7.3 Baseline Situation

LANDSCAPE RESOURCES

This section describes the existing landscape resource within the study area which includes designated landscapes and landscape character. There are no national landscape designations within the study area nor are there any Registered Historic Parks and Gardens. There is a Regional Scenic Area (RSA) to the south and east of the proposed overhead line and an Area of Great Landscape Value (AGLV) at the centre of the study area. The study area is covered by the Glasgow and Clyde Valley Landscape Character Assessment (LCA) and the Ayrshire Landscape Character Assessment.

In addition to the landscape character types described in the above publications, local landscape character areas (LLCA) have been identified by Faber Maunsell at a smaller or localised scale considered to be appropriate given the relatively limited visibility of this form of development.

Designated Landscapes

Southern Uplands Regional Scenic Area (RSA)

The RSA (illustrated on Figure 7.1) covers a very large area of upland between New Galloway in the south west and Peebles in the north east. It comprises large tracts of rounded and conical hills with land cover consisting primarily of rough grass, heather moorland and conifer plantations. The hills are dissected by broad river valleys containing the main transport corridors within the border counties and narrow valleys through which rural distributor roads pass. The RSA is sparsely populated and settled.

The sensitivity of the RSA to the type of development proposed is considered to be **Medium**. This is partly due to the large scale landforms of the rounded hills and the relatively small scale of the wood poles and takes into account the scope for mitigation by appropriate routeing through valleys.

Douglas Valley Area of Great Landscape Value (AGLV)

The Douglas Valley AGLV (illustrated on Figure 7.1) covers a relatively small area consisting of a combination of enclosed river valley landscapes and open hill land in the south western end of the AGLV. The village of Douglas is the main settlement within the AGLV and contains a number of listed buildings with the northern part of the village designated a Conservation Area. Uddington, at the eastern end of the AGLV, consists of a few scattered properties some of which are listed. The M74 crosses on a north to south alignment and there are two intersections located within the AGLV connecting with the A70 and the B7078. The A70 follows the Douglas Valley with a number of minor roads branching from it. Part of Hagshaw Hill Windfarm is located within the AGLV and tends to dominate the skyline within views from the western part of the valley and hill landscapes.

The main interest of the AGLV is the pasture landscapes of the valley floor and the immediate sides of the valley which are partly covered in ancient and semi natural woodland. Some areas of woodland are enclosed by drystone walls and the strong enclosure pattern around Douglas is typified by irregular shaped fields enclosed by drystone walls and managed hedgerows with trees.

The sensitivity of the AGLV to the proposed overhead line is considered to range between **Low** and **High**. A rating of **High** is given within the relatively small scale, gently undulating valley pasture landscapes where a linear development routed across the valley floor could potentially have a greater effect. A rating of **Low** is given where there has been intensive modification such as blocks of conifer plantation or a windfarm. The overall sensitivity of the AGLV is considered to be **High**.

Figure 7.2 below shows the view of the western extent of the AGLV at Windrow Wood from the A70 near Jeanfield Bridge.

Figure 7.2 View within the Douglas AGLV

The western margin of the Douglas Valley AGLV. View from the A70 roughly north towards Windrow Wood.

Regional Landscape Character Types (LCT)

Five landscape character types identified in the Glasgow and Clyde Valley Landscape Character Assessment (LCA) coincide with the study area: Foothills, Broad Valley Upland, Plateau Farmland, Upland River Valleys; and Plateau Moorlands. These are illustrated in Figure 7.1 and described below.

Foothills LCT

One unit of the Foothills LCT: Tinto Hills, coincides with the study area. This unit is located in the east of the study area and part of it coincides with the Southern Uplands RSA. The Glasgow and Clyde Valley LCA describes the key characteristics of Foothills LCA as:

- "*rounded, sometimes conical hills, forming a transition between the Plateau Moorlands and the Southern Uplands;*
- *hilltops dominated by heather moorland, with a transition to rough grazing and enclosed pastures on lower slopes and some areas of coniferous woodland; and*
- *the hills have little in the way of modern settlement in the hills.*"

Sensitivity of the landscape to the proposed grid connection is considered to be **High**.

Broad Valley Upland LCT

Part of one unit of Broad Valley Upland LCT coincides with the north eastern part of the study area. The unit is present within the lower Douglas Valley and extends into the Clyde Valley and beyond the subject area of the Glasgow and Clyde Valley LCA. The key characteristics of the Broad Valley Upland LCT are described as:

- "*large scale landscape comprising a broad, flat bottomed valley enclosed by the rounded foothills to the north and the Southern Uplands to the south;*
- *distinctive pattern of tree cover comprising shelterbelts on lower hill slopes and lines of mature trees along field boundaries; and*
- *scattered pattern of rural settlement.*"

Sensitivity of the landscape to the proposed overhead line is considered to be **Medium** to **High**.

Plateau Farmland LCT

The Plateau Farmland LCT consists of extensive tracts of undulating exposed pastoral farmland with few trees, other than shelterbelts and old hedgerow boundaries, present within the landscape. Part of one unit of Plateau Farmland LCT coincides with the northern half of the study area. The key characteristics are described in the Glasgow and Clyde Valley LCA as:

- "*extensive, gently undulating landform;*
- *dominance of pastoral farming, but with some mosses surviving;*
- *limited and declining tree cover;*
- *visually prominent settlements and activities such as mineral working; and*
- *the rural character of the Plateau Farmland has suffered as tree cover has declined and the visual influence of settlements, transport infrastructure and mineral working has increased.*"

Sensitivity of the landscape to the proposed overhead line is considered to be **Medium**.

Upland River Valleys LCT

One entire unit of this LCT coincides with the study area. The unit is centred on the Douglas Water and also forms part of the Douglas Valley AGLV. A small part of one unit coincides with the south east of the study area near the village of Crawfordjohn.

- "*series of valleys formed along fault lines through the Plateau Moorlands and paired with valleys to the south and west in Ayrshire;*
- *strong contrast between the wooded and settled character of the valleys and the exposed enclosing uplands; and*
- *transition from the exposed upper reaches to more sheltered lowland areas.*"

Legend

- Proposed Overhead Line Route
- Andershaw Substation
- Andershaw Boundary
- Coalburn Substation

Landscape Designations

- Regional Scenic Area (RSA)
- Area of Great Landscape Value (AGLV)

Regional Landscape Character Types

- Broad Valley Upland
- Foothills
- Plateau Farmland
- Plateau Moorland
- Inland Loch
- Upland River Valley
- Loch Island

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Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.1: Landscape Designations and Regional Landscape Character Types (LCTs)			
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Sensitivity of the landscape to the proposed scheme is considered to be **High**.

Plateau Moorlands LCT

The Plateau Moorlands LCT coincides with a large proportion of the study area in the south and west. The plateau moorlands consist of blanket bog, heather and grass moorland at an altitude of between 250m and 600m but rising to no more than 488m within the study area. The landscape is generally open and exposed with a wild and remote character which is compromised, within the study area for the proposal, by conifer plantations and wind energy development. The Glasgow and Clyde Valley LCA describes the key characteristics of Plateau Moorlands LCT as:

- *"distinctive upland character created by the combination of elevation, exposure, smooth, plateau landform, moorland vegetation and the predominant lack of modern development; and,*
- *these areas share a sense of apparent naturalness and remoteness which contrasts with the farmed and settled lowlands.*"

Sensitivity of the landscape to the type of development proposed is considered to be **Medium** to **High**.

Local Landscape Character Areas

The Glasgow and Clyde Valley Landscape Character Assessment provides a comprehensive description of the landscape of the study area. However, given the relatively small extents of the study area and scale of the proposed overhead line it is considered good practice to highlight local differences in landscape character. The local landscape character assessment provides a more detailed baseline relevant to the immediate locality through which the overhead line would pass and enables the assessment of effects to reflect these local differences in landscape character that may not otherwise be apparent in the Regional LCA. Local Landscape Character Areas (LLCAs) are illustrated in Figure 7.3.

Upland Moorland with Commercial Forestry

There are two units of this local landscape character area. One is located in the south of the study area at Andershaw and the other is centred upon a tract of hill land to the north of Arkney Hill and Hagshaw Hill Wind Farm. The scale of the landscape is medium to large and sensitivity is considered to be **Low**.

Andershaw Unit

This unit consists of rough moorland that rises from Glentaggart Cottage in the north of the unit to plateau moorland south and east of Andershaw Farm. The Glespin Burn runs through the centre of the unit from south to north. It is joined by the Glentaggart Burn to the south of Glentaggart Cottage. Several other minor tributaries drain into the Glespin Burn giving the land form of this unit an incised appearance. The Braidnie Burn in particular has formed a deep and wide gulley out of proportion to the watercourse itself.

Most of the unit is covered in commercial forestry which is denser in the southern half of the unit and fragmented in the north where the landscape is more incised. In the centre of the unit there is a large area of pasture on the east side of the Glespin Burn with Andershaw Farm positioned on prominent site sheltered by trees on its southern and western sides. The pasture is divided into smaller units by drystone walls and post and wire fences.

A 'C' class road is aligned on the east side of the enclosed pasture before running through the forestry in the south of the unit. An existing single wood pole overhead line runs alongside the road and terminates at Andershaw Farm. A covered coal conveyor passes through conifer plantation in the north eastern part of the unit within a wide wayleave.

Visibility within the unit is restricted by forest plantation particularly in the northern part. Views are more open in the northern part where the enclosed pasture is situated. However, outward views are generally limited to views north down the valley of the Glespin Burn.

Sensitivity of the landscape is considered to be **Low**.

Arkney Hill Unit

This unit consists of rough moorland that gradually rises from the south before steepening near the summit of the rounded hills comprising the Upland Moorland with Wind Farm LCA. The unit is drained by Hagshaw Burn and Shiel Burn.

Sensitivity of the landscape to the proposed grid connection is considered to be **Low**.

Upland Moorland

There are three units of this LLCA. The units are characterised by open, unenclosed hill slopes and plateaux rising up from valley landscapes. Land cover consists of fragmented heather moorland and boggy grass moorland. The landscape is exposed with little or no tree growth except where there is an adjacent unit of Upland Moorland with Forestry LLCA or ancient woodland. The scale of the landscape is large.

There are no settlements, individual properties or industrial developments within this LLCA. Any settlements or properties are found on the edge and associated with the valley landscapes. Overhead lines cross some parts of this LLCA on wood poles and parts of the southern unit are crossed by a covered coal conveyor.

Visibility within and between areas of Upland Moorland LLCA is uninterrupted with the vantage point of Auchensaugh Hill (392m) in the southern unit providing extensive and panoramic views of the southern half of the study area and southward to the M74 and the Lowther Hills.

Sensitivity of the landscape to the type of development proposed is considered to be **High**.

Opencast Mining

There is one unit of this LLCA relevant to the detailed study area. It is located to the south of the village of Glespin and to the west of the Glespin Burn. The area is fringed by patchy conifer plantation on its southern boundary and by Kennox Water and Douglas Water on the western and northern sides. The scale of the landscape is medium to large.

The opencast works have changed the landform by benching into the hillside in some areas and creation of a large bowl shaped depression within which are located site roads, mounds of overburden, tailings ponds, excavations and site plant. It was not possible to access the site to assess visual character. However, the works are visible whilst travelling south west along the Douglas Valley and within views from Glespin to the north.

Sensitivity of the landscape to the type of development proposed is considered to be **Low**.

Restored Opencast Mining

The landscape around the village of Coalburn has been intensively modified by opencast mining and the subsequent ongoing and partially completed restoration of opencast works. In some areas the landscape is almost fully restored and resembles a lowland moorland character type as described below. In other areas the remains of hardstanding, internal roads, buildings, fences and other site materials are present amongst the restored and re-vegetated landform of the coal workings. The scale of the landscape is medium to large.

Sensitivity is considered to be **Low** to **Medium**.

River Valley Pasture

This LLCA coincides with the floor of the Douglas Valley and the lower valley sides. It extends beyond the immediate locality that would be affected by the proposed overhead line.

The LLCA consists predominantly of pasture fields enclosed by post and wire fences with some managed hedgerows and hedge trees in the eastern part of the area in the vicinity of the village of Douglas. There are some small areas of woodland in the valley floor but woodland is generally found further up the valley sides giving a degree of containment to the pastures of the valley floor. Some of these areas of woodland are enclosed by drystone walls. The course of Douglas Water meanders across the valley floor and is joined by the Glespin Burn at a narrowing of the valley near Hazelside where the A70 road crosses the river.

Land cover consists predominantly of improved grassland with rushes in poorly drained areas. The village of Glespin is located in the western part of the LLCA and there are scattered dwellings and farm buildings throughout. There is a network of power lines strung on wood poles within the LLCA, with the densest concentration in the Glespin area and where the A70 crosses Douglas Water.

Within the valley, views are channelled along its length or to the rim of conical hills on the north side of the valley where Hagshaw Hill Wind farm is a prominent feature that overshadows the valley to some degree. Visual character is experienced predominantly from the busy A70 road and from the 'C' class road that follows the route of the Glespin Burn.

The scale of the landscape is small to medium and sensitivity is considered to be **High**.

Upland Moorland with Windfarm

This LLCA consists of the Upland Moorland LLCA with wind energy development. The characteristics of Upland Moorland LLCA remain evident although the relative importance of some features or aspects of the LLCA are lessened by the presence of wind turbines.

