

## 8. NATURE CONSERVATION

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### 8.1 INTRODUCTION

8.1.1 The Lowca windcluster site was originally surveyed in November 1994 and May 1995 as part of the planning application for the Lowca opencast coal mine. The assessment of the ecological impact of the windcluster presented here is based on this data, backed up with a verification site visit made on 9 March 1998.

8.1.2 Detailed results of this survey and the related analysis are in **Appendix 6**.

### 8.2 ECOLOGICAL SURVEY

8.2.1 The field of rough pasture north of Andrews Gill was surveyed on 22 May 1995 to National Vegetation Classification standards(NVC).

8.2.2 The remainder of the site was surveyed to phase 1 survey standard on 21st November 1994. This data has subsequently been ascribed to NVC communities to aid the impact assessment.

8.2.3 **Figure 2** shows the ecological habitats present on the site and the location of the turbines and access track.

### 8.3 ECOLOGICAL HABITATS

8.3.1 **Flushed acid grassland** This is the main semi-natural vegetation community present on the site and covers all the southern most field This vegetation may be in transition between a more improved, species-poor sward and unimproved grassland. Exactly which way the change is occurring is unclear. Nevertheless this is a species-rich community and stands of flushed rough pasture are uncommon, particularly in such extensive stands, on the Cumbrian coast.

8.3.2 **Gorse scrub** Stands of dense common gorse *Ulex europaeus* scrub are present along the northern edge of the field of flushed grassland.

8.3.3 **Broadleaved woodland** Cat Gill has a low, wind pruned canopy of hazel, gorse, hawthorn and oak over bracken and brambles, plus *Dryopteris dilatata*. It is open to grazing from the northern side.

8.3.4 **Semi-improved marshy grassland** South of Cat Gill there is an area of heavily grazed, species-poor marshy grassland.

8.3.5 **Improved pasture** The remaining areas of the site are improved pasture.

### 8.4 CHANGES SINCE 1995

8.4.1 Two changes, other than the opencasting, are apparent since the 1994 and 1995 surveys.

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8.4.2 Firstly there appears to have been an increase soil moisture south of Cat Gill, probably due to failed field drains. This has resulted in an area of pasture, mapped in 1994 as improved grassland, having changed to semi-improved marshy grassland.

8.4.3 Secondly stocking levels appear to be higher than they were in 1995. Change has clearly occurred at the top end of the Cat Gill CWT site (outside the excavation boundary) were trampling around feeding troughs has removed most of the vegetation cover.

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## 8.5 ASSESSMENT OF ECOLOGICAL IMPORTANCE OF THE HABITATS PRESENT

8.5.1 Flushed acidic grassland is the most extensive habitat present. The sward is species-rich, particularly for an acidic grassland, though it contains no uncommon species. Both unimproved and relatively unimproved grassland, such as this, is uncommon on the west Cumbrian coast above the cliff edge. Both lowland dry acid grassland and purple moor-grass and rush pasture, to which this sward has affinities, are Key Habitats in the UK Biodiversity Action Plan. This grassland also supports a high density of breeding pairs of skylark, a Key Species in the UK Biodiversity Action Plan, which has undergone a 50% population decline in the past few decades. As such this vegetation must be considered to be of ecological and nature conservation importance in the context of both Copeland District and the west Cumbrian coastal plain.

8.5.2 The coastal gill woodland in Cat Gill is an extremely rare habitat in Cumbria. Although this is a very small area this rarity makes it at least of District nature conservation importance and possibly County importance. Heavy grazing is currently leading to the degradation of the site.

8.5.3 Common gorse scrub is moderately common along the coast, however it potentially provides breeding habitat for a variety of breeding birds, particularly the stonechat, giving an extensive stand such as are found here ecological significance at the parish scale.

8.5.4 The semi-improved marshy grassland appears to have developed since 1995 as a result of the failure of field drains. It is species-poor but possibly has the potential to develop greater botanical diversity over the next few decades if the drains remain blocked. The current high stocking levels may hinder this however. This vegetation is at present of significance at the parish level.

8.5.5 The improved pasture is species-poor and of limited nature conservation interest.

## 8.6 ASSESSMENT OF ECOLOGICAL IMPACT

8.6.1 Both construction and operation phases of this project will result in land take of flushed acid grassland and semi-improved marshy grassland. Some 750m of track lie within the flushed acid grassland, which, together with the four turbines gives an area of 3,040m<sup>2</sup> (0.3ha) of permanent land take. In addition to this some 810m<sup>2</sup> of semi-improved marshy grassland will be lost to permanent land take. The total area of flushed acid grassland is approximately 13ha so the total permanent loss of this habitat in this field will be in the region of 2%.

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## 8.7 MITIGATION OF IMPACT

8.7.1 Construction of the turbines will involve the disturbance of a greater area of land than the final permanent land take. The loss of semi-natural vegetation around each turbine base

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can be minimised by removing the vegetation and top soil in the working area to a depth of 20 - 30cm in the form of turves. The turves can be stored temporarily and re-laid following the completion of construction work. This will be covered in a method statement the details of which will be agreed with Cumbria County Council and English Nature.

8.7.2 Track construction can be limited to the working width of the track.

8.7.3 Further potential mitigation proposals, namely the enhancement of the unimproved grassland and gill woodland are already covered by a Section 106 Agreement between Gordon Harrison Ltd. and Cumbria County Council. The details of this agreement are attached to **Appendix 4**.

### 8.8 OVERALL IMPACT

8.8.1 The impact of this development is limited to the permanent land take required for the turbines and access track, which, as previously stated will be approximately 2% of the flushed acid grassland, the main habitat of nature conservation significance affected. While this adds to the loss of this habitat that has already occurred due to the opencast mine workings it is not a significant impact at the County or District scale.

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## 9. CULTURAL HERITAGE

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### 9.1 INTRODUCTION

9.1.1 The chapter describes the cultural heritage of the development area and its immediate surroundings by reference to both known and previously unrecorded archaeological sites, including both scheduled monuments and World Heritage Sites, and to designated Conservation Areas and Listed Buildings. The likely direct impact of the Lowca windcluster on these sites, areas and buildings is considered, together with the indirect impacts of the proposed development on their settings. Where appropriate, mitigation measures have been proposed which would avoid, reduce or remedy any adverse effect of the development.

