbarton, High Street, St Augustine's Episcopal Church, Hall	Category A listed	5.3	10	High
24890	Dumbarton, High Street, St Augustine's Episcopal Church	Category A listed	5.3	10	High
24885	Dumbarton, High Street, Riverside Parish Church	Category A listed	5.3	10	High
24916	Dumbarton, Helenslee Road, Levenford House	Category A listed	5.7	10	High
24880	Dumbarton Castle	Category A listed	5.8	10	High
43871	Auchendennan Castle, Fountain	Category A listed	7.0	10	High
43871	Auchendennan Castle	Category A listed	7.1	10	High
13641	Finlaystone House	Category A listed	8.7	10	High
40078	Port Glasgow, Broadfield Hospital	Category A listed	9.9	10	High
10389	Killearn, Buchanan Monument	Category A listed	10.2	10	High
40088	Port Glasgow, 2 Parkhill Avenue, Holy Family Roman Catholic Church And Presbytery	Category A listed	10.6	10	High
10422	Killearn, Auchenibert	Category A listed	10.8	10	High
40069	Newark Castle	Category A listed	11.3	10	High
14469	Rossdhu House, Walled Garden	Category A listed	11.5	9	High
14469	Rossdhu House	Category A listed	11.6	9	High
40067	Port Glasgow, Gourrock Ropeworks	Category A listed	11.6	10	High
40071	Port Glasgow, Fore Street, Town Buildings	Category A listed	11.8	10	High
12695	Houston Parish Church	Category A listed	12.4	10	High
34172	Greenock, East Hamilton Street, James Watt Dock, Sugar Warehouse	Category A listed	13.7	10	High
34175	Greenock, James Watt Dock, Cantilever Crane	Category A listed	13.9	10	High
24881	Dumbarton, Church Street, Municipal Buildings	Category B listed	5.1	10	Medium
24876	Dumbarton, Church Street, Municipal Buildings, College Bow	Category B listed	5.1	10	Medium
24882	Dumbarton, Church Street, Municipal Buildings, Peter Denny Statue	Category B listed	5.1	10	Medium
43229	Lower Stoneydollan Road, Drumkinnon Farm, Mill, Granary	Category B listed	5.1	10	Medium

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
	& Sawmill				
24906	Dumbarton, Maclean Place, Dumbarton Old Prison, Former Gateway	Category B listed	5.2	10	Medium
4903	Balloch, Lower Stonymollan Road, Drumkinnon Farm	Category B listed	5.2	10	Medium
24875	Dumbarton, Church Street, Sheriff Court	Category B listed	5.2	10	Medium
1163	Dalmoak House, Mains Lodge	Category B listed	5.2	10	Medium
1161	Dalmoak House, Stable Courtyard, Se Range	Category B listed	5.2	10	Medium
1161	Dalmoak House, Stable Court Yard, N Range, End Block	Category B listed	5.2	10	Medium
1161	Dalmoak House, Stable Courtyard, N Range, Centre Block	Category B listed	5.2	10	Medium
1161	Dalmoak House, Stable Courtyard, W Range	Category B listed	5.2	10	Medium
1161	Dalmoak House, Walled Garden	Category B listed	5.3	10	Medium
4904	Cameron House, Lodge	Category B listed	5.4	10	Medium
24886	Dumbarton, 17-19 High Street, Bank Of Scotland	Category B listed	5.4	10	Medium
24888	Dumbarton, 127 High Street	Category B listed	5.5	10	Medium
24887	Dumbarton, High Street, Glencairn Tenement	Category B listed	5.5	10	Medium
50122	King's Way, Dalreoch Primary School	Category B listed	5.5	10	Medium
24888	Dumbarton, 129, 131 High Street	Category B listed	5.5	10	Medium
24888	Dumbarton, 133, 135 High Street	Category B listed	5.5	10	Medium
24889	Dumbarton, 143-147 High Street, Bell Leisure Centre	Category B listed	5.5	10	Medium
24879	Dumbarton, Bridge Street, River Leven, Dumbarton Bridge	Category B listed	5.5	10	Medium
24871	Dumbarton, Cardross Road, St Michael's Roman Catholic Church	Category B listed	5.5	10	Medium
24920	Dumbarton, West Bridgend, Bridgend Church	Category B listed	5.6	10	Medium
24919	Dumbarton, West Bridgend, Bridgend Church Hall	Category B listed	5.6	10	Medium
24917	Dumbarton, Helenslee Road, Levenford House, Gateway And Garden Walls	Category B listed	5.6	10	Medium
24869	Dumbarton, 20 Cardross Road, Braehead Cottages	Category B listed	5.7	10	Medium
24869	Dumbarton, 22 Cardross Road, Braehead Cottages	Category B listed	5.7	10	Medium
24918	Dumbarton, Helenslee Road, Levenford House, Stable	Category B listed	5.7	10	Medium
24918	Dumbarton, Helenslee Road, Levenford House, Lodge, Linking Bay To Stable	Category B listed	5.7	10	Medium
24918	Dumbarton, Helenslee Road, Levenford House, Lodge	Category B listed	5.7	10	Medium
24904	Dumbarton, Levensgrove Park, Lodge	Category B listed	5.8	10	Medium
43924	Tullochan, Tullochan Farmhouse	Category B listed	5.9	10	Medium