The land cover of this LLCA is similar to areas of Upland Moorland. The addition of wind turbines, tracks and ancillary development interrupts outward visibility to a degree and shifts the focus of attention from distant views to those of the wind farm itself. The wind turbines have also introduced movement into the landscape and are a key characteristic within this LLCA.

Overhead lines connect with Hagshaw Hill Windfarm and the minor substation included in the windfarm operation. Distribution lines also run along the eastern boundary to this LLCA.

The scale of the landscape is large and sensitivity is considered to be **Low** to **Medium**.

Lowland Moorland

The Lowland Moorland LLCA is located in the north of the study area to the east and west of the village of Coalburn. There is little variation in topography across the LLCA and land form is gently undulating. Land cover consists of rough grass with very few trees present within the landscape giving a windswept and exposed character. The landscape is a result of the restoration of opencast coal mining which has altered the

Legend

- Proposed Overhead Line Route
- Andershaw Substation
- Andershaw Boundary
- Coalburn Substation
- Upland Moorland
- Opencast Mining
- River Valley Pasture
- Lowland Moorland
- Undulating Pasture
- Restored Opencast
- Upland Moorland with Windfarm
- Upland Moorland with Commercial Forestry

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Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.3: Local Landscape Character Areas (LLCAs)			
Scale	1: 50,000	Drawn by	DR	Rev.
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topography of the landscape such that the change in landform between the restored areas of lowland moorland and the surrounding landscape are noticeable. The scale of the landscape is considered to be medium to large and sensitivity **Low** which accounts for the degraded nature of the landscape and its ability to accommodate development of this type.

Undulating Pasture

The Undulating Pasture LLCA is distinct from the River Valley Pasture LLCA. There is one unit of this LLCA in the north of the study area to the south of Lesmahagow. The character area consists of a broad undulating terrace situated to the east of the River Nethan where the steep valley sides of the river begin to level out. Boundaries to the large pasture fields consist of gappy hedgerows and post and wire fences with only a few hedgerow trees remaining along some boundaries. The trees within boundaries have reached a mature age.

There are occupied and derelict farm buildings within the character area. A high voltage overhead line strung on steel lattice towers crosses the character area on an east-west alignment linking in to the large Coalburn Substation in the east of the character area. A wood pole distribution line enters the character area from the north and terminates to the north of the access track for the derelict Johnshill Respite Centre.

Views within the character area are restricted to the north and south by undulating land form and hedgerow vegetation. Longer views out from the character area may be obtained across the Nethan valley to the west and towards the M74 corridor and Broken Cross Muir in to the east.

The scale of the landscape is considered to be medium and sensitivity to the type of development proposed is **Medium**

Summary of Baseline Landscape Resources

Table 7.7. below provides a summary of the existing landscape resources and their sensitivity to change.

Table 7.7 Summary of Landscape Resources and Sensitivity

Landscape Resource	Sensitivity to Change
Landscape Designations	
Southern Uplands Regional Scenic Area (RSA)	Medium
Douglas Valley Area of Great Landscape Value (AGLV)	High
Regional Landscape Character Types	
Foothills	High
Broad Valley Upland	Medium to High
Plateau Farmland	Medium
Upland River Valleys	High
Plateau Moorlands	Medium to High
Local Landscape Character Areas	
Upland Moorland with Commercial Forestry	Low
Upland Moorland	High
Opencast Mining	Low
Restored Opencast Mining	Low to Medium
River Valley Pasture	High
Upland Moorland with Windfarm	Low to Medium
Lowland Moorland	Low
Undulating Pasture	Medium

VISUAL RESOURCES

This section describes the visual character and amenity of the study area within which the proposed overhead line would be located. It describes the existing view from each of the viewpoints used in the assessment of effects.

Visual Amenity

The study area is rural in character and may be divided into two broad zones of visibility coinciding with the upland moorland landscapes and the river valley and plateau farmland landscapes.

The upland landscapes are open and exposed where conifer plantations are absent. As indicated in Section 7.2 there is a high degree of intervisibility within and between moorland landscapes and long distance views outward from these areas. Conifer plantations restrict views out from some areas of upland. Hagshaw Hill Windfarm is a main focal point in the within the study area. Wind turbines are highly visible from most areas in the Douglas Valley and form prominent features. The landform of the uplands is simple consisting of gradual slopes and even gradients rising to form areas of plateau with small conical hill summits. This is combined with a simple pattern of features often consisting of little more than the regular shapes of conifer plantations. The visual character of upland landscapes is therefore fairly simple which, from some locations, accentuates the scale of the small rounded hills.

Within valleys such as the Glespin Burn and Douglas Water views are channelled in the direction of the valley with the horizon to views on either side formed by the upland moorland landscapes. There is diversity in both landform and landscape features within the valleys which creates a more complex pattern than in the upland landscapes. The road and footpath network provides a number of different locations from which people can view the landscape and as one travels through the valleys by car the direction of views changes frequently.

Restored and working open cast coal mining is present within the plateau farmland landscape and on the edges of the valleys. Glentaggart, Broken Cross and Poniel opencast coal mines are large scale features in the valley. Opencast development influences visual character by introducing large quarries of dark material that contrast with the surrounding green and brown hues of moorland and pasture. Vehicles and plant within the coal mining areas introduce movement into the landscape and the infrastructure associated with the mines introduces industrial development into an otherwise sparsely populated rural area of small settlements and scattered houses and farmsteads. Where visible, the open cast mining becomes a prominent focal point. The remnants of redundant mine works and the ongoing restoration of open cast works within the study area is evident as mounds of overburden, or bings, and the geometric outlines and shapes of terraces formed from restoration of redundant works. The steep sided bings are prominent features within the plateau farmland landscapes.

Settlements

The village of Lesmahagow (1km north of the line) is the main settlement within the study area. Coalburn (0.5km), Douglas (1.5km), Glespin (1km) and Rigside (7km) are other key settlements. Throughout the study area there are single and small clusters of residential properties and farm buildings. Where the proposed overhead line passes in close proximity to or where there would potentially be uninterrupted views of the scheme, the potential visual impact has been assessed.

Roads

The main road corridors are located within valleys in the study area. The M74 bisects the study area in the east on a north-south alignment with the B7078 running parallel to it. The A70 connects Edinburgh with Ayr and passes through the study area in a south-west north-east alignment following the course of the Douglas Valley. It is well used by commuters, the local population and is the main route for Heavy Goods Vehicles (HGVs) transporting coal from the various opencast coal mines. There is a network of minor roads in the north of the study area with a single minor road in the south linking the A70 to Crawfordjohn and the M74 at Abington.

Viewpoint Locations

The assessment of effects from key viewpoints within the study area is an essential component of the landscape and visual assessment. Ten viewpoints have been identified, in consultation with statutory authorities, for inclusion in the assessment. The viewpoints are representative of existing and potential views that may be obtained by a range of different receptors along the route of the overhead line and provide information on general visual amenity within the study area. The viewpoints are from fixed locations and, if read in conjunction with the ZTV (Figures 7.5 to 7.10) and landscape character analysis, provide an indication of the potential effects from the viewpoint and immediate surrounding area.

Viewpoint 1: Auchensaugh Hill

Grid Reference: (NS) 285341, 627191

Direction of View: South West

Existing View and Sensitivity of Receptors

The viewpoint is located within a unit of Upland Moorland LLCA and looks across to an area of Upland Moorland with Commercial Forestry within which the overhead line would be located. The scale of the landscape is large and views are long distance and panoramic consisting predominantly of rounded hills of the Southern Uplands and adjacent hill ranges. Intervening valleys, where the majority of settlement and infrastructure is present, are shielded by the landform of the hills in the direction of the view. The view is rural in character with the elevation and absence of visible development giving a wild and remote quality to views.

Hagshaw Hill Windfarm is a prominent feature on the skyline within views from this location and several large blocks of commercial forestry are also visible. The dark shades of the conifers and the abrupt geometric edges to the plantations contrast with the paler, mottled green, gold and brown hues of moorland vegetation. Forest rides also introduce geometric features into the landscape which contrast with the simple undulating landform of upland moorland. A coal conveyor occupies a wide forest ride in the centre of the view. In the opposite direction from the view (north east) vehicles moving on the M74, which cuts through a gap in the adjacent range of hills, draw attention to this major transport corridor. The sensitivity of receptors is considered to be **High**.

Viewpoint 2: Earl's Mill at Glespin Burn

Grid Reference: (NS) 281693, 627079

Direction of View: North East

Existing View and Sensitivity of Receptors

The viewpoint is located at the junction of the 'C' class road that connects the A70 with Crawfordjohn and the M74 and the 'C' class road that connect with Glespin. It is representative of receptors using the road network and residents of nearby properties.

The viewpoint is located at the southern edge of the River Valley Pasture LLCA just before the valley opens out into Upland Moorland. The scale of the landscape is small within this part of the LLCA. Views are enclosed by the valley sides and funnelled north and south in the direction of the valley. In both directions views become more open. The valley is a minor transport and infrastructure corridor containing a 'C' class road, an overhead line on wooden poles and a telegraph line. Within the right of views from this location a coal conveyor passes beneath the road then turns south entering a wayleave within a conifer plantation above Andershaw Farm.

Built development within views consists of two residential properties (Glentaggart Cottage and Earl's Mill), sheds and also a semi-derelict brick building located within a maintenance compound to the north of Glentaggart Cottage. A continuous section of drystone wall is aligned on the east side of the valley and marks the boundary between Valley Pasture and Upland Moorland LLCAs. Hagshaw Hill Windfarm is visible to the north and the range of hills on which it is located form the horizon to views north from this location. The sensitivity of residential receptors is considered to be **High** and the sensitivity of road users to be **Low to Medium**.

Viewpoint 3: Jeanfield Bridge on the A70

Grid Reference: (NS) 281992, 628700

Direction of View: West

Existing View and Sensitivity of Receptors

This viewpoint is located within the Douglas Valley AGLV at a point where the valley narrows near the confluence of the Glespin Burn and Douglas Water. It is representative of receptors using the A70.

At this location views are contained by the valleys sides and by local landform on the valley floor. Deciduous and coniferous woodland are key landscape components. They combine with river terraces and minor undulations to break up the views up and down the valley as well as contain views. The A70 is a busy road with a large proportion of the traffic consisting of articulated lorries that serve the opencast coal mines and the distribution centre at Glespin. Hagshaw Hill Windfarm is a prominent feature on the skyline within views to the north-west from this location. Conifer plantation also contributes to the appearance of a modified landscape and conceals the underlying landform.

An existing overhead line strung on wood poles crosses the valley floor within the right of views from this location. It follows the western edge of Windrow Wood up the valley side to connect with the substation at Douglas West. The Lodge House at the entrance to Hazelside Farm and Hazelside Farm buildings themselves are located on a low, partly wooded ridge that extends across the valley floor. To the left of the ridge East and West Glespin Farms are also visible on another low ridge with the backdrop to this formed by the opencast coal works. The sensitivity of receptors using the A70 is considered to be **Low to Medium.**

Viewpoint 4: A70 adjacent to Hazelside

Grid Reference: (NS) 281791, 628593

Direction of View: East

Existing View and Sensitivity of Receptors

This viewpoint is located on the A70 approximately 80m east of the residential property at Hazelside. It is representative of receptors using the A70 and residents of nearby properties.

Views are focused along the valley to the east and channelled by topography on the north and south sides of the valley. Views along the valley floor are uninterrupted and channelled in part by the interlocking ridges and terraces that terminate on the valley floor. An existing overhead line on single wood poles crosses in front of the viewpoint and is a minor detracting feature within views from this location. Conifer plantation tends to dominate the north side of the valley. Residential and farm buildings are absent in the direction of the view although behind the viewpoint East and West Glespin Farms, Hazelside Farm and house are visible. The sensitivity of receptors using the A70 is **Low to Medium** with residential receptors rated as **High**.

Viewpoint 5: Dismantled railway at Hagshaw Hill Windfarm

Grid Reference: (NS) 281851, 630351

Direction of View: North West

Existing View and Sensitivity of Receptors

The viewpoint is located on the disused railway line that follows the route of the Douglas Valley before crossing hill slopes to the east of Hagshaw Hill Windfarm. It is representative of recreational receptors walking or cycling on the disused railway line.

At this location views are restricted by conifer plantation to the east of the viewpoint and by rising landform to the west. Views are channelled along the route of the disused railway line which passes through a series of cuttings as it traverses the hill slopes. The blade tips of wind turbines are visible on the hill tops to the north of the viewpoint. An overhead line strung on single wood poles is aligned on the east side of the railway line. This overhead line terminates at the Douglas West substation. A post and wire fence runs along the dismantled railway beneath the overhead line and another post and wire fence is located on the west side of the railway line. Wooden railway sleepers have been added to some sections of the fence on the west side of the line. Further to the west of the railway line within open moorland are a number of distribution overhead lines strung on single and double wood poles. The overhead lines merge at the substation creating a complex wirescape within views to the north. Views of the substation are shielded by landform and trees from this location. Other ancillary development, some of which is screened by trees adjacent to the substation, is also visible from this location. A partially re-vegetated bing is a prominent feature within views. The sensitivity of recreational receptors using the disused railway line is considered to be **High**.

Viewpoint 6: Outdoor Centre at Douglas West

Grid Reference: (NS) 282064, 631017

Direction of View: West

Existing View and Sensitivity of Receptors

The viewpoint is located near the Outdoor Centre at Douglas West at the entrance to Hagshaw Hill Windfarm. It is representative of residential receptors and recreational users who would be using the two signposted walks (Windfarm Walk and Douglas Valley View).