9.1.2 Preliminary studies involved research of documented sites of cultural heritage interest located within an extended area surrounding the proposed development site. However, a more detailed archaeological survey was limited to those areas that might be directly affected by the proposed development (Figure 3). This survey area was more restricted than that considered in relation to land use, landscape and nature conservation. Views from and of nationally important remains were also assessed.

9.1.3 Planning policies applicable to the cultural heritage are set out in Chapter 3 but the acceptability of the proposals in relation to these policies are also assessed in the conclusions of this chapter.

### 9.2 METHODOLOGY AND INFORMATION SOURCES

#### Archaeology

9.2.1 The principal sources of information consulted as part of this assessment were the Archaeology Section of the Economy and Environment Department of Cumbria County Council; the Cumbria Record Office (Whitehaven); the Tullie House Museum, Carlisle; the Helena Thompson Museum, Workington; the Beacon, Whitehaven; the Local Studies Reference Library, Kendal; and the Royal Commission on the Historical Monuments of England (RCHME).

9.2.2 The information used for the study consisted of the County Sites and Monuments Record (SMR); the National Monuments Record (NMR); published information (including local historical and archaeological journals); cartographic sources (including enclosure and Ordnance Survey maps); statutory schedule of monuments; Hadrian's Wall World Heritage Site Management Plan; museum records; aerial photographs and the results of an earlier assessment and later survey undertaken in respect of the Lowca opencast coal site.

9.2.3 A walkover survey was undertaken of the development area in order to clarify the location, extent and condition of recorded sites, to identify previously unrecorded sites and to determine the impact of the proposed windcluster. As the area is under permanent or rough pasture these conditions were detrimental to the identification of surface finds. Nationally important monuments within the vicinity of the development were also visited in order to assess the impact of the proposal upon their settings.

### 9.3 THE PLANNING CONTEXT

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9.3.1 The predicted impact upon sites of cultural heritage interest has been assessed in relation to relevant national planning guidance, strategic plan policies (county-wide) and local plan policies (district-level) with respect to the predicted impacts upon listed buildings, World Heritage Sites, scheduled monuments and other archaeological remains.

9.3.2 Relevant planning guidance related to the cultural heritage is contained within PPG15 'Planning and the Historic Environment' (1994) and PPG16 'Archaeology and Planning' (1990).

9.3.3 Relevant strategic plan policies in the Cumbria and Lake District Joint Structure Plan 1991 -2006 (1995) include Policy 26 on Sites and Buildings of Architectural, Historic or Archaeological Importance

9.3.4 Relevant local plan policies in the Copeland Local Plan include EGY1, ENV15 and ENV45.

9.3.5 Discussion of the planning policy context is contained within **Section 3** and relevant guidance and policies reproduced in **Appendix 2**.

## 9.4 EXISTING FEATURES OF CULTURAL HERITAGE INTEREST

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### Archaeological sites within survey area

9.4.1. The assessment has identified a number of archaeological sites within the survey area that encompasses the proposed development. These sites consist of the surviving vestiges of earlier coal mining as well as field or park boundaries which collectively have a local group value. All of the sites are post-medieval in date with the exception of the tentative sites of two Bronze Age burial cairns and some possible rectilinear enclosures of unknown date.

9.4.2 These sites are summarised in **Table 9.1** below. The sites have been given letter codes (A - H), although the table also indicates the Sites and Monuments Record (SMR) number or National Monument Record (NMR) number as appropriate. All sites within the development area have been graded as being of national (1), regional (2) or local (3) importance. This classification was undertaken on the basis of professional judgement, the use of the Secretary of State's criteria for the scheduling of ancient monuments (PPG-16 Annex 4) and the criteria developed for the Monument Protection Programme (MPP) by English Heritage (Darvill, 1988). The location of the sites is marked on **Figure 3.5D**

**Table 9.1**

### Archaeological sites and finds within survey area

Site	SMR No	NMR No	NGR	Classification	Period	Grade
A	-	-	NX 285 229	Burial mounds	Bronze Age	2
B	-	-	NX 983 236	Net sinker (find)	Prehistoric	N/A
C	-	-	NX 983 233	Deer park wall	18th century	3
D	11614	-	NX 989 235	Quarry	19th century	3
E	-	-	NX 984 234	Field system	19th century	3
F	-	NX92SE26	NX 986 234	Coal workings	19th century	3

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G	11513	-	NX 986 233	Mineral railway	19th century	3
H		NX92SE32	NX 983 229	Enclosures	-	3

9.4.3 **Site A: Burial mounds** The sites of two possible burial mounds were identified during the archaeological assessment of the Lowca opencast coal site at the south end of the survey area (McCarthy and Flynn 1995). A flint scraper of Neolithic or Bronze Age date was recovered from the area of one of the mounds. Although located at a slightly elevated position these sites were not referred to during the later RCHME (1996) survey. No clear evidence of either burial or clearance cairns was established during the site inspection undertaken for the present assessment, although the area contained slight earthworks of possible shallow workings. The identification of these features as burial mounds is therefore tentative.

9.4.4 **Site B: Net sinker** A net or line sinker of fired clay found at Cat Gill, Harrington. Of probable prehistoric date (Tullie House Museum Ref: 89-1984)

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9.4.5 **Site C: Deer park wall** The earliest documented feature within the application boundary is the probable wall of a deer park that runs along the top of the cliff along the western side of the survey area. This runs along the full extent of the area, and although almost completely demolished the remnants of coursed wall footings surrounded by tumble remain as a visible feature or as a grassed-over bank. The field boundaries within the area are an earthen bank and ditch, suggesting that the wall is not contemporary with these boundaries. The Harrington and Lowca enclosure map of 1761 (CRO D/Cu/7/4) indicates the area of the proposed turbines as "The Deer Parks" belonging to Henry Curwen Esq, suggesting that this wall may have formed the park boundary and dates to the 18th century or earlier.

9.4.6 **Site D: Quarry** A D-shaped quarry site, measuring some 50m in length by 20m wide, is located to the south of Park House Farm. This dates to before 1861 (Ordnance Survey 1st edition 25 $\frac{1}{2}$  map of Cumberland sheet LXI.7). The quarry may have been utilised either for road surfaces, or may possibly be earlier in date and the stone extracted used in the construction of the deer park wall.