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
24897	Dumbarton, Kirktonhill, Helenslee Road, Keil School, Technical Block	Category B listed	5.9	10	Medium
24898	Dumbarton, Kirktonhill, Helenslee Road, Keil School, Lodge	Category B listed	5.9	10	Medium
24894	Dumbarton, 10 Dixon Drive	Category B listed	6.0	10	Medium
24894	Dumbarton, 12 Dixon Drive	Category B listed	6.0	10	Medium
43920	Gartocharn, Church Road, Gartocharn Church	Category B listed	6.0	10	Medium
24900	Dumbarton, Helenslee Road, Carmelite Monastery	Category B listed	6.0	10	Medium
24901	Dumbarton, 38 Helenslee Road, Methlan Park House	Category B listed	6.1	9	Medium
7627	Boturich Castle	Category B listed	6.1	10	Medium
24899	Dumbarton, Kirktonhill, Helenslee Road, Keil School, Statue Of William Mackinnon	Category B listed	6.1	10	Medium
24896	Dumbarton, Kirktonhill, Helenslee Road, Keil School	Category B listed	6.2	10	Medium
24870	Dumbarton, Cardross Road, Convent Of Notre Dame	Category B listed	6.2	10	Medium
1121	Cameron House Hotel And Country Estate	Category B listed	6.3	10	Medium
6571	Finnich Malise, Steading And Stable Block	Category B listed	6.4	10	Medium
6574	Finnich Malise, Walled Garden	Category B listed	6.4	10	Medium
6570	Finnich Malise	Category B listed	6.5	10	Medium
1122	Cameron House, Lodge	Category B listed	6.5	10	Medium
10901	Old Bishopton	Category B listed	6.8	6	Medium
7626	Ross Priory, Lodge	Category B listed	6.8	7	Medium
43914	Buchanan Old House, South Avenue, Gargowan Lodge, Gates And Gate Piers	Category B listed	7.1	10	Medium
43872	Auchendennan House, Auchendennan Stables, East Range	Category B listed	7.2	10	Medium
7621	Kilmaronock Church, Churchyard With Cross-Slab	Category B listed	7.2	10	Medium
43872	Auchendennan House, Auchendennan Stables, North Range	Category B listed	7.2	10	Medium
43872	Auchendennan House, Auchendennan Stables, West Range	Category B listed	7.2	10	Medium
7621	Kilmaronock Church	Category B listed	7.2	10	Medium
43872	Auchendennan House, Clock House, Eastern Range	Category B listed	7.2	10	Medium
43872	Auchendennan House, Clock House, Southern Range	Category B listed	7.3	10	Medium
43872	Auchendennan House, Clock House	Category B listed	7.3	10	Medium
49000	Dalnair House	Category B listed	7.3	1	Medium
43880	Loch Lomond, Lomond Castle Hotel, Lodge And Gatepiers	Category B listed	7.4	10	Medium
7623	Kilmaronock Castle	Category B listed	7.5	10	Medium

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
43921	Kilmaronock House	Category B listed	7.5	10	Medium
43879	Loch Lomond, Loch Lomond Castle Hotel	Category B listed	7.6	10	Medium
13630	Langbank, Middlepenny Road, St Vincent's College	Category B listed	7.8	10	Medium
43868	Arden House, South Lodge, Gate Piers	Category B listed	7.8	10	Medium
13631	Langbank, Middlepenny Road, St Vincent's College, Chapel	Category B listed	7.9	10	Medium
3900	Drymen Bridge	Category B listed	7.9	1	Medium
43479	Langbank, Main Street, 1 Woodside Cottages	Category B listed	7.9	10	Medium
43479	Langbank, Main Street, 2 Woodside Cottages	Category B listed	7.9	10	Medium
43479	Langbank, Main Street, 3 Woodside Cottages	Category B listed	7.9	10	Medium
43479	Langbank, Main Street, 4 Woodside Cottages	Category B listed	7.9	10	Medium
3903	Park Of Drumquhassle, Sundial	Category B listed	7.9	10	Medium
43867	Arden House	Category B listed	8.1	10	Medium
3902	Park Of Drumquhassle, Dovecot	Category B listed	8.1	10	Medium
10907	Finlaystone House, East Lodge	Category B listed	8.1	10	Medium
43912	Buchanan Castle, South Avenue, Endrick Water, Bridge	Category B listed	8.1	10	Medium
3899	Buchanan Castle, East Lodge And Gate Piers	Category B listed	8.2	10	Medium
43867	Arden House, Stables	Category B listed	8.2	10	Medium
43867	Arden House, The Gardener's Cottage And Walled Garden	Category B listed	8.2	10	Medium
10906	Gleddoch House Hotel	Category B listed	8.3	10	Medium
43869	Arden House, North Lodge And Gate Piers	Category B listed	8.3	10	Medium
7624	Loch Lomond, Inchmurrin, Castle	Category B listed	8.4	9	Medium
3911	Drymen, Main Street, Drymen Parish Church And Churchyard	Category B listed	8.5	10	Medium
4045	Buchanan Castle	Category B listed	8.6	10	Medium
50454	Buchanan Castle Estate, Well House, Ns45869/88850	Category B listed	8.7	10	Medium
4084	Buchanan Castle, Stables	Category B listed	8.7	10	Medium
43993	Rosbank Farm	Category B listed	9.0	10	Medium
43993	Rosbank Farm, Farmsteading, South East Range	Category B listed	9.0	10	Medium
43993	Rosbank Farm, Farmsteading, North East Range	Category B listed	9.0	10	Medium
43993	Rosbank Farm, Farmsteading, South West Range	Category B listed	9.0	10	Medium
43993	Rosbank Farm, Farmsteading, North West Range	Category B listed	9.0	10	Medium
4088	Buchanan Estate, High Mains	Category B listed	9.2	10	Medium
43975	Fruin Water, Low Bridge	Category B listed	9.3	10	Medium

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
40079	Port Glasgow, Old Greenock Road, Parkhill Farmhouse	Category B listed	9.5	10	Medium
4081	Milton Of Buchanan, School House	Category B listed	9.9	10	Medium
4079	Milton Farmhouse	Category B listed	9.9	10	Medium
4038	Milton Of Buchanan, Buchanan Parish Church And Churchyard	Category B listed	10.0	10	Medium
10908	Dargavel House	Category B listed	10.0	1	Medium
51140	Lette Byewash And Access Chamber With Boundary Wall, Railings And Gates (Former Glasgow Corporation Water Works)	Category B listed	10.1	10	Medium
4043	Coldrach	Category B listed	10.1	10	Medium
10387	Killearn, Old Parish Church And Graveyard	Category B listed	10.1	10	Medium
10388	Killearn, The Old Manse	Category B listed	10.2	10	Medium
10390	Killearn, 5 The Square	Category B listed	10.2	10	Medium
10390	Killearn, 7 The Square	Category B listed	10.2	10	Medium
10390	Killearn, 9 The Square, Knowehead	Category B listed	10.2	10	Medium
45662	Killearn, Balfron Road, Parish Church	Category B listed	10.2	10	Medium
4091	Manse Of Buchanan, Shelloch	Category B listed	10.3	10	Medium
51139	Killearn Aqueduct Bridge (Former Glasgow Corporation Water Works)	Category B listed	10.3	10	Medium
10386	Killearn, Balfron Road, Village Hall	Category B listed	10.3	10	Medium
10391	Killearn, Balfron Road, Tollhouse	Category B listed	10.3	10	Medium
43988	Muirland School	Category B listed	10.6	10	Medium
43995	Rossdhu, Garden House' Steading	Category B listed	10.6	10	Medium
12462	Kilmacolm, Cloak Road, Cloak	Category B listed	10.7	10	Medium
43997	Rossdhu, Walled Garden	Category B listed	10.8	10	Medium
50450	Auchmar, Outbuildings	Category B listed	10.9	10	Medium
50450	Auchmar	Category B listed	10.9	10	Medium
50450	Auchmar, Gates, Gatepiers And Wing Walls	Category B listed	11.0	10	Medium
14455	Rossdhu, Ross Lodge	Category B listed	11.0	10	Medium
10427	Drumtian Farm, West Barn	Category B listed	11.2	10	Medium
10427	Drumtian Farm, East Barn	Category B listed	11.2	10	Medium
10395	Killearn, Carbeth House	Category B listed	11.2	10	Medium
1159	Cardross, Ardmore House	Category B listed	11.3	5	Medium
40072	Port Glasgow, Robert Street, Clune Park Church Of Scotland	Category B listed	11.3	10	Medium