The view looks out onto an area of upland moorland. Conifer plantation is visible on the skyline in the right of the view with wind turbines visible to the left. In the extreme right of views there is a partly re-vegetated coal bing. Views from this location are dominated by the wind turbines of Hagshaw Hill Windfarm, Douglas West substation and associated existing overhead line infrastructure. The sensitivity of receptors is considered to be **High**.

Viewpoint 7: Footpath on the north west of Coalburn

Grid Reference: (NS) 280788, 635241

Direction of View: North

Existing View and Sensitivity of Receptors

This viewpoint is located on restored colliery spoil that is now used as a recreational resource. It connects with a wider footpath network and is used by residents of Coalburn and the surrounding area. The viewpoint is representative of recreational receptors and residents of the north western fringe of Coalburn.

The viewpoint location is elevated above the surrounding lowland moorland and plateau farmland landscapes. Views are medium to long distance to the north and restricted by landform and conifer plantations to the south. Moorland is the dominant land cover visible within the foreground of views with pasture hill slopes visible in the distance to the north. Steel lattice towers are visible on the skyline crossing farmland to the east of Coalburn. An existing wood pole line is aligned along the minor road to the north of Coalburn.

The landscape of this area has been intensively modified by opencast coal mining, the remains of which are evident in the large mound of colliery spoil that forms a prominent focal point to the north of Coalburn. The landscape in the foreground of views and the location of the viewpoint itself are restored coal workings. Within the right of the view the northern edge of the village of Coalburn extends into the moorland and consists of detached and semi-detached bungalows and two storey dwellings with small gardens. The sensitivity of receptors is considered to be **High**.

Viewpoint 8: North of Coalburn near Muirburn

Grid Reference: (NS) 281174, 635681

Direction of View: North

Existing View and Sensitivity of Receptors

The viewpoint is located to the north of the village of Coalburn at Muirburn Farm. It is representative of residential receptors.

The view looks out over lowland moorland towards a coal bing and scrubby woodland at Glaikhead. Views are open and expansive in character and there are few other forms of development visible within short range views. Overhead line infrastructure is visible on the skyline to the north and wood poles are also visible. Warlaw Hill is visible within the left of views. The sensitivity of receptors is considered to be **High**.

Viewpoint 9: Access track south of Glaikhead

Grid Reference: (NS) 281193, 636126

Direction of View: North

Existing View and Sensitivity of Receptors

This viewpoint is located on a track that connects the 'C' class road to the north of Coalburn Village with Merchanthall and Bellfield. It is representative of recreational receptors who may be using the track as part of the footpath network in this area.

The view looks out over restored coal workings. Just out of the field of view there is a partially restored coal bing which is a prominent feature in this area. The cluster of buildings at Glaikhead is visible in the left of views. To the right of these buildings on the opposite side of the 'C' class road is a

small area of woodland that screens the properties from a compound enclosed by a chain mesh fence with concrete posts and cantilevered top section. The land immediately surrounding the base of the bing is unrestored and used as a lay-down area and compound giving the place a neglected appearance. The sensitivity of receptors is considered to be **Medium to Low**. This takes into account the fact that the landscape is intensively modified and contains a number of detracting features such as the bing and surrounding area.

Viewpoint 10: Glaikhead adjacent to Coalburn Road

Grid Reference: NS (281193, 636501)

Direction of View: East

Existing View and Sensitivity of Receptors

The viewpoint is located at the side of the road adjacent to the cluster of residential and business properties at 'Glaikhead'. It is representative of vehicle travellers on the the 'C' class road and residential receptors.

The view looks east across the 'C' class road to the restored open cast coal works. Views from this location are screened by deciduous trees growing on the west side of the road. The open moorland beyond can be glimpsed through the trees during winter but is likely to be almost entirely shielded by vegetation during summer. The sensitivity of residential receptors is considered to be **High** with vehicle travellers considered to be of **Low to Medium** sensitivity.

Summary of Baseline Visual Resources

Table 7.8 below provides a summary of the viewpoints selected for the visual assessment and identifies their sensitivities to change.

Table 7.8 Viewpoint Location and Sensitivity

View-point	Location	Direction of View	Sensitivity
1	Auchensaugh Hill	SW	High
2	Earl's Mill at Glespin Burn	NE	High (Residential)
			Low to Medium (Road Users)
3	Jeanfield Bridge on the A70	W	Low to Medium
4	A70 adjacent to Hazelside Farm	E	High (Residential)
			Low to Medium (Road Users)
5	Dismantled railway at Hagshaw Hill Windfarm	NW	High
6	Outdoor Centre at Douglas West	W	High
7	Footpath on the north west of Coalburn	N	High
8	North of Coalburn near Muirburn	N	High
9	Access track south of Glaikhead	N	Medium to Low
10	Glaikhead adjacent to Coalburn Road	E	High (Residential)
			Low to Medium (Road Users)

7.4 Assessment of Residual Impacts

It is recognised that development of this type will result in potentially adverse effects on landscape and visual resources. As a result this chapter focuses on the residual impacts i.e. those remaining taking into account mitigation.

Mitigation

Construction

During the construction period there will be some scope for micrositing of wood poles to optimise their location in relation to local landform and, where practicable, avoid the removal of hedgerow vegetation and trees.

As discussed in Section 7.1 there would be temporary impacts during construction of the proposed overhead line. Earthworks associated with the erection of wood poles would be relatively minor and limited to small areas around the base of each pole. Whilst these areas would be reinstated, vegetation may take several growing seasons before being completely restored. Therefore it is likely that there would be limited residual impacts from the earthworks during the operational phase. Tracks and track-ways would be reinstated following construction of the line, however, as with earthworks limited residual impacts would likely be present during the early stages of the operational phase. The assessment of impacts associated with temporary earthworks and tracks is included in the assessment of overall impacts of the overhead line in the operational phase.

The construction of the proposed overhead line will follow best practice. A construction management plan will describe the methods that will be used to construct each component of the overhead line (e.g. earthworks, installation of the wood poles and stringing of conductors).

Operation

As discussed in Section 7.2 the ES reports on the assessment of the proposed route. A detailed routeing study in which landscape and visual issues were a primary focus was undertaken in order to identify the proposed route. The routeing study and the selection and design of the wood pole structures has been the main form of mitigating the permanent and operational effects of the proposed overhead line. Integral elements of the development of the proposed overhead line have been:

- Avoidance of those landscapes, views or vistas considered to be particularly valuable or sensitive to the development of overhead lines;
- Reduction of potential adverse effects such as breaking the skyline through making the best use of local landform and vegetation to provide a backdrop against which visible sections of the proposed overhead line would be viewed; and
- Reduction of potential adverse effects through the line design. The wood pole structures carrying the 132kV overhead line are visually more discreet than the steel lattice towers traditionally used for 132kV overhead lines.

The micrositing of wood poles during construction as discussed above will also reduce the permanent landscape and visual effects of the scheme.

LANDSCAPE RESOURCES IMPACTS

The following sub-sections describe the assessment of the residual impacts of the scheme upon designated landscapes, landscape character types and areas. The consideration of effects upon designated landscapes takes into account the interests for which the landscape is designated and the purpose of the designation.

Impacts upon Designated Landscapes

Southern Uplands Regional Scenic Area (RSA)

Predicted Visibility

The ZTV shown in Figures 7.4 to 7.9 indicate that the proposed overhead line would theoretically be visible from some parts of the RSA that coincide with the study area. Visibility of the scheme is limited to the more elevated areas of the RSA and to a relatively small proportion of the designated area to the north of Crawfordjohn and in the vicinity of the village of Rigside.

Magnitude of Change

Given the fact that the line would not pass through the RSA and the separation distances between the proposed overhead line and the RSA it is considered that the magnitude of change would be Negligible. This also takes into account the relatively small proportion of the RSA that would be affected by the overhead line and the screening effect of vegetation.

Assessment of Effect

The overall effect upon the Southern Uplands RSA is considered to be **Not Significant**.

Douglas Valley Area of Great Landscape Value (AGLV)

Predicted Visibility

The ZTV shown in Figures 7.5 to 7.10 indicates that the scheme would be visible within upland and valley areas of the designated landscape. Sections 1, 2 and 3 would have a greater effect on the AGLV than the two northern sections of the line. It is considered that section 2 of the line passes through the more sensitive part of the AGLV. The line would be most visible where it crosses the flat valley floor.

Magnitude of Change

The proposed overhead line would cross the valley floor within the AGLV close to its western boundary which is defined by a low wooded ridge. The scheme would introduce a linear feature across the Douglas Valley floor at right angles to the main valley alignment. An existing overhead line on single wood poles crosses the valley to the east of the proposed grid connection. The double pole line would be a larger scale development appearing bulkier and more noticeable than the single wood poles. The line would cross pasture slopes on the north side of the valley before crossing the rounded hills that are dominated by Hagshaw Hill Windfarm which exerts a strong influence on the western end of the AGLV. The magnitude of change is considered to be **Medium** at a very limited area where the line crosses the valley floor and **Low** for the AGLV overall.

Assessment of Effect

The overall effect upon the Douglas Valley AGVL is considered to be **Minor** and therefore **Not Significant**. The effects would be Significant in a very limited area of the AGLV. The medium magnitude of change does not extend across a wide enough area of the AGLV to warrant a high rating for the whole AGLV.

Impacts upon Regional Landscape Character Types

Foothills

Given the long separation distance between the proposed overhead line and this LCT (approximately 3.5 - 5km) it is considered that the impacts would **not** be **significant**.

Broad Valley Upland

Given the long separation distance between the proposed overhead line and this LCT (approximately 4km) it is considered that the impacts would **not** be **significant**.

Plateau Farmland

Predicted Visibility

Figures 7.8 to 7.10 indicate that Sections 3, 4 and 5 of the proposed overhead line would be visible from within most of the Plateau Farmland LCT that coincides with the study area.

Magnitude of Change

The scheme would cross large areas of partially restored opencast coal workings within the Plateau Farmland LCT. These areas have been intensively modified and their restoration is an ongoing process that will take many years. Where restoration is almost completed the landscape is open and exposed in character and medium to large in scale. It is considered that the proposed overhead line could be accommodated within such areas and the magnitude of impact would therefore be **Low**.

Where the scheme approaches Coalburn substation the character of the landscape changes to an area where coal workings have not been present. The landscape is smaller in scale with overhead line infrastructure having a considerable influence on visual character. The relatively small scale of the proposed overhead line would cause a limited increase in the intensity of overhead line infrastructure in this area and the line would be located within a shallow valley. The magnitude of effect would therefore be **Low**.

Assessment of Effect

The principal impact of the scheme will be to introduce a linear feature into the landscape. A small number of trees and hedges may need to be removed in order to create wayleave for the line within the Plateau Farmland LCT. Overall the proposed scheme is considered to result in a **Minor** and therefore **Not Significant**, impact upon the Plateau Farmland LCT given the extents of this LCT, its condition and ability to absorb this form of development.

Upland River Valleys

Predicted visibility

The ZTVs indicate that the line would theoretically be visible from most of the Upland River valleys LCT. A large proportion of the LCT is covered by conifer plantation and within such areas there would be little or no visibility of the proposed overhead line. Across remaining parts of the LCT visibility would range from fragmented views through vegetation to clear views across the flat valley floor.

Magnitude of Change

The area affected by the scheme is limited to a narrow corridor from the north of Earl's Mill to the opposite side of the valley south of Rob's Hill. There would be limited effects on key features or characteristics of the LCT. The principal impact would be within smaller scale and enclosed parts of the LCT between the A70 and Earl's Mill where the small scale pasture fields and minor undulations in topography would to some extent be compromised by the scheme. The crossing of the main valley floor, where existing small scale overhead line infrastructure is present would increase the intensity of this form of development within a limited area. The magnitude of effect is therefore considered to be **Medium** in a limited area and **Low** overall on the character of the Upland River Valleys LCT.

Assessment of Effect

In a limited area of the Upland River Valley LCT the impacts would be **Moderate** and therefore **Significant**, however, this is limited to a small section of the valley. The overall effect upon the Upland River Valleys LCT is considered to be **Minor** and therefore **Not Significant**. This takes into account the fact that the line would be present within the LCT for a short distance and, whilst it would cross the valley floor perpendicular to the alignment of the valley, it would not result in the removal of vegetation or the modification of land form.

Plateau Moorlands

Predicted Visibility

The ZTVs indicate that there would be large tracts of theoretical visibility within the Plateau Moorlands LCT. A large proportion of theoretical visibility coincides with areas of conifer plantation and from such areas there would be little or no visibility of the proposed overhead line. From the remaining areas of LCT there is likely to be clear and mostly uninterrupted visibility of the development across short and very long distances.

Magnitude of Change

The magnitude of impact within the Plateau Moorland LCT would range between Negligible and Low. The proposed grid connection would pass through two areas of Plateau LCT that coincide with the study area. In the southern area the line would pass through an area of conifer plantation within an existing wayleave through which runs Mid-Rig Coal Conveyor. Andershaw windfarm would also be located within the conifer plantation. The proposed overhead line would emerge from the plantation and run parallel to an existing single wood pole distribution overhead line across an open area of Upland Moorland. The line would be a noticeable feature within the area of open moorland and would intensify the appearance of this form of development and the magnitude of impact is considered to be **Low**.