9.4.7 **Site E: Field system** The remnants of ridge and furrow cultivation survive within former field boundaries along the western edge of the survey area. These features would originally have extended to the east but have been destroyed by the existing opencast coal site. The boundaries survive as earthen banks with a parallel ditch on one or both sides. These boundaries date to the period between 1761 and 1844, as they were not in existence at the time of the enclosure (CRO D/Cu/7/4) but were extant by the time of the tithe award (CRO DRC/8/84). The ridge and furrow is extremely regular, mostly measures some 3m wide and respects both these field boundaries and the earlier deer park wall. It is therefore probable that it is the result of steam ploughing and dates to the mid-19th century.

9.4.8 **Site F: Coal workings** Possible site of a coal shaft or the earthwork remains of a waste tip identified by the RCHME survey (1996). It measures 1.6m high. There is no trace of a shaft.

9.4.9 **Site G: Mineral railway** Remnants of a mineral railway line survive intermittently where this has not been removed by the opencast coal site. It is visible as a linear feature which is either embanked or in cutting. This section of the railway was constructed between 1865 and 1899 (Ordnance Survey 1st and 2nd edition 25 ins map of Cumberland Sheet LXI.7).

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9.4.10 **Site H: Enclosures** Cropmarks of possible rectilinear enclosures were identified during examination of RAF photographs during the RCHME Lowca opencast survey (1996) and as part of the current assessment (CPE/UK/1940/3174). The photographic evidence suggests two or more incomplete enclosures of uncertain date and function which were probably ditched. Only one of these enclosures is within the area of the proposed windcluster, that to the north being within the area of opencasting. No evidence of the feature was identified on the ground.

9.4.11 A number of archaeological sites previously recorded within the survey area have recently been destroyed either by excavation of the Lowca opencast coal site or as a result of restoration of adjacent mines. These sites are listed in **Table 9.2** below and include sites identified during the RCHME survey (1996). All are sites associated with the post-medieval industrial heritage of the area, and in particular coal mining and its associated infrastructure. Mining in the Lowca area of the Harrington coalfield is first documented in 1654, but extensive extraction did not commence until the end of the 18th century, with John Pit being sunk between 1783 and 1792 (Wood 1988, 123). Mining continued into the 19th century, though John Pit was closed by 1864 (Moore 1905, 368).

**Table 9.2**

Archaeological sites within survey area which no longer extant

SMR No	NMR No	NGR	Classification	Period
5493	NX92SE16	NX 989 229	Tramway	19th century
11672	NX92SE23	NX 992 233	New Pit	19th century
-	NX92SE24	NX 987 233	Leybourne Pit	19th century
-	NX92SE25	NX 988 232	Layburn Pit	19th century
-	NX92SE27	NX 988 233	Spoil heap	19th century
-	NX92SE28	NX 986 230	Old John Pit	19th century
-	NX92SE29	NX 984 230	Henry Pit	19th century
11673	NX92SE30	NX 989 229	John Pit	18th century

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#### Sites within one kilometre of development

9.4.12 A number of archaeological sites, consisting principally of evidence of possible Roman frontier defences and sites associated with post-medieval coal mining or brick manufacture, have been recorded within one kilometre of the proposed development area. The sites are summarised in **Table 9.3** below and their location indicated on Figure 3.

**Table 9.3**

Archaeological sites within one kilometre of development area

SMR No	NMR No	NGR	Classification	Period
1007	-	NX 981 222	Signal tower	Roman
6436	NX92SE19	NX 989 243	Milefortlet	Roman
6509	-	NX 977 220	Salt pans	Post-medieval

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6905	-	NX 993 241	Linear feature	6/98/0486/0F1
11516	-	NX 982 223	Lambhill Pit	Post-medieval
11539	-	NX 982 233	Harrington brickworks	19th century
15549	-	NX 980 223	Micklams brickworks	Post-medieval
16811	-	NX 988 225	Hodgson Pit	18th century

9.4.13 The proposed development is located within an area that formed part of the Cumbrian coastal defences to the south of Hadrian's Wall. The estimated position of Roman signal tower 34b (SMR 1007) is located to the south while a possible milefortlet (SMR 6436) located by aerial reconnaissance lies to the north but is as yet unproven. Any such defences may have been linked by a ditch and palisade (McCarthy and Flynn 1995) but there is no trace, either on air photographs or on the ground, of any elements of such a frontier (RCHME 1996). The last certain evidence of the frontier is some 12 kilometres to the north and its south-western terminal is unknown.

#### Scheduled monuments within vicinity of development

9.4.14 There are two scheduled monuments, Moresby (Parton) Roman fort and Hayes Castle, located within the vicinity of the proposed windcluster. The location of both sites is indicated on Figure 3.

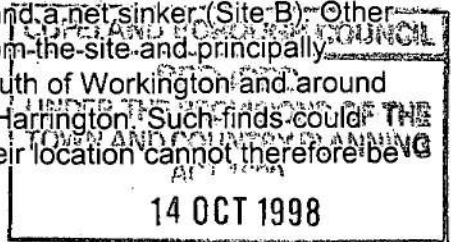
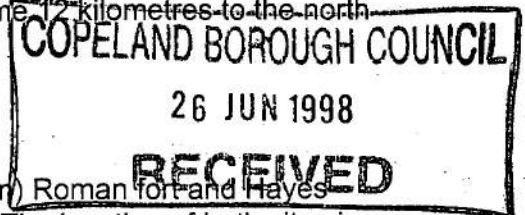
9.4.15 The Roman fort and associated *vicus* at Moresby (CU277; SMR 1020) is located on the coast to the north of Parton some 1.7 kilometres to the south of the development. The fort consists of a level platform defined on the west side by the cliff and to the north by a valley. Earthwork remains of ramparts survive in particular on the southern and western sides. The interior is level with no identifiable features. The church of St Bridget occupies the eastern portion of the fort. The fort was constructed in the Hadrianic period, being completed sometime after 128, and formed part of the Cumbrian coastal defences. The *vicus* (civilian settlement) was located to the south of the fort and also forms part of the scheduled monument. The fort and *vicus* are a detached part of the Hadrian's Wall World Heritage Site (and are not therefore located within the defined setting of the monument).