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
40073	Port Glasgow, Robert Street, Clune Park Primary School	Category B listed	11.3	10	Medium
1159	Ardmore House, Observation Tower	Category B listed	11.4	4	Medium
40077	Port Glasgow, 6 - 8 Newark Street	Category B listed	11.5	10	Medium
14448	Rossdhu Castle	Category B listed	11.6	10	Medium
48993	Balfunning House	Category B listed	11.6	10	Medium
14449	Rossdhu, St Mary's Chapel	Category B listed	11.7	9	Medium
43994	Rossdhu, Stables And Coach House	Category B listed	11.7	10	Medium
14452	Rossdhu, Laundry	Category B listed	11.7	10	Medium
40086	Port Glasgow, West Quay, Lighthouse	Category B listed	11.7	10	Medium
40084	Port Glasgow, Harbour, West Quay	Category B listed	11.8	10	Medium
43998	Shemore, Farmsteading, South East Range	Category B listed	11.8	10	Medium
43998	Shemore	Category B listed	11.8	10	Medium
43998	Shemore, Farmsteading, North East Range	Category B listed	11.8	10	Medium
43998	Shemore, Farmsteading, South West Range	Category B listed	11.9	10	Medium
43998	Shemore, Farmsteading, West Range	Category B listed	11.9	10	Medium
43998	Shemore, Farmsteading, North West Range	Category B listed	11.9	10	Medium
40085	Port Glasgow, Leading Light On West Quay	Category B listed	11.9	10	Medium
40076	Port Glasgow, 9 -11 King Street, King George Vi Club	Category B listed	11.9	10	Medium
3913	Craigievern	Category B listed	11.9	10	Medium
12696	Houston, St Peter's Well	Category B listed	12.0	10	Medium
40081	Port Glasgow, 49 Princes Street And 65 Church Street, Royal Bank Of Scotland	Category B listed	12.0	10	Medium
40070	Port Glasgow, Church Street, St Andrews Church	Category B listed	12.0	10	Medium
14454	Rossdhu, North Lodge	Category B listed	12.1	10	Medium
40074	Port Glasgow, Glen Avenue, Newark Parish Church	Category B listed	12.2	10	Medium
40068	Port Glasgow, Brown Street, West Church Of Scotland	Category B listed	12.3	10	Medium
40075	Port Glasgow, Jean Street, Jean Street School	Category B listed	12.3	10	Medium
12694	Houston Parish Church And Churchyard	Category B listed	12.4	10	Medium
13836	Houston, North Street, Houston Cottage	Category B listed	12.4	10	Medium
12697	Houston, South Street, Mercat Cross	Category B listed	12.6	10	Medium
12681	Houston, South Street, Fox And Hounds Inn	Category B listed	12.6	10	Medium
12692	Houston, Houston Road, Woodend	Category B listed	12.7	10	Medium
12690	Houston, Ardgyfe House	Category B listed	12.7	6	Medium

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
12680	Houston, South Street, Lamorna	Category B listed	12.7	10	Medium
12699	Houston, South Street, Kilmory	Category B listed	12.7	10	Medium
43959	Bandry Cottages	Category B listed	12.7	10	Medium
12687	Houston, Main Street, Barrfield	Category B listed	12.7	10	Medium
12682	Houston, Main Street, St Fillan's Presbytery	Category B listed	12.9	10	Medium
12682	Houston, Fourwindings, St Fillan's R.C. Church And School	Category B listed	12.9	10	Medium
4201	Ballindalloch, Sundial	Category B listed	13.1	10	Medium
9867	Houston, Main Street, Primary School	Category B listed	13.1	2	Medium
14459	Luss, Low Aldochlay, Braeside Cottage	Category B listed	13.2	10	Medium
49667	Balfron, Printers Row, Endrick Cottage	Category B listed	13.2	6	Medium
43969	Luss, High Aldochlay, South Cottage	Category B listed	13.3	10	Medium
43969	Luss, High Aldochlay, North Cottage	Category B listed	13.3	10	Medium
49972	Kilmacolm, Balrossie School, Annex	Category B listed	13.4	10	Medium
49972	Kilmacolm, Balrossie School	Category B listed	13.4	10	Medium
49972	Kilmacolm, Balrossie School, Ancillary Building	Category B listed	13.5	10	Medium
49972	Kilmacolm, Balrossie School, Ornamental Outbuilding	Category B listed	13.5	10	Medium
4169	Balfron, 1-4 Station Road, The Old Manse	Category B listed	13.6	10	Medium
4205	Gaisland, Outbuilding Adjoining To Sw	Category B listed	14.0	10	Medium
4205	Gaisland	Category B listed	14.0	10	Medium
4205	Gaisland, Outbuilding Adjoining To Ne	Category B listed	14.0	10	Medium
45856	Balfron, Dunmore Road, Mansefield	Category B listed	14.0	10	Medium
5727	Craigmaddie Castle	Category B listed	14.0	3	Medium
4168	Balfron, Orchardlands	Category B listed	14.1	10	Medium
4166	Balfron, Kepculloch Road, Balfron Parish Church And Churchyard	Category B listed	14.2	10	Medium
14425	Luss, Holly Cottage	Category B listed	14.6	2	Medium
19700	Luss, Millburn Mill Cottage	Category B listed	14.6	10	Medium
19700	Luss, Millburn Mill	Category B listed	14.6	10	Medium
50543	Leven Street, United Reform Church	Category C(S) listed	5.1	10	Low
24878	Dumbarton, 1 Station Road, Public House	Category C(S) listed	5.1	10	Low
24878	Dumbarton, 2 Station Road	Category C(S) listed	5.1	10	Low
1124	Cameron House, Drumkinnon Cottage	Category C(S) listed	5.3	10	Low
24872	Dumbarton, Castle Street, Napier Mausoleum	Category C(S) listed	5.3	10	Low