The scheme would cross an open area of the northern section of Plateau Moorland where there is a concentration of existing overhead line infrastructure centred on the Hagshaw Hill Windfarm substation. The line would then enter conifer plantation within an existing wayleave. Some tree felling may be required within the existing wayleave in order to accommodate the line. The magnitude of impact within conifer plantation is **Negligible** and in open areas is considered to be **Low**.

Assessment of Effect

The overall impacts of the proposed overhead line upon the Plateau Moorland would range between **Minor Adverse** and therefore is **Not Significant**.

Impacts upon Local Landscape Character Areas

Upland Moorland with Commercial Forestry

Predicted Visibility

Figures 7.5 to 7.10 indicate that the proposed grid connection would theoretically be visible within two areas of this LLCA. However, given the dense growth of conifers and the presence of only a small number of wayleaves it is likely that only the tops of wood poles would be visible within short range views. The line would be visible in longer distance views of this character area within the wayleaves through which it would pass.

Magnitude of Change

The scheme would occupy existing wayleaves within the areas of conifer plantation that comprise this LLCA. The wayleaves may need to be widened to accommodate the line. However, it is envisaged that the amount of tree felling would be minimal and the impacts of such change barely perceptible. The southern unit of Upland Moorland with Commercial Forestry LLCA would undergo a great degree of change through the construction of Andershaw Windfarm and the associated substation.

The overall magnitude of impact upon the Upland Moorland with Commercial Forestry LLCA is considered to be **Low**.

Assessment of Effect

The overall impact upon this LLCA is considered to be **Not Significant**. The assessment takes into account the minor effect of widening existing wayleaves and the presence of linear development within the LLCA. It also accounts for the large amount of change brought about the Andershaw Windfarm in the southern unit.

Upland Moorland

Predicted Visibility

Figures 7.5 to 7.10 indicate that the proposed overhead line would theoretically be visible from most parts of this local character type and there would be intervisibility of the line between character areas.

Magnitude of Change

The line would cross open areas on the edges of Upland Moorland LLCA and would not be present within the interior of this character area where the characteristics of wildness or remoteness exert a greater influence. Existing overhead line infrastructure is present within this character area and the proposed scheme would intensify the appearance of this form of development to a greater extent in the southern unit of this LLCA than in the northern area where a number of lines merge at the Hagshaw Hill Windfarm substation. The magnitude of change resulting from construction of the line is considered to be **Low**.

Assessment of Effect

The overall impact of the line upon Upland Moorland LLCA is considered to be **Minor** and therefore **Not Significant**. This takes into account the fact that the line would pass through the edges of this character area where overhead line infrastructure is already present. Whilst this would cause an adverse effect it is considered that it would be relatively minor.

Opencast Mining

Predicted Visibility

The ZTVs illustrated in Figures 7.5 to 7.10 indicate that the proposed scheme would theoretically be visible from areas of Opencast Mining.

Magnitude of Change

The line would pass approximately 500m to the east of this LLCA. Given the industrial character of the area, the rapid changes in landform and frequent movement of plant and operation of machinery and the noise this generates. The magnitude of impact upon this character area would be **None**.

Assessment of Effect

The overall impact upon the Opencast Mining LLCA is considered to be **None** and therefore **Not Significant**.

Restored Opencast Mining

Predicted Visibility

Figures 7.5 to 7.10 indicate that the line would theoretically be visible from all units of this LLCA. However, restoration activities are likely to have resulted in differences between the actual elevation and the elevation determined from the Digital Terrain Model (DTM). Visibility within this unit could therefore differ from that illustrated by the ZTVs.

Magnitude of Change

The southern unit of this LLCA is partly restored and, as mentioned in Section 7.3, the former industrial character of the opencast coal works exerts a greater influence on the landscape than in the unit to the north. The magnitude of impact upon the southern unit is therefore considered to be **Negligible**. The northern unit has undergone almost complete restoration and has a similar character to Lowland Moorland LLCA. As noted in Section 7.3 a visually prominent coal bing and associated workings are present in the landscape an provide evidence of its former industrial use. The line would run parallel to the 'C' class road that passes through this area and would also pass close to the bing before passing close to a group of deciduous trees to the east of Glaikhead. A small number of trees may need to be felled to create a wayleave for the line. The magnitude of change upon the northern unit is considered to be **Low**.

Assessment of Effect

The overall impact upon the Restored Opencast Mining LLCA is considered to be **Minor** and is therefore **Not Significant**. The assessment takes into account the extent to which key characteristics of the landscape would be modified as a result of the proposed grid connection. In this case the introduction of a linear feature would have an adverse impact upon the open and expose character of this LLCA and would affect visual character. The overhead line would become a feature within the landscape but it is considered that the partly restored industrial character exerts a stronger influence.

River Valley Pasture

Predicted Visibility

The ZTVs indicate that the proposed overhead line would theoretically be visible from most areas of this LLCA. As mentioned in the description of impacts upon the Douglas Valley AGLV and the Upland River Valley LCT, landform and vegetation would reduce visibility of the scheme such that clear views would be obtained predominantly along the valley floor becoming fragmented and intermittent with distance.

Magnitude of Change

The scheme would cross the floor of the valley within this LLCA and ascend the valley sides. The scale of the landscape varies between small and medium. The valley of the Glespin Burn near its confluence with Douglas Water is small in scale and the line would follow the course of the narrow valley for a short distance and may result in the removal of vegetation growing on the banks of the Glespin Burn. The line would then cross the open valley floor of the Douglas Valley and ascend on the west side of Windrow Wood where an existing overhead line would be buried underground for a short distance. The magnitude of effect is considered to **Medium**.

Assessment of Effect

The overall effect on the River Valley Pasture LLCA is considered to be **Moderate** and therefore **Significant**.

Upland Moorland with Windfarm

Predicted Visibility

Figures 7.5 to 7.10 indicate that Sections 1, 2 and 3 of the overhead line would theoretically be visible from this LLCA. As discussed previously Hagshaw Hill Windfarm is the dominant feature within this landscape. The scheme as a whole forms a focal point within views to the LLCA and from within the LLCA. Individual turbines or groups of turbines are the dominant features within views.

Magnitude of Change

The overhead line would pass along the boundary between Upland Moorland with Wind Farm LLCA and the Upland Moorland LLCA. The transition between the two different areas is characterised by overhead line infrastructure including a number of single and double wood pole lines and a substation. The proposed overhead line would intensify the amount of overhead line infrastructure in the area adjacent to this LLCA and be a contributory factor to the interruption of views to and from the LLCA. The magnitude of change attributed to the scheme is considered to be **Negligible**.

Assessment of Effect

The overall effect on the Upland Moorland with Windfarm LLCA is considered to be **Not Significant**.

Lowland Moorland

Predicted Visibility

The ZTVs illustrated in Figures 7.5 to 7.10 indicate that Sections 3, 4 and 5 of the line would theoretically be visible from this LLCA. Whilst section 1 would theoretically be visible, the separation distance (over 8km) is such that the line is unlikely to be discernible to the human eye and therefore unlikely to influence visual character of the Lowland Moorland LLCA.

Magnitude of Change

The line would cross an area of Lowland Moorland LLCA to the west of the village of Coalburn. This area is low lying and relatively flat with few notable focal points or features presently within it. The line would introduce a linear feature which would cross the landscape and to some degree conflict with the simple, open and exposed character of the area. The proposed overhead line would be a noticeable feature within views across the character area. The magnitude of change is therefore considered to be **Medium**.

Assessment of Effect

The overall effect on the Lowland Moorland LLCA is considered to be **Minor** and therefore **Not Significant**. This takes into account the degraded character of the LLCA and the intensive modification of surrounding landscapes that form its setting.

Undulating Pasture

Predicted Visibility

Figures 7.5 to 7.10 indicate that Sections 3, 4 and 5 of the line would theoretically be visible from this LLCA. Whilst Section 1 would theoretically be visible, the separation distance is such that the line is unlikely to be discernible to the human eye and therefore unlikely to influence visual character of the Undulating Pasture LLCA. It is likely that Section 3 and 4 of the line would be partly shielded by intervening vegetation. Views would therefore be fragmented and the line is unlikely to be clearly discernible within views to and from the character area.

Magnitude of Change

The proposed scheme would cross rough pasture before turning east and crossing improved grassland parallel to an existing 400kV transmission line which is strung on steel lattice towers. The 400kV line is a dominant feature within the landscape and the eye is drawn along the route of the line to where the large substation is visible partly screened by existing vegetation. The introduction of the proposed overhead line would intensify the appearance of overhead line infrastructure within the character area. There are sufficient gaps within existing hedges to accommodate the overhead line. It is therefore unlikely that vegetation will be removed to create a wayleave. The magnitude of effect is considered to be **Medium**.

Assessment of Effect

Given the scale of the landscape and the relatively enclosed character of views the overall impact on the Undulating Pasture LLCA is considered to be **Moderate** and therefore **Significant**.

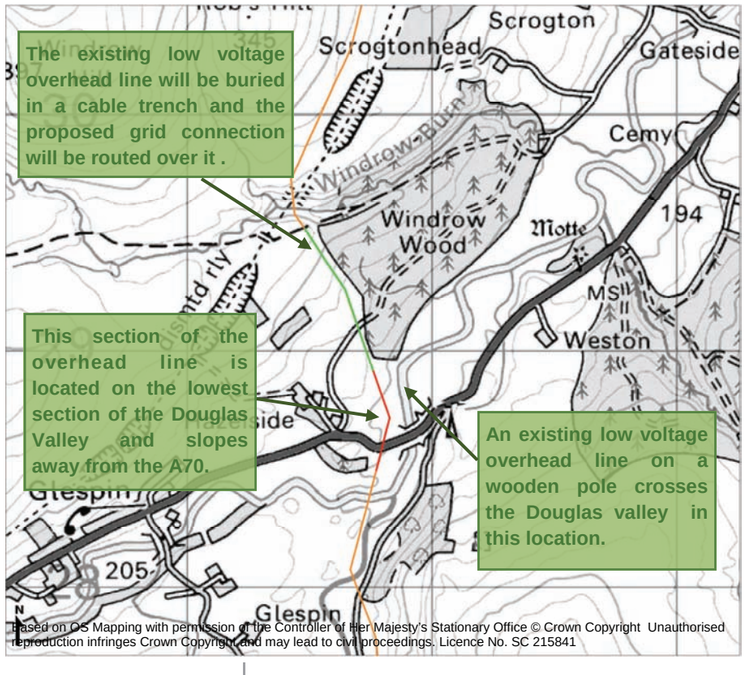
Summary of Residual Impacts upon Landscape Resources

Table 7.9 presents an overview of the residual impacts (i.e. those remaining taking into account the adopted mitigation measures) on Landscape Resources.

Table 7.9 Summary of Residual Impacts upon Landscape Resources

Landscape Resource	Sensitivity	Magnitude of Change	Significance of Residual Effect
Landscape Designations			
Southern Uplands Regional Scenic Area	Medium	Negligible	None - Not Significant
Douglas Valley Area of Great Landscape Value	High	Low and Medium (in a limited area)	Minor and Moderate (**Significant** in a limited area)
Regional Landscape Character Types			
Foothills	High	Negligible	None - Not Significant
Broad Valley Upland	Medium to High	Negligible	None - Not Significant
Plateau Farmland	Medium	Low	Minor - Not Significant
Upland River Valleys	High	Low and Medium (in a limited area)	Minor and Moderate (**Significant** in a limited area)
Plateau Moorlands	Medium to High	Negligible to Low	Minor - Not Significant
Local Landscape Character Types			
Upland Moorland with Commercial Forestry	Low	Low	None – Not Significant
Upland Moorland	High	Low	Minor – Not Significant
Opencast Mining	Low	None	None – Not Significant
Restored Opencast Mining	Low to Medium	Negligible to Low	Minor – Not Significant
River Valley Pasture	High	Medium	Moderate - **Significant**
Upland Moorland with Windfarm	Low to Medium	Negligible	None – Not Significant
Lowland Moorland	Low	Medium	Minor – Not Significant
Undulating Pasture	Medium	Medium	Moderate - **Significant**

Figure 7.4 Landscape Resource Impacts within the Douglas Valley



Significant impacts are predicted in a limited section of the Douglas AGLV and in the same limited section of the Upland River Valley Regional LCT and the River Valley Pasture LLCA. This section of the proposed overhead line is illustrated in red in Figure 7.4. It is located within the relatively flat section of the valley floor. Elevations on the valley floor are typically about 200mAOD with the fields sloping quite sharply away from the A70 which is slightly higher.

The AGLV is approximately 4.5km wide where it crossed by the proposed overhead line. This is the narrowest section of the AGLV outwith the central section which is 3.5km wide. However the central section of the AGLV was identified during the routeing study as an area to be avoided due to its local landscape value.

An existing low voltage overhead line on a wooden pole crosses the valley and heads north adjacent to Windrow Wood. The green section of the route denotes the wayleave of this existing overhead line. As part of the scheme this low voltage line will be replaced by a buried cable with the proposed 132kV overhead line being routed above it. The underground cabling of the low voltage line is less technically complicated and can be achieved from the single wood pole structure unlike the proposed 132kV which would require a larger terminal structure. This approach reduces the impacts resulting from wirescaping and clustering of wood poles.

Significant impacts are also predicted to occur in the Undulating Pasture LLCA. This section of the proposed overhead line connects to Coalburn substation and a section of the connection approximately 100m in length will be provided by an underground cable.