9.4.16 Hayes Castle (CU344; SMR 1032) is located 1.9 kilometres to the south-east of the development. This consists of the earthwork remains of a motte and moat, with part of the masonry remains of the north wall of the tower house located on the motte still surviving to a height of some 6 metres. A licence to crenellate was issued in 1322.

#### Potential for unrecorded archaeological remains

9.4.17 The potential for previously unrecorded archaeological remains to survive within the area of the proposed windcluster is considered to be limited. On the basis of sites recorded within the vicinity any such remains would most likely either consist of stray finds of artefacts of prehistoric date or sites or finds of Roman date that were associated with the Cumbrian coastal defences.

9.4.18 Stray finds of prehistoric date recorded within the development area consist of a flint scraper from the area of the possible burial mounds (Site A) and a net sinker (Site B). Other finds of similar date are all located in excess of a kilometre from the site and principally consist of stone axes of Neolithic date from the area to the south of Workington and around Distington as well as a further net sinker from the coast near Harrington. Such finds could be encountered anywhere within the surrounding area and their location cannot therefore be accurately predicted.





9.4.19 Possible isolated sites associated with the Roman defences along the coastal Cumbrain coast are recorded to the north and south of the development. These consist of a signal tower (SMR 1007) and milefortlet (SMR 6436) respectively, although neither site is proven. Suggestions of a palisade and ditch linking such sites likewise remain unproven, with evidence of such a frontier defence being recorded no closer than some 12 kilometres to the north of the development. While sites of this date and type within the area of the development cannot be discounted, particularly if these were to be masked by the extant ridge and furrow cultivation, the potential for such remains to be encountered is considered to be limited. This potential would be addressed as part of the proposed mitigation strategy.

### Listed Buildings

9.4.20 Copeland Borough Council was the principal source of information concerning Listed Buildings in the vicinity of the site. The information took the form of extracts from the citations of designation and was supplemented by visits to the study area, in order to assess the character of the settings of the Listed Buildings concerned.

9.4.21 The wider study area contains a cluster of Listed Buildings located immediately to the east of the Moresby Roman fort (CU277; SMR1020) referred to in paragraph 10.22. These buildings are

- **Moresby Hall** a large three storey stone-built house and Grade 1 Listed Building (reference 1/50) which incorporates a tower house (? medieval) with later additions. The imposing Jacobean facade of the Hall, which faces towards the south-east, was constructed in 1670 and has been attributed to William Thackeray. Pevsner describes it as: "*an eminently interesting building with a splendid facade of c1620-1700. It is all rusticated, as if it were in Bohemia.*" Associated with the Hall are its entrance walls and gate piers, (reference 1/51) which are listed at Grade II and probably date from the late 17th century.
- **Church of St Bridget** the parish church of Parton (reference 1/48) and a Grade II Listed Building. It occupies an open position on the eastern part of the Roman fort site. The church was built in 1822 as a replacement to the previous church which dated from the mid-12th century. Associated with it are two further Grade II Listed structures; Brittons' tomb, (reference 1/49) a sandstone table tomb dating back to 1663, and the Chancel arch (reference 1/49) which is a 13th century relic from the previous medieval church.

9.4.22 Other individual Listed Buildings located within 2.5 km of the windcluster site include

- **Milestone** (Reference 1/52) a Grade II structure dating from the mid-19th century and located on the west side of the A595 road to the east of Parton police station. The milestone comprises a single sandstone block with a cast-iron plate on the north face which says "To Whitehaven 2 miles". The plate from the south face is missing.

## 9.5 IMPACT OF THE WINDCLUSTER

### Physical impacts

9.5.1 The predicted physical impact of the construction of the windcluster upon recorded archaeological remains would principally be confined to that upon the recorded field system and associated ridge and furrow (Site E). This impact would relate both to the proposed turbine positions and the associated access tracks between the turbines. All of the turbine

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positions would be located within the areas of ridge and furrow cultivation, as would the wind measurement mast and the switchgear house and yard. The access tracks between the turbines would also transect the ridge and furrow cultivation, while the track between turbine 4 and turbine 7 would impact upon the field boundary visible as a bank and ditch. A short length of the access track between turbine 1 and turbine 2 may utilise the course of the former mineral railway (Site G).

9.5.2 The field system upon which the windcluster would have an impact probably dates to the 19th century and is considered to be of local importance. The predicted impacts would relate to only a relatively small proportion of the surviving vestiges of the ridge and furrow cultivation and the access tracks would affect only a short length of one of the associated field boundaries. Although located above the cliff the proposed turbine positions would have no impact upon the earlier former deer park wall (Site C). When assessed in relation to the intrinsic importance of these remains the impact of the windcluster upon this field system is not regarded as significant.

9.5.3 The location of turbine 7 does not appear to directly impact upon the adjacent rectilinear enclosure (Site H) although the full extent of this enclosure remains unclear. However, the access track to this turbine position will cross the cropmark that defines this enclosure. Both the date and significance of the enclosure is uncertain.

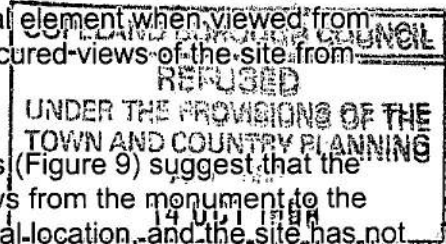
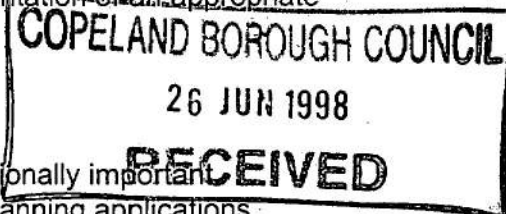
9.5.4 The potential for construction works to impact upon previously unrecorded archaeological remains within the development area is considered to be limited. Such an occurrence can be adequately addressed by means of the implementation of an appropriate mitigation strategy.

#### Impacts upon setting

9.5.5 The impact of development proposals upon the setting of nationally important archaeological remains is a material consideration in determining planning applications (PPG16, paragraph 18). The designation of a monument as a World Heritage Site (WHS) is likewise a key material consideration to be taken into account by local planning authorities in determining planning applications (PPG15, paragraph 2.22; Hadrian's Wall World Heritage Site Management Plan, paragraph 1.2.4).