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
43917	Duncryne House	Category C(S) listed	5.4	10	Low
24895	Dumbarton, Helenslee Road, Bridge	Category C(S) listed	5.7	10	Low
46543	Gartocharn, Chimes Cottage	Category C(S) listed	5.7	10	Low
48989	Aucheneck House	Category C(S) listed	5.8	10	Low
43919	Gartocharn, United Free Church Manse	Category C(S) listed	5.8	10	Low
24892	Dumbarton, 2 Dixon Drive	Category C(S) listed	5.9	10	Low
24892	Dumbarton, 4 Dixon Drive	Category C(S) listed	5.9	10	Low
24893	Dumbarton, 6 Dixon Drive	Category C(S) listed	6.0	10	Low
24893	Dumbarton, 8 Dixon Drive	Category C(S) listed	6.0	10	Low
24893	Dumbarton, 8 Dixon Drive, Conservatory	Category C(S) listed	6.0	10	Low
24902	Dumbarton, Methlan Park House, Lodge And Gates	Category C(S) listed	6.0	10	Low
24905	Dumbarton, Levingrove Park, War Memorial	Category C(S) listed	6.1	10	Low
24891	Dumbarton, 15 Dixon Drive, Shamrockbank	Category C(S) listed	6.1	1	Low
6573	Finnich Malsie, Wash House	Category C(S) listed	6.5	9	Low
50280	Cameron House, North Lodge With Boundary Wall, Gates, Gatepiers And Railings	Category C(S) listed	6.5	10	Low
48990	Aucheneck House, Entrance Gateway	Category C(S) listed	6.8	3	Low
43877	Bonhill, Duck Bay, Watersedge Cottage	Category C(S) listed	6.9	10	Low
43913	Buchanan Old House, South Avenue, Gargowan Lodge	Category C(S) listed	7.1	10	Low
7622	Kilmaronock Manse	Category C(S) listed	7.2	1	Low
1158	Ardoch Gardens	Category C(S) listed	7.5	10	Low
43906	Catter House, Walled Garden	Category C(S) listed	7.5	7	Low
43881	Loch Lomond, Loch Lomond Castle Hotel, Walled Garden With Greenhouse	Category C(S) listed	7.8	10	Low
12376	Bishopton, Newton Road, Church Centre	Category C(S) listed	7.9	2	Low
13629	Langbank, Middlepenny Road, St Vincent's College, Lodge	Category C(S) listed	7.9	10	Low
3901	Park Of Drumquhassle	Category C(S) listed	7.9	10	Low
43870	Arden Policies, Old Burial Ground	Category C(S) listed	8.0	10	Low
43878	Lomond Castle Estate, Auchendennan Cottage	Category C(S) listed	8.0	10	Low
43915	Buchanan Old House, South Avenue, Woodend Lodge	Category C(S) listed	8.1	10	Low
48985	Drymen, Strathendrick Golf Course, Golf Club House	Category C(S) listed	8.2	10	Low
48981	Drymen, Main Street, Drymen Parish Church And Churchyard, Manse	Category C(S) listed	8.3	10	Low

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
43961	Burnfoot Farm	Category C(S) listed	8.4	10	Low
50456	Buchanan Castle Estate, Bridge (2) Over Mill Burn, Ns 46567/88438	Category C(S) listed	8.5	10	Low
3898	Buchanan Home Farm	Category C(S) listed	8.5	10	Low
3898	Buchanan Home Farm, Pavilion Adjoining Farmhouse To E	Category C(S) listed	8.5	10	Low
3898	Buchanan Home Farm, Pavilion Adjoining Farmhouse To W	Category C(S) listed	8.5	10	Low
50457	Buchanan Castle Estate, Bridge Over Doghouse Burn, Ns 45308/88798	Category C(S) listed	8.5	10	Low
3898	Buchanan Home Farm, Steading Adjoining Farmhouse To Ne	Category C(S) listed	8.5	10	Low
3898	Buchanan Home Farm, Steading Adjoining Farmhouse To Nw	Category C(S) listed	8.6	10	Low
3898	Buchanan Home Farm, Pavilion Block To E Of Central Steading	Category C(S) listed	8.6	10	Low
3898	Buchanan Home Farm, Pavilion Block To W Of Central Steading	Category C(S) listed	8.6	10	Low
50455	Buchanan Castle Estate, Bridge (1) Over Mill Burn, Ns46731/88495	Category C(S) listed	8.6	10	Low
4083	Buchanan Castle, Buchanan Old House	Category C(S) listed	8.6	10	Low
48980	Drymen, 27 Main Street	Category C(S) listed	8.7	10	Low
43989	Nether Ross Farmhouse	Category C(S) listed	8.9	10	Low
4087	Boquhan Hill, Doghouse Burn, Duchess' Bridge	Category C(S) listed	8.9	10	Low
48982	Drymen, Main Street, War Memorial	Category C(S) listed	8.9	10	Low
50458	Buchanan Castle Estate, Bridge	Category C(S) listed	8.9	10	Low
4085	Buchanan Castle, Ice House	Category C(S) listed	9.0	10	Low
50458	Buchanan Castle Estate, Bridge	Category C(S) listed	9.0	10	Low
50458	Buchanan Castle Estate, Bridge	Category C(S) listed	9.0	10	Low
50458	Buchanan Castle Estate, Summerhouse	Category C(S) listed	9.0	10	Low
48979	Balmaha Road, Bridge Over Mill Burn	Category C(S) listed	9.1	10	Low
48983	Drymen, Stirling Road, Hall	Category C(S) listed	9.1	10	Low
4086	Buchanan Smithy, No 1	Category C(S) listed	9.4	10	Low
4086	Buchanan Smithy, No 6, Smithy	Category C(S) listed	9.4	10	Low
43960	Boiden, Farmsteading, East Range	Category C(S) listed	9.5	10	Low
43960	Boiden	Category C(S) listed	9.5	10	Low
43960	Boiden, Farmsteading, West Range	Category C(S) listed	9.5	10	Low

Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
4089	Stuc-An-T-Sagairt	Category C(S) listed	9.6	10	Low
43958	Auchentullich Namoin	Category C(S) listed	9.7	10	Low
43958	Auchentullich Namoin, Farmsteading, South Range	Category C(S) listed	9.7	10	Low
43958	Auchentullich Namoin, Farmsteading, Northern Range	Category C(S) listed	9.7	10	Low
43958	Auchentullich Namoin, Farmsteading, Western Range	Category C(S) listed	9.7	10	Low
48267	Killearn, Drumbeg Loan, Drumwhirn	Category C(S) listed	9.8	9	Low
4082	Milton Of Buchanan, Buchanan Mill	Category C(S) listed	10.0	10	Low
4080	Milton Farm, West Most Cottage	Category C(S) listed	10.0	10	Low
4080	Milton Farm, East Most Cottage	Category C(S) listed	10.0	10	Low
50462	Milton Of Buchanan, Creityhall	Category C(S) listed	10.4	10	Low
49095	Killearn, 15 Balfron Road, Former Free Church Manse	Category C(S) listed	10.4	10	Low
43999	Luss, Muirfield, Springbank Cottage	Category C(S) listed	10.5	10	Low
43964	Cross Keys	Category C(S) listed	10.5	10	Low
43987	Muirland Cottage	Category C(S) listed	10.5	10	Low
50451	Balmaha, Nos 1, 2, And 3 Montrose House (Formerly Known As Montrose Home)	Category C(S) listed	10.6	10	Low
43996	Rossdhu, Garden House	Category C(S) listed	10.6	10	Low
43966	Duchlage	Category C(S) listed	10.6	10	Low
43967	Gallowhill	Category C(S) listed	10.9	10	Low
42896	Cardross, Ardmore House, Stables	Category C(S) listed	11.2	4	Low
48999	Clachanry	Category C(S) listed	11.2	10	Low
48996	Balfunning House, Lodge	Category C(S) listed	11.6	10	Low
48995	Balfunning House, Former Stable Block	Category C(S) listed	11.6	10	Low
14450	Rossdhu, Ice House	Category C(S) listed	11.7	9	Low
40087	Port Glasgow, West Quay, Warehouses	Category C(S) listed	11.8	10	Low
43970	Inchgalbraith Castle	Category C(S) listed	11.8	7	Low
48994	Balfunning House, East Lodge And Gateway	Category C(S) listed	11.8	10	Low
43991	Port Of Rossdhu, Mill	Category C(S) listed	11.9	10	Low
43990	Port Of Rossdhu, Mill Bridge	Category C(S) listed	11.9	10	Low
50127	Jean Street, Railway Bridge, Bridge Gou/29	Category C(S) listed	12.3	10	Low
13837	Houston, South Street, Cochrane's Place	Category C(S) listed	12.6	10	Low
46409	Port Glasgow, Glenpark Drive, Glenpark House	Category C(S) listed	12.6	9	Low
12686	Houston, South Street, Shoreston	Category C(S) listed	12.7	10	Low

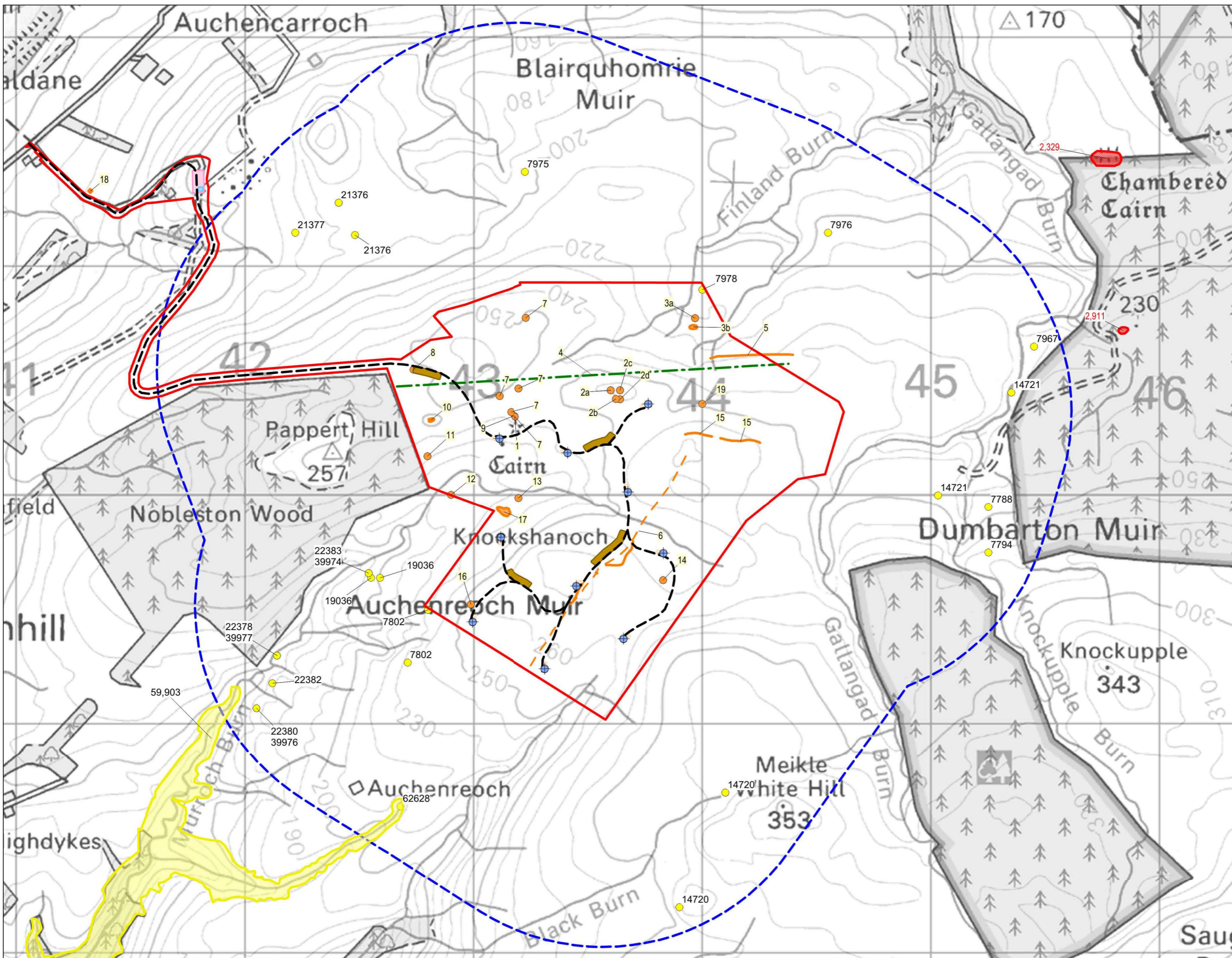
Ref No	Site Name	Status	Distance to nearest turbine (km)	No of turbines visible (blade tip ZTV)	Sensitivity of Receptor
12685	Houston, South Street, Rowantree	Category C(S) listed	12.7	10	Low
12691	Houston, Ardgyfe House, Lodge	Category C(S) listed	12.7	6	Low
49012	Ballindalloch, Walled Garden	Category C(S) listed	13.0	10	Low
43973	Luss, Low Aldochlay, Cottages	Category C(S) listed	13.1	10	Low
43971	Luss, Low Aldochlay, Rose Cottage	Category C(S) listed	13.2	10	Low
43972	Luss, Low Aldochlay, Rowanbank Cottage	Category C(S) listed	13.2	10	Low
49010	Ballindalloch, Old Stables	Category C(S) listed	13.2	10	Low
49017	Balfron, 1-4 Station Road, The Old Manse, Walled Garden	Category C(S) listed	13.6	10	Low
49007	Balfron, Buchanan Street, Mile Post	Category C(S) listed	13.8	10	Low
49006	Balfron, Banker's Brae, Pirn Inn	Category C(S) listed	13.9	10	Low
4167	Balfron, The Clachan, Clachan House	Category C(S) listed	14.1	10	Low
49009	Balfron, The Clachan, Drinking Fountain	Category C(S) listed	14.1	10	Low
43968	Luss, Halfton Cottage	Category C(S) listed	14.2	10	Low
14447	Luss, Alderdale	Category C(S) listed	14.6	2	Low
43978	Luss, Colquhoun Arms Hotel	Category C(S) listed	14.6	10	Low
	Balfron - North	Conservation Area	14.0	10	Medium
	Balfron - South	Conservation Area	13.5	10	Medium
	Drymen	Conservation Area	8.9	10	Medium
	Houston	Conservation Area	12.6	10	Medium
	Killearn	Conservation Area	10.3	10	Medium
	Kirktonhill	Conservation Area	6.0	10	Medium
	Knoxland Square	Conservation Area	5.1	10	Medium
	Luss	Outstanding Conservation Area	14.5	10	High
	Buchanan Castle	Inventory GDL	8.4	10	High
	Finlaystone House	Inventory GDL	8.9	10	High
	Formakin	Inventory GDL	8.3	10	High
	Ross Priory	Inventory GDL	7.4	10	High
	Rossdhu	Inventory GDL	10.9	10	High