VISUAL RESOURCES IMPACTS

The following sub-sections describe the assessment of the impacts of the proposed overhead line on selected viewpoints along the route.

Visibility of the Proposed Overhead Line

Zone of Theoretical Visibility Overview

Figure 7.5 illustrates the ZTV for the entire length of the proposed overhead line. The ZTV indicates only those areas from which the wood pole structures carrying the line would theoretically be visible and does not account for the shielding effects of trees, buildings and local topography.

The Figure indicates theoretical visibility at distances of over 10km from the proposed overhead line. However, it is considered that beyond 5km it is unlikely that potential impacts of the scheme would be significant. Vegetation, local variations in topography, inclement weather and lighting would shield or partially interrupt or obscure views of the scheme. At distances of 5km or greater the 16m tall wood pole structures are unlikely to be prominent features or become focal points within views due to reduced perceptibility.

ZTV Analysis

Figures 7.6 to 7.10 illustrate the theoretical visibility of the proposed overhead line along five different sections of the scheme. The Figures indicate the number of wood pole structures that would be theoretically visible up to a distance of 5km from the route of the OHL. The following section is a description of the extents of theoretical visibility and the factors such as distance, shielding by vegetation and angle of view that are likely to influence magnitude of impact. Each section of the proposed overhead line route broadly relates to topography and viewsheds within the study area.

Section 1: Andershaw Windfarm Substation to Glentaggart Cottage

Figure 7.6 indicates that there would be theoretical visibility of 31 or more wood pole structures from Andershaw Farm, Glentaggart Cottage, the 'C' class road and the village of Glespin. Conifer plantation would obscure views of the line particularly from Andershaw Farm and parts of the 'C' class road. Views from Glespin would be screened by intervening vegetation located on a low ridge within the floor of the Douglas Valley. The proposed grid connection would be discernible within the existing wayleave for Mid Rig coal conveyor. The wayleave rather than the overhead line is likely to be the more prominent feature.

Section 2: Glentaggart Cottage to Dismantled Rail Line

Figure 7.7 indicates that there would be theoretical visibility of 31 or more wood pole structures from east Glespin Farm, Hazelside and the 'C' class road that connects the village of Glespin with Glentaggart Cottage. Between 21 and 30 poles would be theoretically visible from locations in the valley floor. Visibility within the valley floor is fragmented at some locations by intervening vegetation and also by local variations in topography.

VP11
VP10
VP9
VP8
VP7
VP6
VP5
VP4
VP3
VP2
VP1

N

Legend

- Proposed Overhead Line Route
- Andershaw Substation
- Andershaw Boundary
- Coalburn Substation
- Zone of Theoretical Visibility (ZTV) 0 - 16m of wood pole
- Zone of Theoretical Visibility (ZTV) 0 - 8m of wood pole
- Regional Scenic Area (RSA)
- Area of Great Landsape Value (AGLV)
- Viewpoint Direction of View
- Viewpoint Locations for Visual Assessment

Note:
ZTV has been produced from 1:10,000 OS Landform Profile DTM. It is based on a pole structure height of 16m with a viewing offset of 1.5m.

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.5: Zone of Theoretical Visibility Full Route			
Scale	1: 75,000	Drawn by	DR	Rev.
Date	Nov '08	Checked by	IAB	-

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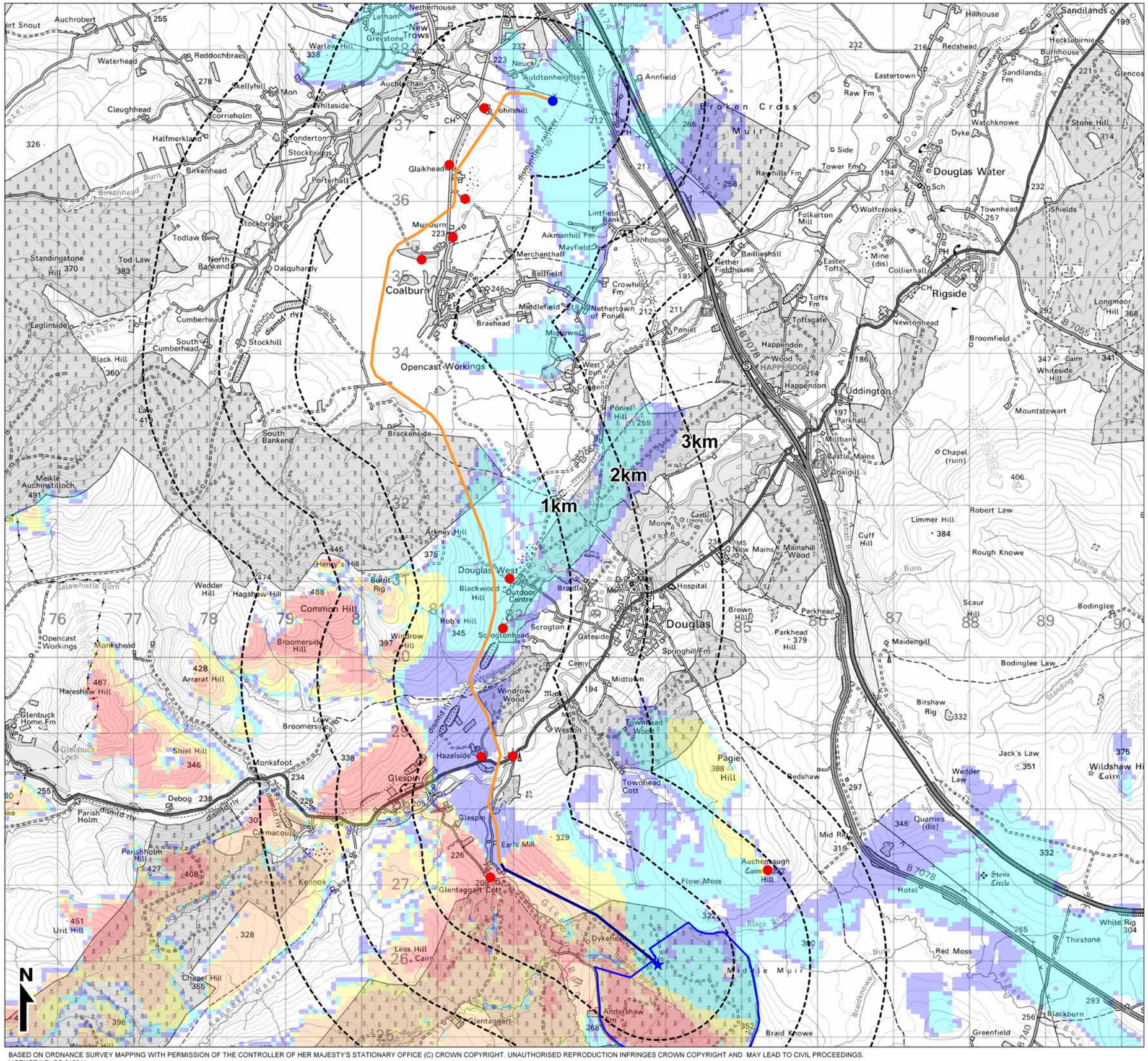

Legend

- Proposed Overhead Line Route
- Coalburn Substation
- Andershaw Substation
- Andershaw Windfarm Boundary
- Proposed Overhead Line Route Section 1 Andershaw to Glentaggart Cottage

Theoretical Number of Wood Poles Structures Visible

- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41+

- Viewpoint Assessment Location

Note:
The ZTV has been produced from 1:10,000 OS Landform Profile DTM. It is based on a pole structure height of 16m with a viewing offset of 1.5m.

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.6: Zone of Theoretical Visibility Section 1: Andershaw to Glentaggart Cottage			
Scale	1: 50,000	Drawn by	DR	Rev.
Date	Dec '08	Checked by	IAB	-

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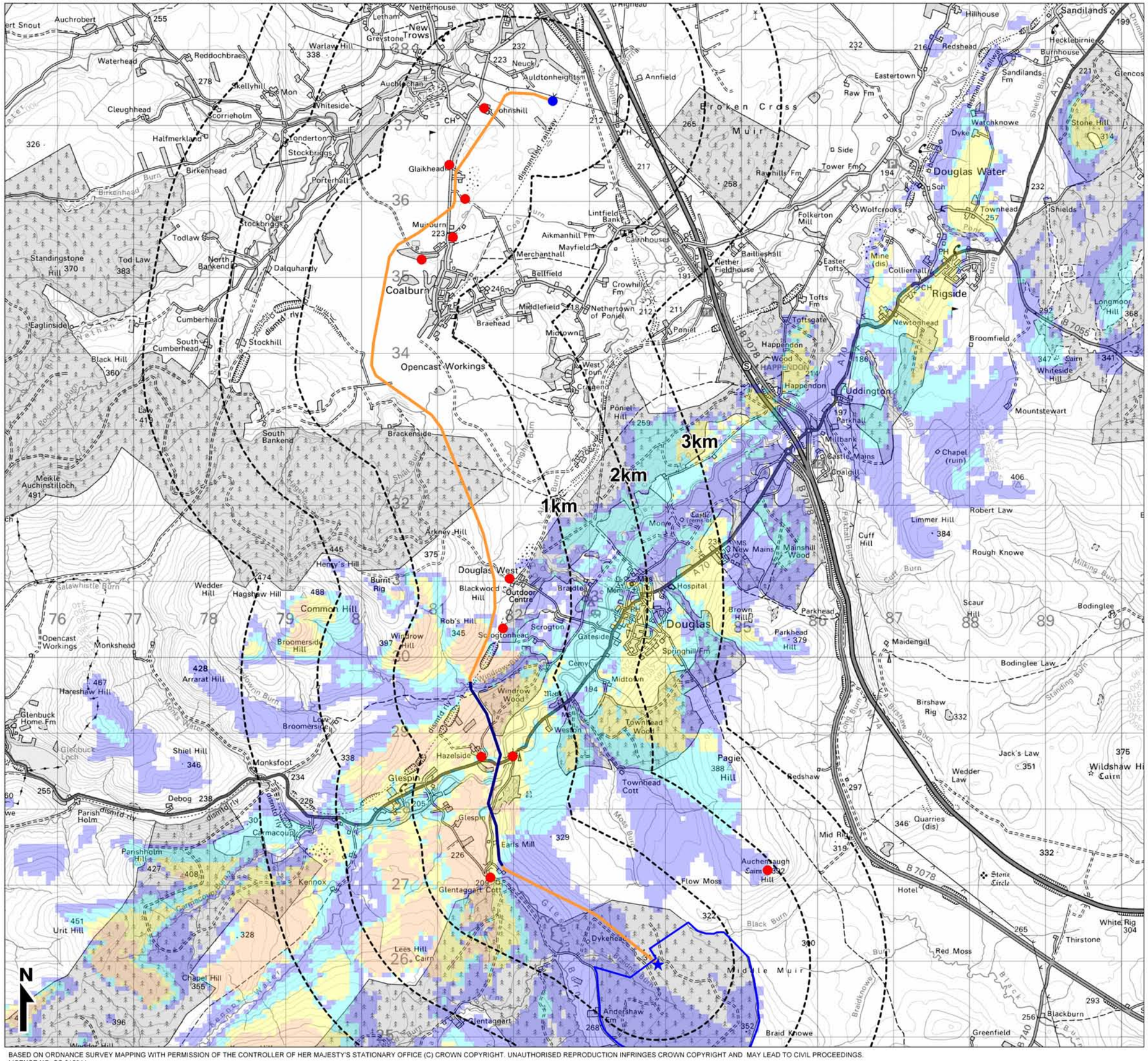

Legend

- Proposed Overhead Line Route
- Coalburn Substation
- Andershaw Substation
- Andershaw Windfarm Boundary
- Proposed Overhead Line Route Section 2 Glentaggart Cottage to Dismantled Railway Line

Theoretical Number of Wood Poles Structures Visible

- 0 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41+
- Viewpoint Assessment Location

Note:
The ZTV has been produced from 1:10,000 OS Landform Profile DTM. It is based on a pole structure height of 16m with a viewing offset of 1.5m.