9.5.6 When assessing the impact of the proposed windcluster upon the setting of the scheduled sites of Moresby Roman fort (also a detached part of the Hadrian's Wall WHS) and Hayes Castle it is necessary to consider the impact of the development upon the monument when viewed from it, as well as views towards the monument from the surrounding landscape. Any identified impacts should be assessed in relation to the prominence of the monument, whether it is directly associated with other landscape features and to what degree the existing surroundings have been affected by later development. It is considered that the setting of the monument could be affected by the proposed windcluster if the turbines formed a dominant visual element when viewed from the site, isolated the monument from its surroundings or obscured views of the site from within its landscape setting.

9.5.7 With reference to the Roman fort at Moresby, the ZVIs (Figure 9) suggest that the blade tips of only one or two turbines would be visible in views from the monument to the north towards the windcluster. While the fort retains its coastal location, and the site has not changed in this respect, the relationship of the monument with its surrounding landscape has changed. In particular there are no surviving masonry remains associated with the fort, the church of St Bridget is now the most prominent feature in the immediate vicinity, and an overhead transmission line runs across the site. The village of Lowca is located on the



horizon to the north, and would be visible between the monument and the proposed windcluster. The turbines would not therefore form a dominant visual element when viewed from the monument and would not have a significant impact upon its setting in this respect.

9.5.8 Two principal views towards the Roman fort within which the turbines would be visible also require consideration in assessing the impact upon the setting of the monument. These are views towards the monument from the south, within which the turbines could form a visible backdrop on the horizon, and views from the east within which both the monument and the windcluster would be visible. In views from the south the fort itself does not form a prominent landscape feature and the setting of the monument is now characterised by modern built development, particularly when viewed from the higher ground to the north of Whitehaven, as such views include residential development at Lowca to the north of the fort, between the fort site and the proposed windcluster, as well as other infrastructure such as overhead pylons in the foreground. Views from higher ground to the east of the development (Viewpoint 3), within which both the fort site and the wind turbines would be visible, similarly include modern built development and associated infrastructure between the fort site and the proposed windcluster. In these views the fort itself does not form a prominent landscape feature (the church of St Bridget being the most identifiable element), and the relationship of the site with the surrounding landscape has changed. As a result of the extent of physical separation the windcluster would neither obscure views of the fort nor isolate the monument from its existing landscape setting. The development would therefore have no significant impact upon either the intrinsic importance of the monument or the existing character of its setting.

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9.5.9 Hayes Castle is located within the valley of Lowca Beck to the south-east of the proposed windcluster. As a consequence of this topographical location the monument is screened from the development area by rising ground to the west and none of the turbines would be visible (Figure 9). There is accordingly no impact upon the setting of the monument in this respect. When the site of the castle is viewed from higher ground to the east, within which the proposed windcluster would also be visible, the monument is not visible as a prominent feature due to both surrounding buildings and vegetation which screens the site. These have changed the relationship of the monument with the surrounding landscape, and other later infrastructure (in particular the residential development on the south edge of Distington, the A595, and overhead pylons) are all visible in the view of the monument from the east. The proposed windcluster would neither dominate the monument nor isolate it from its surroundings. The impact upon its setting of the castle is not therefore considered to be significant.

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### Impacts on Listed Buildings

9.5.10 The windcluster would not have any direct physical effects on any of the Listed Buildings. Potential impacts are therefore restricted to impacts upon the settings of these buildings.

*W. A. P. Ombra*

**Moresby Hall** is located approximately 1.9 km from the nearest turbine position (turbine 6). It is located within walled grounds which lie on the eastern side of the Hall. The principal outlook from Moresby Hall is towards the south-east; opportunities for views in other directions are generally limited by a lack of available windows and by outbuildings which intervene in views. The A595(T) road passes to the south of the Hall at a minimum distance of 180 metres.

Moresby Hall forms part of a discrete and isolated cluster of buildings which sit upon a relatively broad valley spur above and on the south side of Lowca Beck, where the stream meets the sea. Much of the spur an almost level platform which comprises

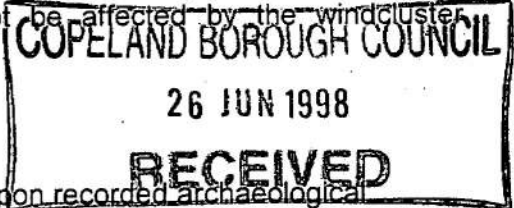


the Roman fort site. In addition to the Hall, the cluster of buildings also includes a range of outbuildings located immediately adjacent to and north of the Hall, Moresby Hall farm, located to the south-east of the Hall, and the **Church of St Bridget**, which lies on the western side of the C4001 road. The church has an east-west axis, with the main doors located to the east and the church tower to the west. It sits within a large walled churchyard, on the eastern edge of the Roman fort site. The situation of these buildings within the surrounding landscape and the relationship between them is illustrated on photomontage 3

The settings of Moresby Hall and of the Church of St Bridget as Listed Buildings may be considered to be characterised by adjacent buildings within the cluster, including each other, by the walled grounds to the Hall and the churchyard, and extending to include the open ground of the Roman fort site.

Detailed ZVI analysis indicates that the blade tips of one or two turbines may potentially be visible from viewpoints within and adjacent to Moresby Hall and of the Church of St Bridget, at a minimum distance of 1.8 km, although not in principal views from Moresby Hall. Viewpoints will also be available to the south of the church and Hall, and from more elevated ridge land in the east, in which the Listed Buildings and the wind turbines would be visible within a single view. However the extent of the physical separation between them, and the presence of other intervening urban and industrial structures within the view is such that the settings of Moresby Hall and of the Church of Saint Bridget would not be affected by the windcluster development.

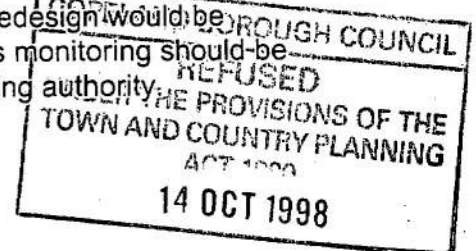
The Listed Milestone referred to in paragraph ... has a setting associated with the adjacent A595(T) road. This setting would not be affected by the windcluster development.