APPENDIX 12.5: Key Cultural Heritage Sites (national importance) within 15km of the Proposed Windfarm and other Windfarm Visibility Predicted by the Cumulative ZTV

Ref No	Site Name	Status	Merkins ZTV (no of turbines visible)	Distance to Merkins Windfarm (km)	Cumulative Windfarms (Merkins plus x others)
717	Carman, fort, Renton	Scheduled Monument	10	5.8	10
1652	Whitemoss Roman fort	Scheduled Monument	10	7.3	7
1749	Craigmaddie Castle	Scheduled Monument	3	14.0	7
1755	Strathcashell Point, cashel	Scheduled Monument	10	13.4	0
2239	Woodend, motte	Scheduled Monument	10	14.4	1
2281	Stockie Muir, long cairn 2000m NNW of Burncrooks Reservoir	Scheduled Monument	10	4.3	0
2329	Lang Cairn, chambered cairn and cairn, Gallangad Muir	Scheduled Monument	10	2.3	1
2388	Houston, market cross	Scheduled Monument	10	12.6	4
2553	Knockinhaglish, church & cashel	Scheduled Monument	10	6.7	2
2568	High Finnich, mound 640m S of	Scheduled Monument	10	6.2	0
2911	Gallangad Burn, long cairn 790m NE of junction with Knockupple Burn	Scheduled Monument	10	2.1	0
2973	Ballindalloch House, sundial	Scheduled Monument	10	13.1	1
3011	Cameron Home Farm, cairn 360m SW of	Scheduled Monument	10	6.6	1
3312	Catter Law, motte	Scheduled Monument	3	7.6	2
3318	Barochan Hill, Roman fort	Scheduled Monument	10	10.4	7
3385	Balloch Castle, earthwork, Loch Lomond Park	Scheduled Monument	10	4.9	2
3913	Houston, North Mound, cairn 400m NW of Houston	Scheduled Monument	10	12.2	6
4326	Bishopton, aqueduct NW of	Scheduled Monument	5	6.8	0
4379	Craigmarloch Wood, fort	Scheduled Monument	10	11.4	6
4510	Strathcashell Point, crannog	Scheduled Monument	10	13.3	0
5271	Rossdhu Castle	Scheduled Monument	10	11.6	2
5274	Rossdhu Chapel	Scheduled Monument	10	11.7	2
5275	Kilmaronock Castle	Scheduled Monument	10	7.5	1
6341	Cameron Home Farm, chambered cairn 720m S of	Scheduled Monument	10	6.3	3
6576	Inchmurrin Castle, castle and kiln-barn	Scheduled Monument	9	8.4	3
6997	Arrochymore, dun 350m WNW of	Scheduled Monument	10	11.8	0
6998	Gartfairn, enclosure 100m WNW of	Scheduled Monument	10	9.8	1
6999	Loch Lomond, crannog, The Kitchen	Scheduled Monument	10	10.0	1

Ref No	Site Name	Status	Merkins ZTV (no of turbines visible)	Distance to Merkins Windfarm (km)	Cumulative Windfarms (Merkins plus x others)
7037	Drumquhassle, Roman fort & annexe 300m NNW of Easter Drumquhassle	Scheduled Monument	10	8.5	2
9654	St Serfs Church, Dumbarton	Scheduled Monument	10	5.7	1
90107	Dumbarton Castle	Scheduled Monument	10	5.8	5
90230	Newark Castle	Scheduled Monument	10	11.3	0
7957	Black Hill, Cairn	NSR (Code C)	10	6.7	5
7061	Cameron Home Farm, Chambered Cairn	NSR (Code V)	10	6.3	3
7974	Merkins, Building; Enclosure; Corn-drying Kiln	NSR (Code V)	1	2.3	2
7977	Mill of Haldane, Mill	NSR (Code V)	6	3.0	1
7979	Blairbeich Plantation, Cairn	NSR (Code V)	10	3.0	2
115	Strathleven House	Category A listed	1	3.6	6
123	Balloch Castle	Category A listed	10	4.9	2
127	Alexandria, North Main Street, Argyll Motor Car Factory	Category A listed	10	4.2	4
127	Alexandria, North Main Street, Argyll Motor Car Factory, House	Category A listed	10	4.2	4
127	Alexandria, North Main Street, Argyll Motor Car Factory, Lodge	Category A listed	10	4.2	5
823	Strathleven House, Dovecot	Category A listed	1	3.5	6
1125	Balloch, Luss Road, Hamilton House	Category A listed	10	5.1	4
1135	Alexandria, Gilmour Street, Masonic Hall	Category A listed	10	4.2	5
1168	Renton, Main Street, Smollet Monument	Category A listed	10	4.4	4
1176	Renton, Main Street, Millburn Church	Category A listed	10	4.2	4
10389	Killearn, Buchanan Monument	Category A listed	10	10.2	1
10422	Killearn, Auchenibert	Category A listed	10	10.8	1
12695	Houston Parish Church	Category A listed	10	12.4	1
13641	Finlaystone House	Category A listed	10	8.7	0
14469	Rossdhu House, Walled Garden	Category A listed	9	11.5	2
14469	Rossdhu House	Category A listed	9	11.6	2
24873	Dumbarton, Castle Street, Ship Model Experiment Tank	Category A listed	10	5.2	1
24874	Dumbarton, Church Street, Burgh Hall	Category A listed	10	5.3	2
24877	Dumbarton, Station Road, Dumbarton Central Station	Category A listed	10	5.0	3
24880	Dumbarton Castle	Category A listed	10	5.8	5
24885	Dumbarton, High Street, Riverside Parish Church	Category A listed	10	5.3	1