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.7: Zone of Theoretical Visibility Section 2: Glentaggart Cottage to Dismantled Railway Line			
Scale	1: 50,000	Drawn by	DR	Rev.
Date	Dec '08	Checked by	IAB	-

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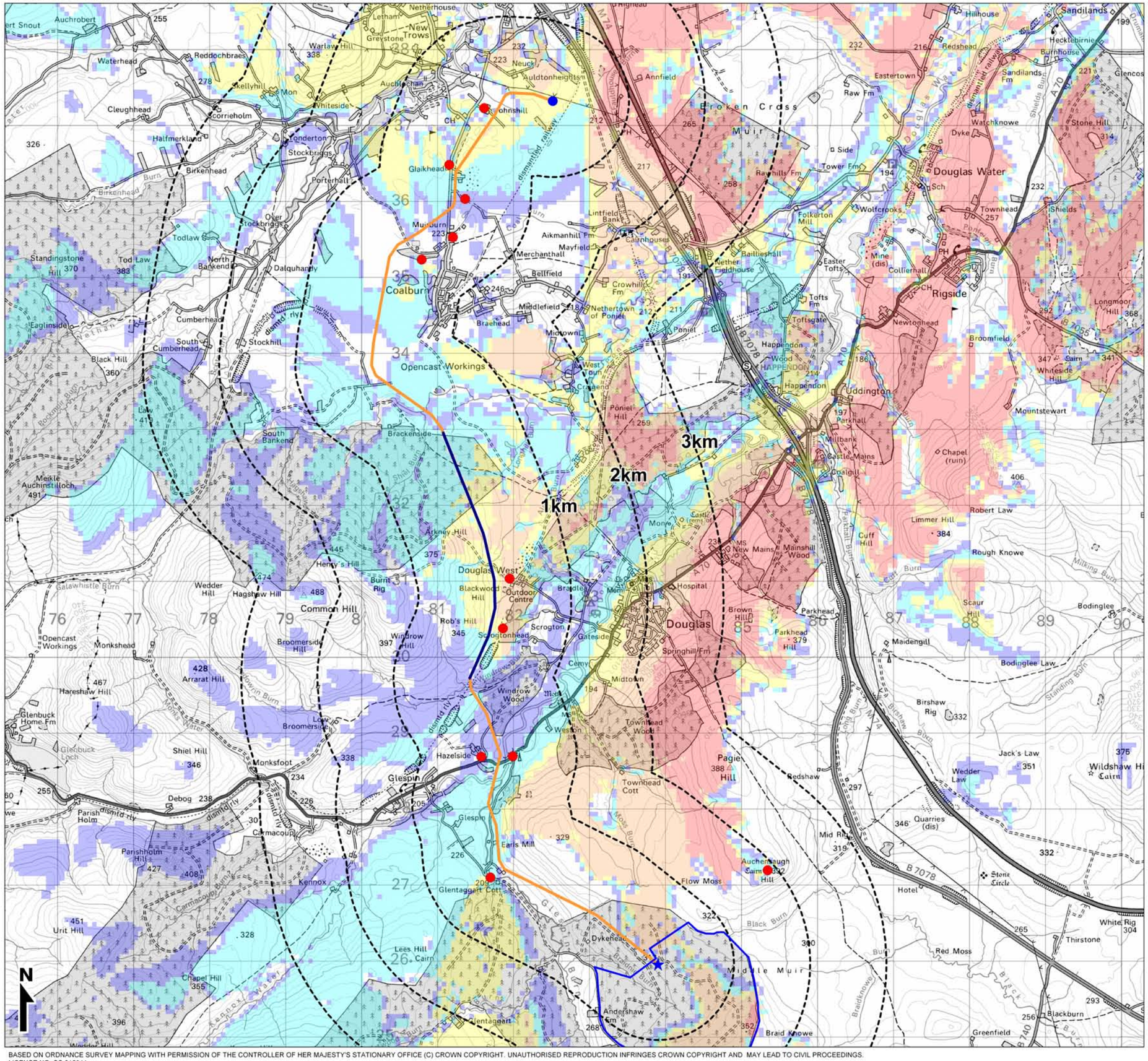

Legend

Note:
The ZTV has been produced from 1:10,000 OS Landform Profile DTM. It is based on a pole structure height of 16m with a viewing offset of 1.5m.

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.8: Zone of Theoretical Visibility Section 3: Dismantled Railway Line to Dalquhandy Restored Opencast			
Scale	1: 50,000	Drawn by	DR	Rev.
Date	Dec '08	Checked by	IAB	-

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Legend

- Proposed Overhead Line Route
- Coalburn Substation
- Andershaw Substation
- Andershaw Windfarm Boundary
- Proposed Overhead Line Route Section 4 Dalquhandy Restored Opencast to Coalburn

Theoretical Number of Wood Poles Structures Visible

- 0 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41+
- Viewpoint Assessment Location

Note:
The ZTV has been produced from 1:10,000 OS Landform Profile DTM. It is based on a pole structure height of 16m with a viewing offset of 1.5m.

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.9: Zone of Theoretical Visibility Section 4: Dalquhandy Restored Opencast to Coalburn			
Scale	1: 50,000	Drawn by	DR	Rev.
Date	Dec '08	Checked by	IAB	-

FABER MAUNSELL | AECOM

Legend

- Proposed Overhead Line Route
- Coalburn Substation
- Andershaw Substation
- Andershaw Windfarm Boundary
- Proposed Overhead Line Route Section 5 Coalburn to Coalburn Substation

Theoretical Number of Wood Poles Structures Visible

- 0 - 10
- 11- 20
- 21 - 30
- 31 - 40
- 41+
- Viewpoint Assessment Location

Note:
The ZTV has been produced from 1:10,000 OS Landform Profile DTM. It is based on a pole structure height of 16m with a viewing offset of 1.5m.

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.10: Zone of Theoretical Visibility Section 5: Coalburn to Coalburn Substation			
Scale	1: 50,000	Drawn by	DR	Rev.
Date	Dec '08	Checked by	IAB	-

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Section 3: Dismantled Rail Line to North End of Hagshaw Plantation

Figure 7.8 indicates that there would be theoretical visibility of 31 or more wood pole structures predominantly to the east of this section of the line. Intervening vegetation on the west side of the Douglas Valley and on the valley floor would shield views of the line or partially screen it. Buildings within Douglas would shield views of the scheme from within the village and from the east side. Views of the proposed overhead line from the A70 would also be limited as there is either vegetation or walls on the northern side of the road that would limit views to vehicle travellers heading west on road.

Section 4: North End of Hagshaw Plantation to Western Edge of Coalburn

Figure 7.9 indicates that there would be theoretical visibility of 31 or more wood pole structures predominantly from the low lying farmland to the north of Coalburn and in the immediate vicinity of the village. There is a degree of uncertainty regarding the position of the poles relative to the DTM model available for the area coinciding with the restored opencast workings to the south of Coalburn. Therefore, the extents of visibility indicated on Figure 7.8 may vary to a degree due to modifications to local topography. To the north east of Coalburn this section of the scheme would be screened to a degree by intervening vegetation, such as that growing alongside the 'C' class road to the north of Coalburn, and local landform such as the bing to the north of Muirburn farm. Figure 7.8 shows a tract of visibility coinciding with Hollandbush Golf Course. Vegetation and local landform within the course would partly shield the line giving fragmented views of the proposed overhead line.

Section 5: Western Edge of Coalburn to Coalburn Substation

Figure 7.10 indicates that there would be theoretical visibility of 31 or more wood pole structures predominantly within a 2km radius of the scheme. Vegetation to the north and west of the line would limit views of the line from those locations and there would be fragmented visibility within views from Coalburn and agricultural land to the east of the village.

Viewpoint Analysis

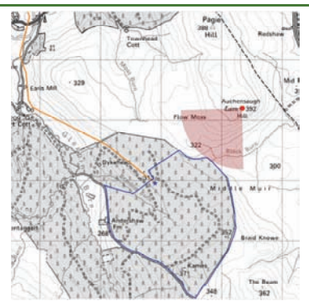
Viewpoint 1 Auchensaugh Hill

Grid Reference: (NS) 285341, 627191

Direction of View: South West

Sensitivity: High

(see Figure 7.11 for photomontage)



Predicted Visibility

Figures 7.6 and 7.7 indicate that between 21 and 30 poles would theoretically be visible along section 1 of the OHL and between 1 and 10 poles along section 2 of the line. Figure 7.11 shows that the scheme would be visible within conifer plantation with Andershaw Windfarm within the left of views from Auchensaugh Hill. Andershaw Windfarm would be the dominant feature within views in the direction of the overhead line.

Magnitude of Change

At more than 1.5km from the viewpoint the line would be a minor feature within the landscape with a proportion of the poles screened by conifers. A relatively short stretch of the line would be visible within conifer plantation before being lost from view as it descends west facing slopes towards the Glespin Valley. From this location the wayleave would not be discernible as the viewpoint is at right angles to the direction of the line. Given the separation distance between the viewpoint and the proposed grid connection, the routeing of the line within conifer plantation and the visual dominance of Andershaw windfarm it is considered that the magnitude of impact would be **Low**.

Assessment of Effect

The overall effect on recreational receptors at this location is considered to be **Minor** and therefore **Not Significant**.

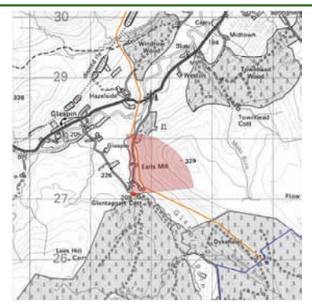
Viewpoint 2 Earl's Mill at Glespin Burn

Grid Reference: (NS) 285341, 627191

Direction of View: South West

Sensitivity: High (Residential)
Low to Medium (Road Users)

(see Figure 7.12 for photomontage)



Predicted Visibility

Figures 7.6 to 7.7 indicate that 31 or more poles in section 1 and between 21 and 30 wood pole structures in section 2 of the line would theoretically be visible from this location. However, it is likely that those poles having the greatest influence on views from this location are those between Millers Wood and the northern edge of Andershaw Plantation.

Magnitude of Change

The scheme would cross the boundary between Upland Moorland LLCA and River Valley Pasture near Glentaggart Cottage and the compound associated with Mid Rig Coal Conveyor. At this point the effect of the line crossing two character areas is less marked than would be the case if there was no existing development. The line would run within pasture on the valley sides and beneath a drystone wall that marks the boundary between the two character areas. Within the valley there is an existing power line on single wood poles and a telegraph line also on wood poles. These linear features are smaller in scale than the proposed overhead line which would be a very noticeable element within the narrow valley. The magnitude of change for residential receptors is considered to be **Medium** and for vehicle travellers it is considered to be **Low**. The rating of **Low** for vehicle travellers takes into account that the line would be positioned for most of its length some distance from the road and backclothed by the slopes of the adjacent hills.

Assessment of Effect

The overall effect on residential receptors is considered to be **Moderate** and therefore **Significant**.

The effect on vehicle travellers would be **Minor** and **Not Significant**.

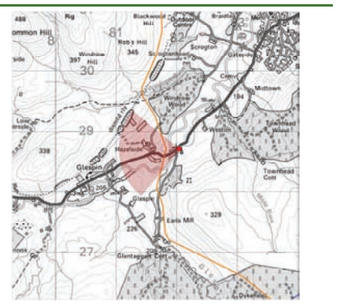
Viewpoint 3: Jeanfield Bridge on the A70

Grid Reference: (NS) 281992, 628700

Direction of View: West

Sensitivity: Low to Medium

(see Figure 7.13 for photomontage)



Predicted Visibility

Figures 7.7 to 7.8 indicate that 30 or more poles in section 2 and between 11 and 20 wood pole structures in section 3 of the line would theoretically be visible from this location. Those poles having the greatest influence on views are likely to be between the point where the line crosses Douglas Water and the southern edge of Windrow Wood.

Magnitude of Change

The scheme would emerge from the narrow Glespin valley onto the gently undulating broad valley floor of the Douglas Valley. Views are enclosed by local landform and vegetation. The horizon within views to north west is formed by the rounded hills on which Hagshaw Hill Windfarm is located. The proposed overhead line would be a prominent feature within views experienced by vehicle travellers heading west on the A70 and in particular the failure containment structure on the south side of the road. The magnitude of change is considered to be **Medium** at this location.

Assessment of Effect

The overall effect is considered to be **Minor** and therefore **Not Significant**. The significant adverse effect is attributed primarily to the line crossing the level valley floor where there is existing smaller scale overhead line infrastructure. A failure containment structure occupies a prominent location on the valley floor framed by vegetation and directly in front of vehicle travellers heading west.

Figure 7.11 Viewpoint 1 Auchensaugh Hill

Photograph of Existing View

Photomontage View

Figure 7.12 Viewpoint 2 Earl's Mill

Photograph of Existing View

PhotomontageView

Figure 7.13 Viewpoint 3 Jeanfield Bridge on the A70

Photograph of Existing View

Photomontage View

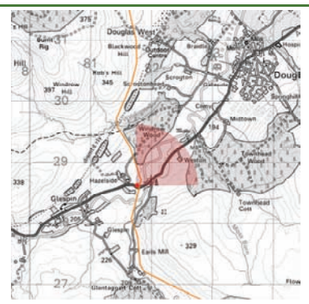
Viewpoint 4: Hazelside on the A70

Grid Reference: (NS) 281575, 628688

Direction of View: East

Sensitivity: High (Residential)
Low to Medium (Road Users)

(see Figure 7.14 for render)



Predicted Visibility

From this location Figures 7.7 to 7.8 indicate that 31-40 wood pole structures in section 2 and 11-20 wood pole structures in section 3 of the line would theoretically be visible. Views in this direction are more open in character than those afforded from Viewpoint 3. Topography is fairly regular on the valley floor without the concentration of ridges and terraces that are noticeable features within views to the west. There is no intervening vegetation to obscure views of the proposed overhead line.

Magnitude of Change

The proposed overhead line would oversail the A70 at the location where the viewpoint photograph was taken. It would cross pasture fields within the left of views with one wood pole being prominent within a few metres of the road. The line would skirt Windrow Wood's western edge running parallel to an existing single wood pole line part of which will be buried underground between Douglas Water and the dismantled railway line. The magnitude of effect for both residential receptors and road users is considered to be **Medium** as views are more expansive in this direction and the landscape appears simpler in composition with a conifer plantation, a mast and an existing wood pole line being noticeable features within views to the east.

Assessment of Effect

The overall effect is considered to be **Moderate** and therefore **Significant** for residential receptors and **Minor** and **Not Significant** for road users.