## 9.6 MITIGATION

9.6.1 The physical impact of the proposed windcluster upon recorded archaeological remains within the area of the development can be reasonably accurately predicted with the exception of one site, the rectilinear enclosure (Site H) adjacent to turbine 7. In accordance with current planning guidance further evaluation of this area is therefore appropriate. As the site is within an area of ridge and furrow cultivation, and geophysical surveys within the region tend to provide ambiguous results, archaeological trial trenching is considered the most appropriate method of further evaluation. This would involve the excavation of two trenches 15m in length in the areas where the access tracks cross the cropmark feature and within the enclosure in order to establish the nature, date and significance of the site. The details of the trenching methodology would form part of a scheme of works to be agreed in writing with the County Archaeologist and the local planning authority. Should significant archaeological remains be identified then amendments to the track locations would be considered or alternative mitigation measures proposed.

9.6.2 The potential for previously unrecorded archaeological remains being encountered during construction works can be addressed by means of a programme of archaeological monitoring and recording during construction. Such monitoring would enable a record to be made of the principal features associated with the recorded field system and enable any impact upon previously unrecorded remains or finds to be addressed, with adequate time allowed for the excavation and recording of any remains revealed. If significant archaeological remains were identified mitigation by means of redesign would be considered where feasible. A scheme of works in respect of this monitoring should be agreed in writing with the County Archaeologist and local planning authority.





9.6.3 Provision should be made for the processing and assessment of all archaeological recording work. Copies of the reports on any such work should be deposited with the County Sites and Monuments Record and the National Archaeological Record of the RCHME. Where appropriate, provision should also be made for the publication of the results.

9.6.4 In the absence of any direct impacts on the Listed Buildings described, or of any significant impacts on their settings, no mitigation is required.

### 9.7 SUMMARY AND CONCLUSIONS

9.7.1 The physical impact of the proposed turbine positions and access tracks upon recorded archaeological remains within the area of the proposed Lowca windcluster would be principally confined to parts of a 19th century field system and short lengths of associated field boundaries, as well as a short section of a disused mineral railway line. None of these sites are regarded as of either national or regional importance. Most of the former sites of 18th and 19th century mining remains within the vicinity have been removed during the development of the Lowca opencast coal site.

9.7.2 The significance of a possible rectilinear enclosure adjacent to turbine 7 remains unclear. Archaeological trial trenching will be undertaken within this area in order to establish the nature and significance of this site and the impact of the access track to the turbine position.

9.7.3 The potential impact upon previously unrecorded archaeological remains, particularly of prehistoric or Roman date, is considered to be limited. No proven sites of this period are recorded within the vicinity of the development. It is considered that this limited potential can be addressed by means of the implementation of a programme of archaeological monitoring of groundworks during construction that has been agreed with the local planning authority.

9.7.4 The impact of the proposed development upon the setting of nationally important archaeological remains within the vicinity of the proposed windcluster is not considered to be significant. This includes the site of the Roman fort at Moresby, which also forms a detached part of Hadrian's Wall World Heritage Site. The impact upon views from the monument would be slight, while views into the site from the surrounding landscape would not be significant as the fort does not constitute a prominent landscape feature in such views, the relationship of the monument with the surrounding landscape has changed and the proposed windcluster would neither dominate the monument nor isolate it from its landscape surroundings.

9.7.5 In these respects it is considered that the proposed Lowca windcluster would have no significant impacts upon sites of cultural heritage interest and therefore fully accords with national planning guidance and both strategic and local plan policies relevant to the cultural heritage.

### References

#### *Cartographic*

1761: A Plan of the Commons belonging to the Manors  
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*Photographic*

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10. RECREATION

10.1 INTRODUCTION

10.1.1 This section considers the effect that the Lowca windcluster may have on recreational opportunities and experiences in the surrounding area. Existing facilities for recreation within the area are described, and the likely impact of the windcluster is considered, together with possible mitigation measures.

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10.2 EXISTING RECREATIONAL FACILITIES

Informal Recreation Facilities

10.2.1 The coastal landscape within which the windcluster site is located contains a number of minor roads, tracks, and rights-of-way within the area, including publicised long distance routes, which provide informal recreational opportunities for local residents. Several public footpaths and a bridleway extend across the Lowca ridge to link scattered farmsteads to the C4001 road, and to the coast. Some of these public rights-of way cross the adjacent opencast mining site and are currently suspended or temporarily diverted for the duration of extraction and restoration works, including footpath no. 413007, which also crosses the windcluster site. Bridleway no. 413013 is to be permanently diverted onto the new alignment to be adopted by the restored Park House farm access track. **Figure 2** illustrates the alignments of public rights of way and other routes as they will be following completion of restoration works within the open-cast mine.

10.2.2 In addition to rights-of way, there is a rough privately-owned track which is aligned along the bed of the former mineral railway line. This track, which is not a right-of-way, has previously been used for informal recreation with the permission of the landowner. It has been partially destroyed as a result of open-cast mining activities. The windcluster site access track would be partially aligned along the former mineral railway line at the northern end of the site, near Park House farm.

10.2.3 The West coast railway line runs along the foot of coastal cliffs at Lowca; some 50 metres or so below the windcluster site.

Cumbria Coastal Way

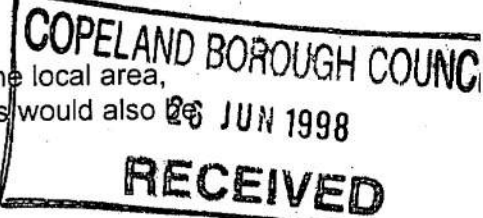
10.2.4 The Cumbria Coastal Way and the Cumbria Cycle Way both pass along the Lowca ridge. Travelling northwards from Parton, the currently recognised route of the *Cumbria Coastal Way* is aligned along the C4001 road through Lowca village, continuing onward along the road towards Harrington before turning westward onto Bridleway no. 413013 along the track to Park House farm, which is to be restored on a new alignment. From the farm the bridlepath continues northward along the route of the former mineral railway. The bridlepath section of this route has been closed during open-cast mining operations.

10.2.5 Cumbria County Council are currently negotiating with local landowners regarding a new alignment for part of the Way which would follow the coast more closely. This new alignment would see the Way turn away from the C4001 at a point to the north of Lowca bridge, so that instead of passing through the village, the Coastal Way would traverse a hill of reclaimed spoil material, and continue along the cliff top, past Micklam brick works to Micklam farm. From here the Way would go north-eastwards along the undisturbed track bed of the former mineral railway to Andrews Gill, then northwards along the reinstated

route of the railway, (following completion of mining activities) before rejoining the undisturbed track bed to the north-west of Park House farm (see **Figure 2**). No agreement for the new alignment has yet been concluded, and in the absence of such an agreement, the Coastal Way will continue to be aligned along the route described above.