Ref No	Site Name	Status	Merkins ZTV (no of turbines visible)	Distance to Merkins Windfarm (km)	Cumulative Windfarms (Merkins plus x others)
24890	Dumbarton, High Street, St Augustine's Episcopal Church, Hall	Category A listed	10	5.3	2
24890	Dumbarton, High Street, St Augustine's Episcopal Church	Category A listed	10	5.3	2
24907	Overtoun Hospital	Category A listed	1	3.2	5
24916	Dumbarton, Helenslee Road, Levenford House	Category A listed	10	5.7	3
34172	Greenock, East Hamilton Street, James Watt Dock, Sugar Warehouse	Category A listed	10	13.7	0
34175	Greenock, James Watt Dock, Cantilever Crane	Category A listed	10	13.9	0
40067	Port Glasgow, Gourock Ropeworks	Category A listed	10	11.6	0
40069	Newark Castle	Category A listed	10	11.3	0
40071	Port Glasgow, Fore Street, Town Buildings	Category A listed	10	11.8	0
40078	Port Glasgow, Broadfield Hospital	Category A listed	10	9.9	0
40088	Port Glasgow, 2 Parkhill Avenue, Holy Family Roman Catholic Church and Presbytery	Category A listed	10	10.6	0
43871	Auchendennan Castle, Fountain	Category A listed	10	7.0	0
43871	Auchendennan Castle	Category A listed	10	7.1	0
45600	Dalmoak House	Category A listed	10	5.2	7
46721	Drumkinnon Bay, Balloch Pier, Slipway and Engine House	Category A listed	10	5.1	0
	Luss	Outstanding Conservation Area	10	14.5	0
	Balloch Castle	Inventory GDL	10	4.9	2
	Buchanan Castle	Inventory GDL	10	8.4	4
	Finlaystone House	Inventory GDL	10	8.9	0
	Formakin	Inventory GDL	10	8.3	7
	Overtoun	Inventory GDL	9	3.5	2
	Ross Priory	Inventory GDL	10	7.4	2
	Rossdhu	Inventory GDL	10	10.9	2



- Key:
- Site Boundary
 - + Turbine Location
 - Access Track
 - Crane Hardstanding
 - Borrow Pit
 - Control Room
 - Construction Compound
 - Scheduled Monument
 - Cultural Heritage (Point)
 - Cultural Heritage (Line)
 - Cultural Heritage (Region)
 - Track (based on OD 1st Ed. 1864)
 - Drove Road
 - SMR Site (Point)
 - SMR Site (Area)
 - 1km Buffer

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Fig. No: 12.1 Revision: A

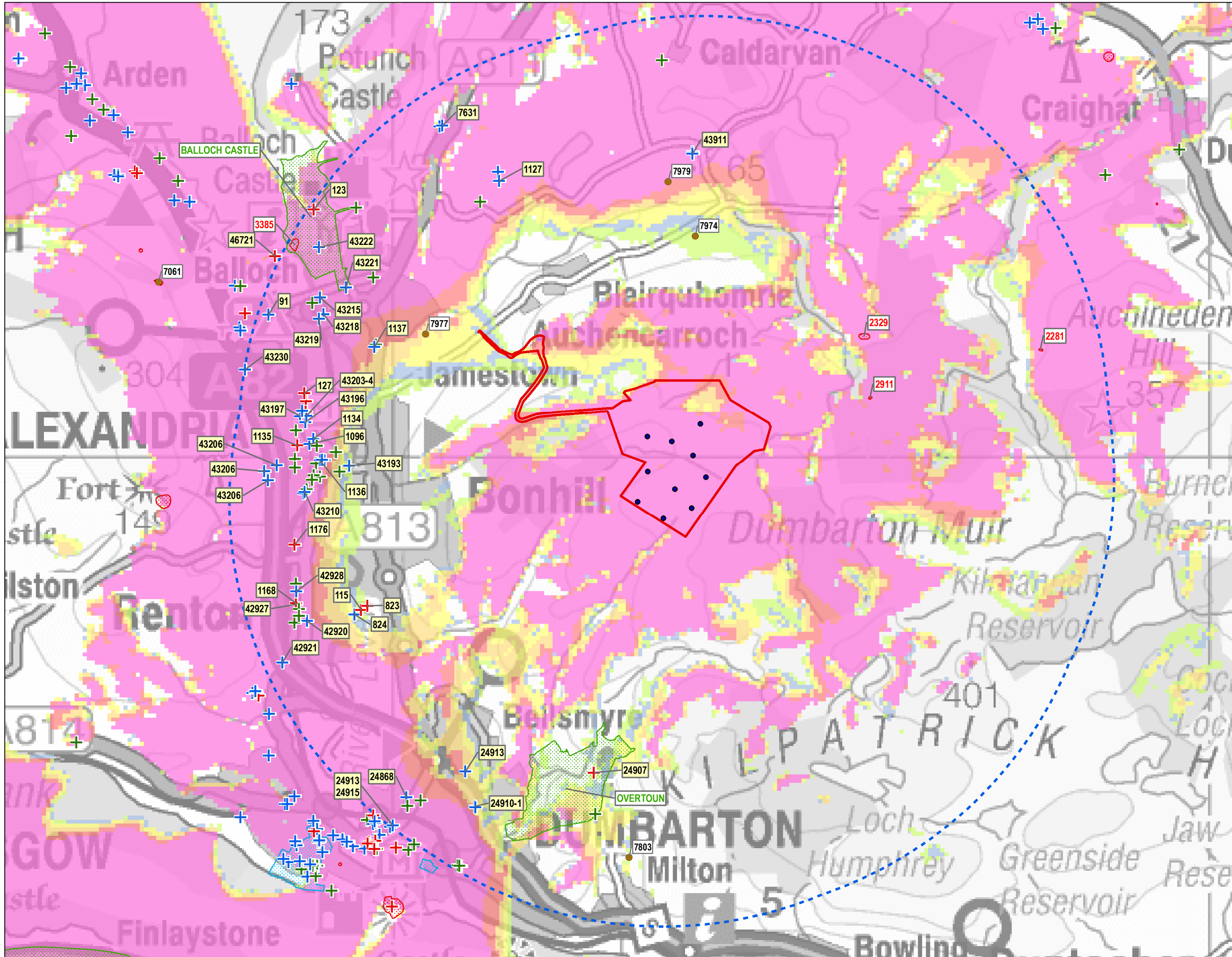
Title:
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Project:
Merkins Farm Wind Farm