Viewpoint 5: Dismantled railway at Hagshaw Hill Windfarm

Grid Reference: (NS) 281851, 630351

Direction of View: North West

Sensitivity: High

(see Figure 7.15 for photomontage)

Predicted Visibility

Figure 7.8 indicates that 21-30 wood pole structures in section 3 would theoretically be visible from this location. Figure 7.6 indicates that wood pole structures within section 1 would also theoretically be visible. However, conifer plantation immediately east of the viewpoint would shield the line within views.

Magnitude of Change

The proposed overhead line would follow the contours of slopes beneath Hagshaw Hill Wind Farm. Some of the turbines are visible to hub height from this location. An existing single wood pole line is aligned on the east side of the dismantled railway line to the right of views from this location. On the west side of the track there are two wood pole lines that converge with the wood pole line on the east side of the track at the windfarm substation. The scheme would be noticeable larger in scale than the existing wood pole lines in this area and would intensify the appearance of overhead line infrastructure. The poles would project above the skyline with the large conductors being noticeable features. The magnitude of effect is considered to be **Medium** at this location.

Assessment of Effect

The overall effect is considered to be **Minor** and therefore **Not Significant**. Whilst receptors at this location are sensitive the proposed overhead line would pass through an area where views are contained by landform and vegetation and where existing overhead line infrastructure, wind energy development and conifer plantation detract from the existing view. The deterioration in views brought about by the proposed scheme would be noticeable but not at a level considered to be significant.

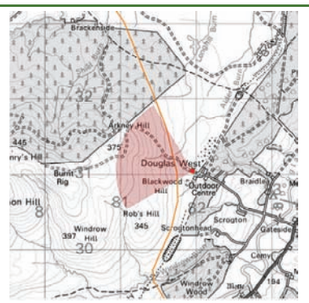
Viewpoint 6: Outdoor Centre at Douglas West

Grid Reference: (NS) 281949, 631033

Direction of View: West

Sensitivity: High

(see Figure 7.16 for render)



Predicted Visibility

Figures 7.6 and 7.8 indicate that 11 to 20 poles within section 1 and 31 to 40 wood pole structures in section 3 would be theoretically visible from this location. The wood pole structures within section 3 are those most likely to influence views from this location.

Magnitude of Change

The proposed scheme would pass to the west of the existing overhead line infrastructure visible within views form this location. It would follow the contours of Rob's Hill and Blackwood Hill before entering conifer plantation where it would be shielded by landform and vegetation. Hagshaw Hill Windfarm is a prominent focal point within views and the existing overhead line network is at its densest in the portion of the view occupied by turbines within the windfarm. The grid connection would be present above the skyline within the right of views and increase the relative intensity of overhead line infrastructure in this area. The magnitude of change associated with the line is considered to be **Low**.

Assessment of Effect

The overall effect is considered to be **Minor** and therefore **Not Significant**. This takes into account the existing density of overhead line infrastructure visible from this location, the presence of Hagshaw Hill Windfarm and the intensively modified appearance of the landscape. Whilst the existing level of infrastructure development does not set a precedent for more development, it does mean that the amount of perceptible change attributable to the scheme is less than would be the case if existing development were absent or minor.

Viewpoint 7: Footpath on the north west of Coalburn

Grid Reference: (NS) 280788, 635241

Direction of View: North

Sensitivity: High

(see Figure 7.17 for photomontage)

Predicted Visibility

Figures 7.9 to 7.10 indicate that between 11 and 20 wood pole structures in section 4 and between 31 and 40 in section 5 would theoretically be visible from this location. The number of poles actually visible in section 5 is likely to be far less due to the shielding effects of vegetation in the vicinity of 'Glaikhead'.

Magnitude of Change

Within existing views from this location overhead line infrastructure is visible on the skyline and as a minor component to the right of the view shown in Figure 7.17. The line would cross a landscape of fairly simple composition with Warlaw Hill, approximately 3km to the north, being a minor focal point within the centre of views. Residential properties at the edge of Coalburn would experience views of the overhead line and vehicle travellers would also experience views travelling in both directions along the 'C' class road that connects Coalburn with Porterhall and Stockbriggs. The magnitude of effect is considered to be **Low**.

Assessment of Effect

The overall effect is considered to be **Minor** and therefore **Not Significant** for residential and recreational receptors.

Figure 7.14 Viewpoint 4 Hazelside on the A70

Photograph of Existing View

Render View

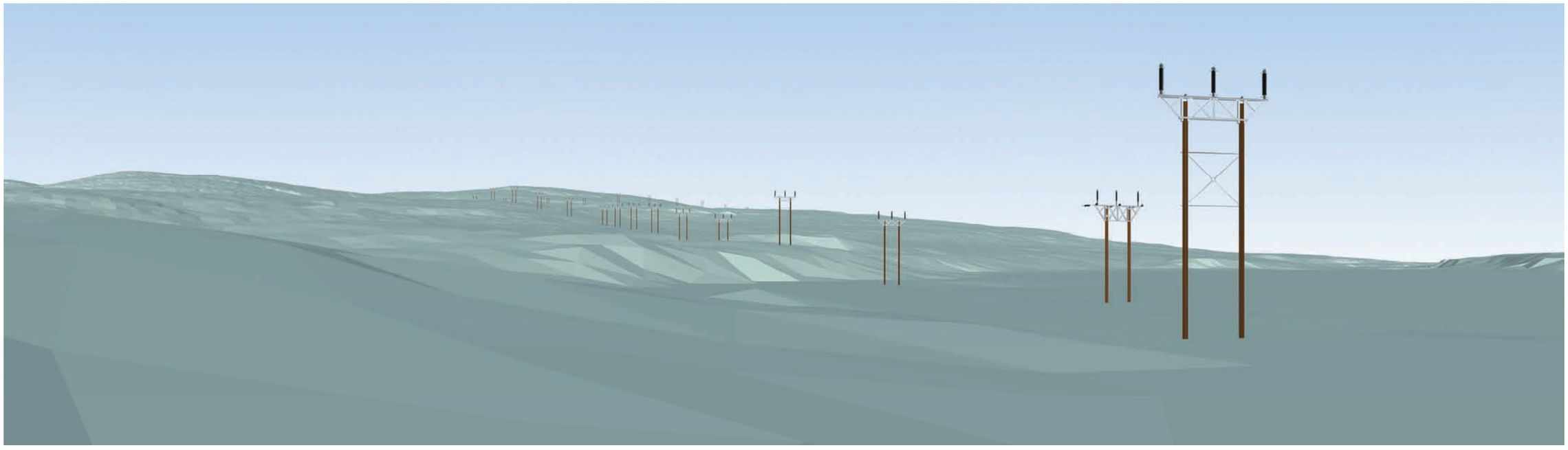


Figure 7.15 Viewpoint 5 Dismantled Railway at Hagshaw Hill Windfarm

Photograph of Existing View

Photomontage View

Figure 7.16 Viewpoint 6 Outdoor Centre at Douglas West

Photograph of Existing View

Render View

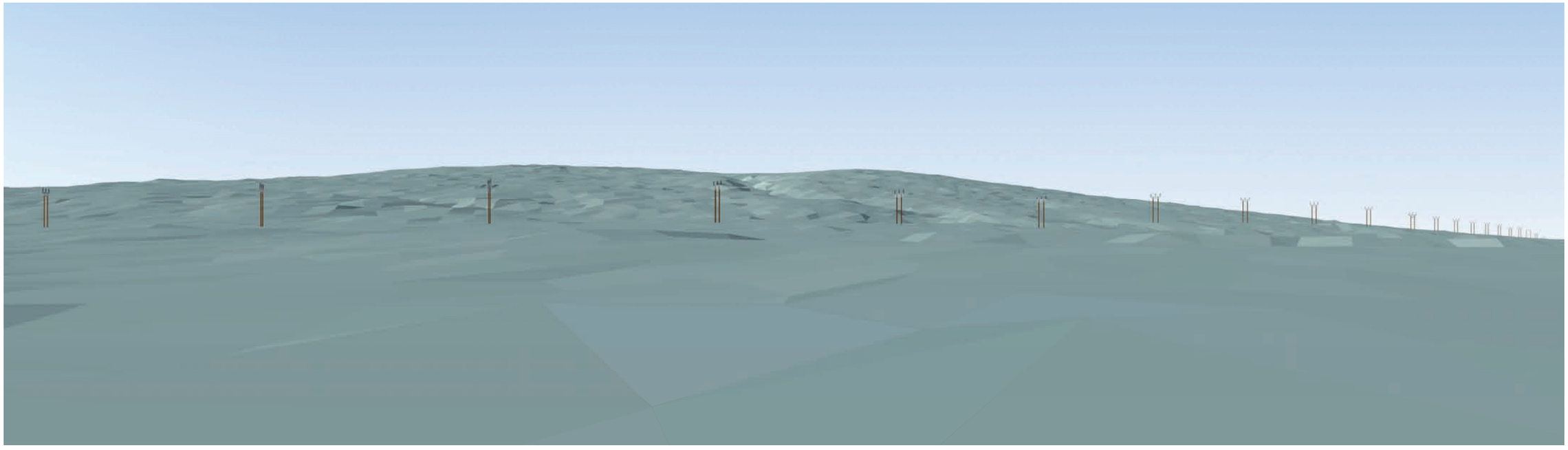


Figure 7.17 Viewpoint 7 Footpath on the north west of Coalburn

Photograph of Existing View

PhotomontageView

Viewpoint 8: North of Coalburn near Muirburn

Grid Reference: (NS) 281202, 635529

Direction of View: North

Sensitivity: High

(see Figure 7.18 for render)

Predicted Visibility

Figures 7.9 to 7.10 indicate that between 21 and 30 wood pole structures in section 4 and between 31 and 40 wood pole structures in section 5 would theoretically be visible from this location. It is likely that the northern part of section 4 would be visible with the southern part being shielded by landform and lost from views where it crosses the partly reinstated coal workings. Poles within the southern part of the section 5 would be the most visible with the northern part being shielded by landform and vegetation.

Magnitude of Change

The overhead line would be clearly visible where it crosses the lowland moorland landscapes and crosses the 'C' class road before being shielded from view by landform and vegetation at Glaikhead. The grid connection would introduce a large linear feature into the landscape and where views are aligned in the direction of the line such as on the 'C' class road and from the northern edge of Coalburn the effects would be greatest.

Given the simple composition of the landscape and the relative absence of development of this scale and type within views, the magnitude of effect is considered to be **Medium**.

Assessment of Effect

The overall effect is considered to be **Moderate** and therefore **Significant**.

Viewpoint 9: Access track south of Glaikhead

Grid Reference: (NS) 281363, 636034

Direction of View: North

Sensitivity: Medium to Low

(see Figure 7.19 for render)

Predicted Visibility

Figures 7.8 to 7.10 indicates that between 1 and 10 wood pole structures in section 3, between 21 and 30 wood pole structures in section 4 and between 31 and 40 in section 5 would theoretically be visible from this location. It is considered unlikely that poles in section 3 would influence the magnitude of effect within views from this location. Poles in the northern part of section 4, where the line crosses open moorland, would be more noticeable than those in the southern part of that section.

Magnitude of Change

The overhead line would follow the alignment of the 'C' class road on the east (right) side of the road and would pass to the right of the small area of woodland near 'Glaikhead'. The landscape is relatively simple in composition with the immediate surroundings to the viewpoint having a semi-derelict character where a bing is present. The line would be a noticeable feature within views for a short distance as it passes beside the road becoming shielded within views north from 'Glaikhead' by landform and vegetation. The magnitude of change associated with the proposed scheme is considered to be **Medium**.

Assessment of Effect

The overall effect of the proposed overhead line upon the visual amenity afforded within views from this location is considered to be **Minor** and therefore **Not Significant**. This takes into account the semi derelict appearance of the landscape and its simple composition.

Viewpoint 10: : Glaikhead adjacent to Coalburn Road

Grid Reference: NS (281155, 636483)

Direction of View: East

Sensitivity: High (Residential)

Low to Medium (Road Users)

(see Figure 7.20 for render)

Predicted Visibility

Figures 7.8 to 7.10 indicate that between 11 and 20 wood pole structures of section 3, between 31 and 40 pole structures in section 4 and between 31 and 40 in section 5 would theoretically be visible from this location. It is considered unlikely that section 3 of the line would have a bearing on visual impacts from Glaikhead given the separation distances involved. Landform and vegetation would partly shield section 4 of the line within views and there would be filtered views and fragmented visibility of section 5 of the line.

Magnitude of Change

The line would pass on the opposite side of the road from the properties at Glaikhead and be partly screened by a small area of woodland within views from the front of the properties and by vegetation aligned beside the 'C' class road the runs in front of the properties. There would be acutely angled views of the line where it runs to the north and south of the Glaikhead. From the rear of the properties the line would be visible as it crosses an area of open moorland before entering the partially restored opencast works at Dalquhandy. The magnitude of effect is considered to be **Low**.

Assessment of Effect

The overall effect of the line is considered to be **Minor** and therefore **Not Significant**. This takes into account the screening effects of vegetation and the acute angle of views from the properties.