#### **Other rights-of-way in the local area**

10.2.6 There are a number of other footpaths and bridleways within the local area, particularly to the east of the A595T road, from which the wind turbines would also be visible.



#### **Cumbria Cycle Way**

10.2.7 Cumbria County Council also propose an amended route for the *Cumbria Cycle Way* in the vicinity of Lowca. Travelling northwards from Parton, the existing route of the Cycle Way follows the C4001 northwards as far as Lowca village, before turning eastward in the village onto the bed of another former mineral railway line which runs north-eastward through the Lowca Beck valley on the eastern side of Lowca ridge. The cycleway then turns north-westward on to the U4001 minor which leads to a junction with the C4001 road to the east of Park House farm, and then northwards along the C4001 into High Harrington.

10.2.8 Cumbria County Council have confirmed an amended route for the *Cumbria Cycle Way* in the vicinity of Lowca. Travelling northwards from Parton, the current route of the Cycle Way follows the C4001 northwards as far as Lowca village. It then turns eastward in the village onto the bed of another former mineral railway line which runs north-eastward through the Lowca Beck valley on the eastern side of Lowca ridge. The cycleway then turns north-westward on to the U4001 minor road which leads to its junction with the C4001 road to the east of Park House farm, and then northwards along the C4001 into High Harrington.

10.2.9 The amended route of the Cumbria Cycleway, which has been up-graded as part of the national Sustrans initiative, proposes a route north-eastwards from Lowca along the bed of the former mineral railway line as before, but continuing on this route to the northern edge of Distington, where the route would turn north-westward along another branch of the former mineral railway line towards High Harrington. The amended route would therefore avoid the U4001 road and the C4001 road (see **Appendix 7**).

10.2.10 In addition to these minor roads, tracks, and rights-of-way, a number of sports pitches are located on a reclaimed former tip site to the south-west of Lowca village.

### **10.3 THE PLANNING CONTEXT**

#### **County and Local Policies**

10.3.1 Neither the Cumbria and Lake District Joint Structure Plan 1991 - 2006 nor the Copeland Local Plan include policies directly relevant to informal recreational facilities.



### **10.4 APPROACH TO ASSESSMENT**

10.4.1 The assessment of the likely impact of the Lowca windcluster on recreation is approached in two ways; potential **direct** impacts on existing informal recreational facilities are considered, together with possible **indirect** effects on the existing use of recreational routes within the area, and on the recreational experience currently available within the area.



## 10.5 THE IMPACT OF THE WINDCLUSTER

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10.5.1 The proposed Lowca windcluster would not **directly** affect any public right of way. Should the route of the Cumbria Coastal Way be confirmed along the former mineral railway track bed, as proposed, people using this permissive route may experience a degree of temporary inconvenience during the construction of the new site access road as it crosses the track bed. However measures would be in place to maintain continuity of access and so ensuring that the Lowca windcluster would not result in any significant direct impacts on informal recreational facilities.

10.5.2 Two principal **indirect** effects may result from the Lowca windcluster development, as follows:

- possible change in the patterns of existing recreational use and the quality of recreational experience available
- possible significant increase in traffic on local, minor roads used for informal recreation, due to numbers of sightseers

### Possible changes in the patterns of existing recreational use and the quality of recreational experience available

10.5.3 Users of the Cumbria Coastal Way on its present alignment along the C4001 road would have oblique views of the proposed turbines at a range of no less than 550 metres. The turbine blades and up to half the tower height of all seven wind turbines would potentially be prominent in views from the Coastal Way towards the sea. If the alternative route proposed for the Way is adopted, people using this route would pass the windcluster site and see all seven turbines in very close range views (approx 150 metres) in which the turbines would be very prominent visual features. Noise generated by the turbines is also likely to be audible at this range, depending on wind conditions and ambient noise levels.

10.5.4 At such a close range, the wind turbines would be very prominent and have a substantial impact on users of the Coastal Way as they pass the turbines, decreasing with increasing distance. However the result of this level of impact on existing levels of use and the quality of recreational experience available is likely to be dependent on individual perceptions of renewable energy in general and wind energy technology in particular.

10.5.5 There are no records indicating levels of use of local footpaths and of the Coastal Way in the vicinity of the site, either before or since the development of the Lowca open-cast mine. There is therefore no 'baseline' information against which to assess the likely impact of the Lowca windcluster. However, a small survey of Coastal Way users at Siddick near Workington, and Haverigg near Millom, undertaken by the developer in September 1997, provides a sample of the reaction of walkers to two other operational wind farm developments located in close proximity to the Coastal Way (**Appendix 8**) may provide a helpful indicator in relation to the Lowca windcluster. These surveys indicate that although a few walkers were put off by the presence of the turbines, others considered them to be a positive attraction. However most of those surveyed indicated that the turbines had made no difference to their choice of walk. On the basis of this survey, it is unlikely that use of the Cumbria Coastal Way in the vicinity of Lowca would decline following the construction of the windcluster.

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10.5.6 Users of footpath no. 413007 which crosses the windcluster site would pass turbine 4 at very close range and experience the turbines as very prominent visual features. Noise generated by the turbines would also be audible at this range in certain wind conditions.

10.5.7 Cyclists on the Cumbria Cycle Way as currently aligned would not have any views of the windcluster site from Lowca, nor from that part of the route which runs along the former mineral railway track bed. Views of turbine blades would first become apparent from the upper part of the U4001 road in the vicinity of Benthow, becoming progressively more visible so that up to half the tower and full blades of all seven turbines would be clearly visible in oblique views from the U4001/C4001 road junction at a minimum distance of 1 km. North of the junction, oblique views of the turbines would be available to south-bound riders, but north-bound cyclists would not be affected.

10.5.8 When the Cumbria Cycle Way is aligned on the amended route as proposed no views of the windcluster would be available from any part of the route until the vicinity of the Charity Lane / former mineral railway track bed junction to the south of High Harrington, where parts of six turbines would become visible at a distance of 2km from the closest turbine.