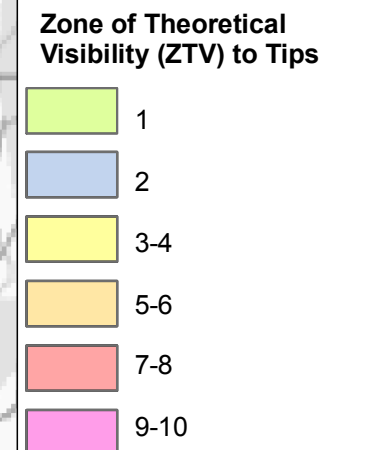
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Client:
LUC

Drawn by: SW Report No:



- Key:**
- Site Boundary
 - Turbine Location
 - Scheduled Monument
 - + Listed Building Category A
 - + Listed Building Category B
 - + Listed Building Category C(S)
 - Garden and Designed Landscape
 - Conservation Area
 - NSR Site (C)
 - NSR Site (V)
 - 5km Buffer



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Fig. No: 12.2 Revision:

Title:
Cultural Heritage: External Receptors and ZTV

Project:
Merkins Farm Wind Farm

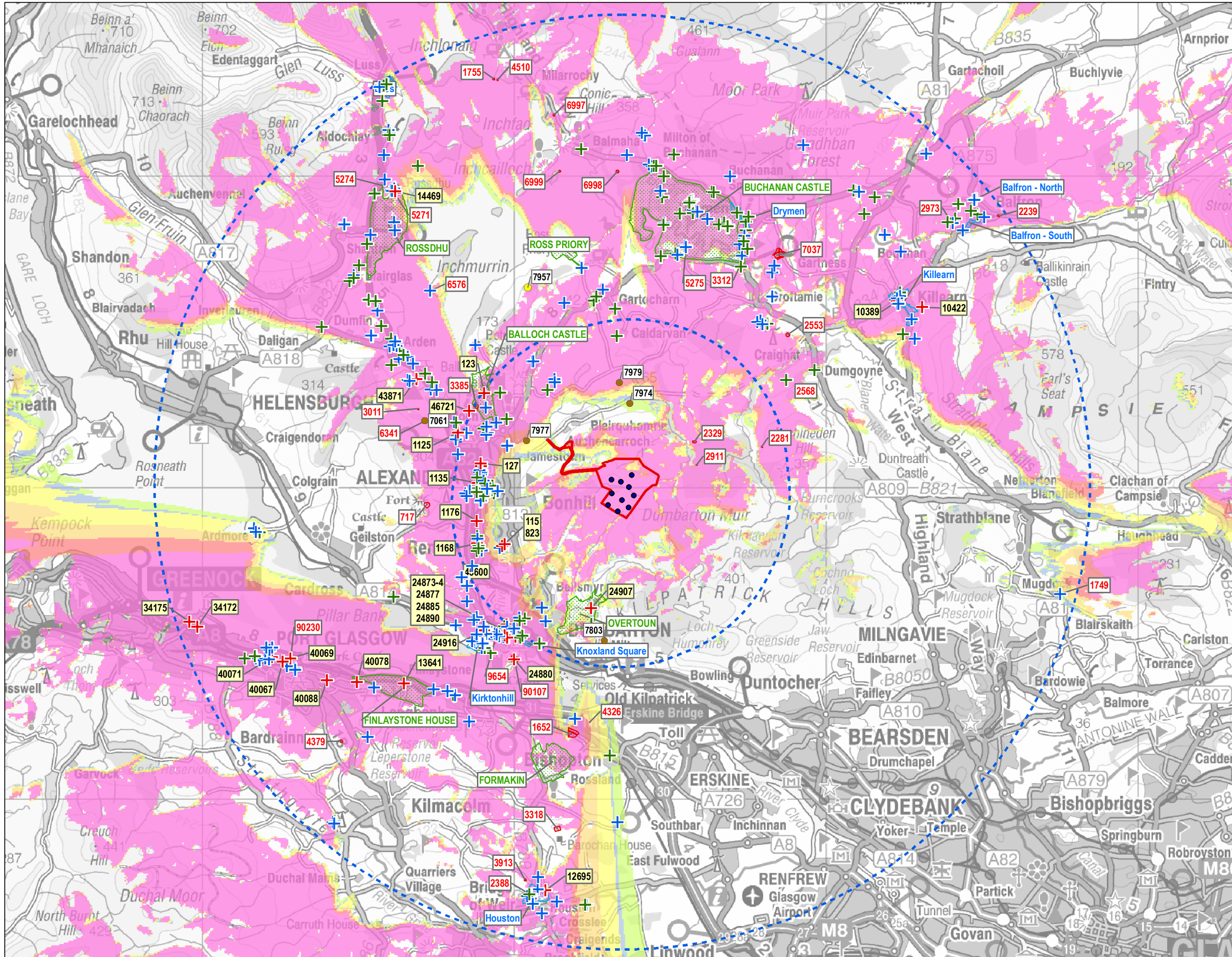
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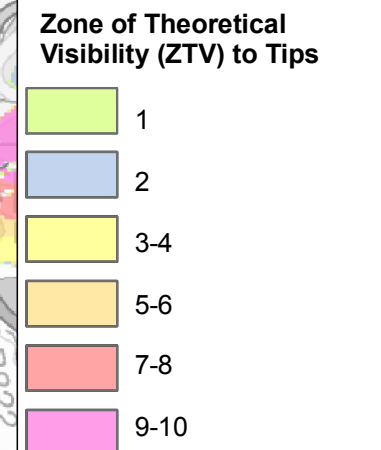
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- Key:
- Site Boundary
 - Turbine Location
 - Scheduled Monument
 - Listed Building Category A
 - Listed Building Category B
 - Listed Building Category C(S)
 - Garden and Designed Landscape
 - Conservation Area
 - NSR Site (C)
 - NSR Site (V)
 - 15 and 5km Buffer



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Fig. No: 12.3 Revision:

Title:
Cultural Heritage: External Receptors and ZTV

Project:
Merkins Farm Wind Farm

Scale:
 1:110,000 A3

Client:
LUC

Drawn by: SW Report No:

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