10.5.9 Passengers on the West Coast railway line, which hugs the foot of the cliffs, would be unlikely to have significant close-range views of the windcluster due to the subtended angle of view.

#### **Possible increase in traffic on local, minor roads used for informal recreation, due to sightseers.**

10.5.10 Following initial curiosity, when local roads may experience some initial increase in traffic levels, relatively little 'sightseeing' traffic appears to have been generated by either the Workington Oldside or Siddick wind farms. This probably reflects both the relatively lower visitor numbers in this part of Cumbria and the fact that with wind farms now in operation in West Cumbria for over 5 years, any 'novelty value' that they may have had has probably worn off.

10.5.11 As the Lowca windcluster site is less conveniently accessible to the public than either the Workington Oldside or Siddick wind farms, it is considered unlikely that it would cause a significant increase in traffic on local, minor roads used for informal recreation, due to numbers of sightseers.

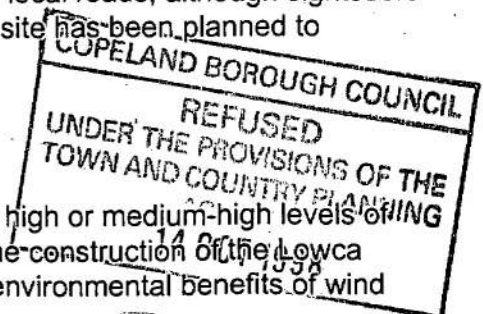
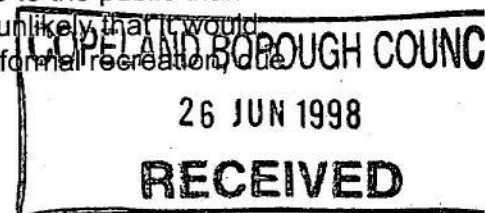
#### **10.6 MITIGATION**

10.6.1 It is not possible to mitigate for any decline in quality of the existing recreational experience which some members of the public may perceive when using footpaths and minor roads in the vicinity of the windcluster.

10.6.2 With regard to possible increased levels of traffic on local roads, although sightseers cannot be prevented from approaching the windcluster, the site has been planned to minimise opportunities for parking at access points.

#### **10.7 RESIDUAL IMPACTS**

10.7.1 Users of the Cumbria Coastal Way may experience high or medium-high levels of either adverse or beneficial residual impact, as a result of the construction of the Lowca windcluster, depending on individual perceptions as to the environmental benefits of wind



S. A. P. Pomfret

energy technology. However survey results suggest that recreational use of the route is unlikely to decline if responses to it are similar to those recorded at Siddick and Haverigg. Impacts on cyclists on the Cumbria Coastal Way would be limited, and of relatively low significance when the amended route alignment is fully implemented.

10.7.2 Although interest in the windcluster may lead to an initial increase in traffic on local minor roads due to sightseers, this is likely to a temporary effect only.

## 10.8 SUMMARY AND CONCLUSIONS

10.8.1 There are a number of minor roads, tracks, and rights-of-way within the area, including the *Cumbria Coastal Way* and the *Cumbria Cycle Way*, which both currently pass through Lowca. The West Coast railway hugs the foot of the cliffs some 50 metres below the windcluster site

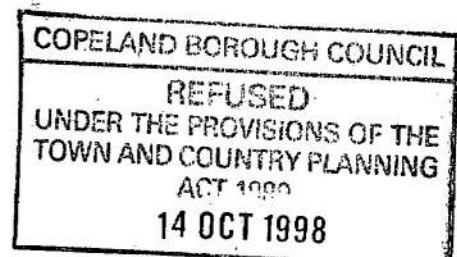
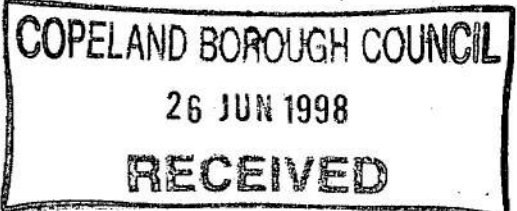
10.8.2 The proposed windcluster would not directly affect any rights of way or permissive paths in informal use, other than possible temporary impacts within the construction period.

10.8.3 It may have indirect impacts, potentially leading to a change in the existing patterns of use and in the quality of recreational experience available to users of the Cumbria Coastal Way and other recreational routes in the locality. However the significance of impacts is likely to depend on individual perceptions of renewable energy in general and wind energy technology in particular, and limited survey results suggest that the presence of wind turbines is unlikely to affect choice of walk or lead to a decline in use of the Cumbria Coastal Way.

10.8.4 Passengers on the West Coast railway line, which hugs the foot of the cliffs, are unlikely to experience significant close-range views of the windcluster, and impacts on cyclists on the Cumbria Cycle Way would be limited, particularly on its amended alignment.

10.8.5 In cases where the wind turbines do detract from some people's enjoyment of the coast, they would not be prominent elements in the view for very far, and the area within which high levels of visual impact may occur would be limited.

10.8.6 Local roads may suffer some initial increase in traffic levels due to sightseers. However this is likely to be temporary only.



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## 11. NOISE

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### 11.1 INTRODUCTION

11.1.1 This section describes the results of background noise surveys at the site and the likely impact of the proposed development. The full report by ACIA Acoustic Engineering Consultants is at **Appendix 9**.

### 11.2 BACKGROUND SURVEY

11.2.1 A survey of ambient noise levels was undertaken through July and August 1994 in and about the proposed wind farm site. Automatic monitoring of noise levels was undertaken for correlation with measurements of the average wind speeds by others. This survey predated the opencast mine adjacent to the site and is therefore representative of the environment after restoration of the workings.

### 11.3 PREDICTIONS OF TURBINE NOISE

11.3.1 Predictions of the likely future noise emissions were made during April 1998 in accordance with the guidelines given in "The Assessment and Rating of Noise from Wind Farms", ETSU 1996. The method takes account of the attenuation due to ground effects and air absorption over distance, and the effect of wind direction.

11.3.2 For the purposes of analysis, the most sensitive locations were considered to be the four nearest dwellings:

- Park House Farm
- Micklam House
- Micklam Farm
- Foxpit House

11.3.3 The predictions are summarised in **Table 2** below, taken from the full report.

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