Figure 7.18 Viewpoint 8 North of Coalburn near Muirburn

Photograph of Existing View

Photomontage View

Figure 7.19 Viewpoint 9 Access track south of Glaikhead

Photograph of Existing View

Render View

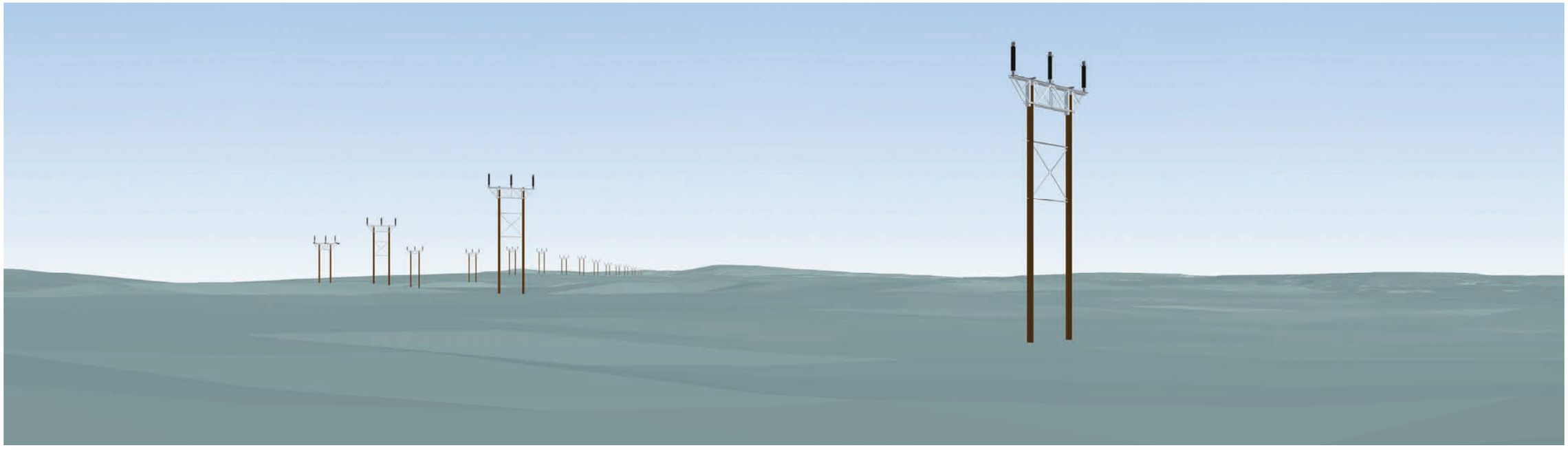
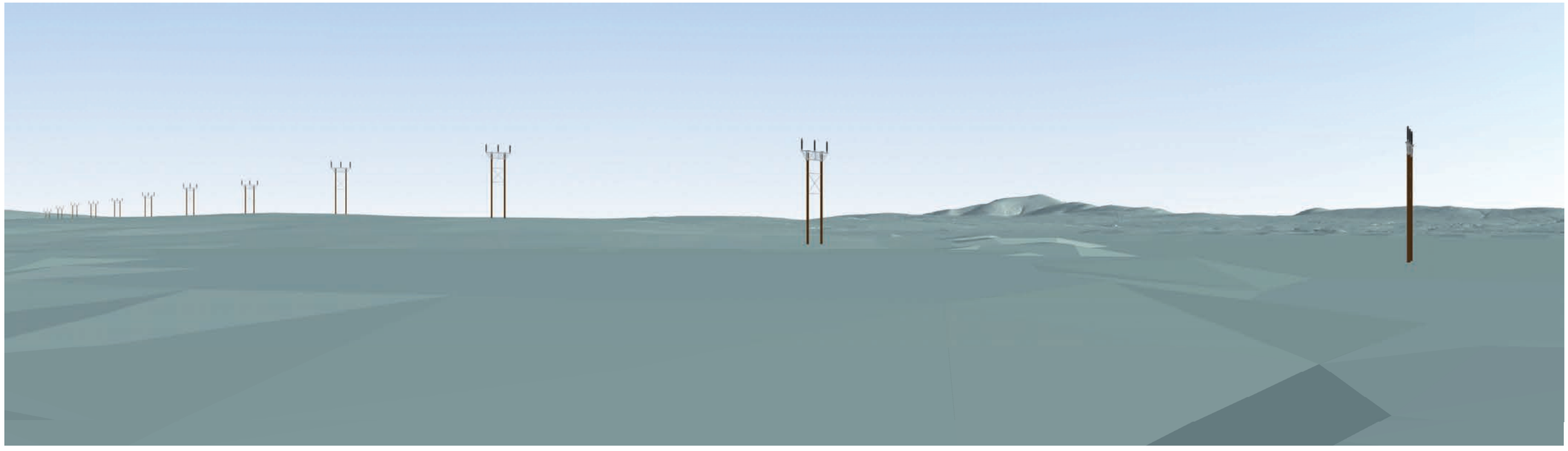


Figure 7.20 Viewpoint 10 Glaikhead adjacent to Coalburn Road

Photograph of Existing View

Render View



Summary of Residual Impacts upon Visual Resources

Table 7.10 presents an overview of the residual impacts on Visual Resources as assessed from the ten representative viewpoints. Figure 7.22 provides an overview of the findings of the visual assessment.

Table 7.10 Summary of Residual Impacts upon Visual Resources

View point	Location	Direction of View	Sensitivity	Distance to Nearest Pole (m)	Magnitude of Change	Significance of Effect
1	Auchensaugh Hill	South West	High	1920	Low	Minor - Not Significant
2	Earl's Mill at Glespin Burn	North east	High (Residential)	210	Medium (Residential)	Moderate (Residential) **Significant**
			Low to Medium (Road Users)		Low (Road Users)	Minor (Road Users) Not Significant
3	Jeanfield Bridge on the A70	West	Low to Medium	160	Medium	Minor Not Significant
4	A70 adjacent to Hazelside Farm	East	High (Residential)	240	Medium (Residential)	Moderate (Residential) **Significant**
			Low to Medium (Road Users)		Medium (Road Users)	Minor (Road Users) Not Significant
5	Dismantled railway at Hagshaw Hill Windfarm	North West	High	160	Medium	Minor Not Significant
6	Outdoor Centre at Douglas West	West	High	220	Low	Minor Not Significant
7	Footpath on the north west of Coalburn	North	High	330	Low	Minor Not Significant
8	North of Coalburn near Muirburn	North	High	250	Medium (Residential)	Moderate (Residential) **Significant**
9	Access track south of Glaikhead	North	Medium to Low	50	Medium	Minor Not Significant
10	Glaikhead adjacent to Coalburn Road	East	High (Residential)	90	Low	Minor (Residential) Not Significant
			Low to Medium (Road Users)		Low	Minor (Road Users) Not Significant

7.6 Summary

Baseline Conditions

The proposed overhead line would pass through three Regional Landscape Character Types. These are identified in the Glasgow and Clyde Valley Landscape Character Assessment as Plateau Moorland, Plateau Farmland and Upland River Valley. However, given the relatively small extents of the study area and the scale of proposed scheme, eight local landscape character areas, which provide a more detailed landscape resource baseline have also been identified:

- Upland Moorland with Commercial Forestry;
- Upland Moorland;
- Opencast Mining;
- Restored Opencast Mining;
- River Valley Pasture;
- Upland Moorland with Windfarm
- Lowland Moorland; and
- Undulating Pasture.

The scheme is routed close to (within 1.5km) of the Southern Uplands Regional Scenic Area (RSA) and crosses through the western part of Douglas Area of Great Landscape Value (AGLV). There are no national landscape designations such as National Scenic Areas or Registered Historic Parks and Gardens within the study area.

The landscape within the study area has undergone intensive modification by opencast coal mining, renewable energy development, forestry and agricultural activities. It is also crossed by a network of transmission and distribution lines strung on wood poles and higher voltage lines on large steel lattice towers. The M74 runs through the study area on a north south alignment and the A70 crosses from east to west. There are no large settlements within the study area; the principal villages are Douglas and Coalburn. There are also a number of scattered individual properties.

Assessment

The computer generated Zone of Theoretical Visibility for the study area indicates there would theoretically be visibility across most areas within 2km of the scheme. Beyond 2km theoretical visibility would become more fragmented and dispersed. Visibility would be restricted by conifer plantation, deciduous woodlands and hedgerow vegetation throughout the study area. Buildings, landform and local variations in topography would also limit visibility of the overhead line. Actual visibility of the scheme would therefore be less than that shown on Figures 7.5 to 7.10.

Landscape Resource Residual Impacts

There would not be any significant impacts upon the Southern Uplands RSA.

The impacts upon the Douglas Water AGLV are assessed as being **Significant** in a limited area; that which coincides with the floor of the

Legend

- Proposed Overhead Line Route
- Andershaw Substation
- Andershaw Boundary
- Coalburn Substation

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 7.22: Viewpoint Assessment Signifcant Visual Effects			
Scale	1: 50,000	Drawn by	DR	Rev.
Date	Nov '08	Checked by	IAB	-

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Douglas Valley. However, for the AGLV overall impacts are considered to be **Not Significant**.

With regard to landscape character **Significant** impacts are predicted on the character types and areas noted below. It is important to note that these occur within the same limited section of the Douglas Valley as the impacts on the AGLV.

- Upland River Valley LCT;
- River Valley Pasture LLCA ;and
- Undulating Pasture LLCA.

Visual Resource Residual Impacts

The visual assessment considered the effects of the overhead line from ten viewpoints identified as being representative of the scheme. The assessment concluded that there would be **Significant** impacts upon viewpoints at the following locations:

- Earl's Mill;
- A70 near Hazelside; and
- North of Coalburn at Muirburn.

Conclusions

The proposed overhead line would be located within an area of South Lanarkshire that has undergone intensive modification through industry, agriculture, forestry, power generation and distribution. The study area contains all these forms of development which have altered the landscape to varying degrees and resulted in a decline in landscape quality and condition in some areas. There are also some valued and higher quality landscapes within the study area.

The route of the proposed transmission line was selected based on the results of an options study which examined the environmental and land use constraints present between the two substations. Whilst the route will give rise to some adverse impacts it is considered to result in the least damaging impacts when compared to alternatives examined as part of the routeing study.

Routeing of the line has sought to achieve the best fit with the landscape whilst recognising engineering and technical constraints of the construction and operation of an overhead line. Micrositing of wood pole structures could further reduce impacts of the scheme by ensuring that structures are placed where they would not cause unnecessary detrimental effects.

The landscape and visual impact assessment indicates that there would be significant adverse impacts upon the landscape of some parts of the study area and the Douglas Water AGLV would be affected to a degree. There would also be significant adverse effects on the visual amenity afforded from some locations. However it is considered that the visual amenity of the study area in general would not deteriorate to a significant degree and the overall impact upon the population of the study area is therefore limited.

8. Ecology & Nature Conservation

8.1 Introduction

This chapter provides an assessment of the potential effects on sensitive ecological receptors of the proposed Andershaw windfarm electricity grid connection. It identifies and assesses the potential construction and operational impacts of the development and formulates an appropriate mitigation strategy. In summary, the scope of this assessment is to:

- Provide baseline ecological data on the proposed overhead line corridor;
- Examine and analyse these data with regard to the proposed development;
- Identify the significance of any potential direct/indirect impact on the ecology of the proposed development site and its immediate environs; and
- Identify appropriate and effective means of mitigating the potential adverse impacts arising from the construction and operation of the proposed overhead line connection.

It should be noted that breeding and wintering birds have not been discussed within this section but are fully assessed within Chapter 9 Ornithology.

8.2 Methods

This section summarises the methods adopted for ecological desk study, habitat and protected species surveys. The general approach taken complies with that set out in the guidelines published by the Institute of Ecology and Environmental Management (IEEM), July 2006.

Consultations and Data Gathering

Consultations with all relevant statutory and non statutory bodies were undertaken in July and August 2008 as well as during the routeing study. All relevant consultation responses are summarised in Table 8.1 below.

Table 8.1 Summary of Consultation Reponses

Consultee	Summary of Consultation Responses
SNH	Provided information pertaining to designated sites within the study area as well as advising on the presence of protected species including badgers, otters, red squirrels and bats. Highlighted that the study area lies within the Glasgow and Clyde Valley Landscape Character area.
SEPA	Provided details of where appropriate baseline information might be obtained from the SEPA website.
South Lanarkshire Council Local Biodiversity Officer	Advised on the presence of Blanket and Lowland Raised Bog in the study area, both of which are in the local and UK biodiversity action plan (BAP). Highlighted the need to undertake protected species surveys.
Scottish Wildlife Trust	No reply.
Lanarkshire Badger Group	No records held relevant to the study area.
Forestry Commission	Identified the Land Information Search
BSBI	Held no records of particular importance for the study area.
Butterfly Conservation Scotland	No comment
Central Scotland Forest Trust	No comment

Ecological Surveys

Surveys considered appropriate within the overhead line route corridor included Phase 1 Habitat Survey, supplemented with NVC, otter, water vole, badger and bat surveys. Surveys for reptiles, amphibians, fish and invertebrates were not considered appropriate for this study area due to the lack of suitable habitat for these species within the construction corridor.

Phase 1 Habitat Survey with NVC

The Phase 1 Habitat Survey was carried out during June and July of 2007 following the method in the *Handbook for Phase 1 Habitat Survey* by the Joint Nature Conservation Committee (JNCC 2007). In addition to Phase 1 Habitat Survey, additional detail was given by an NVC survey where possible. Classification of plant communities according to NVC was undertaken to community level, or sub-community level if possible. The communities were mapped by eye, with the aid of aerial photographs and a handheld GPS. All of the communities were relatively common, and so quadrat data was not needed for identification purposes. Target notes were taken to pinpoint features of interest, or locally occurring communities. Particularly good habitats or where additional information was deemed necessary, such as the condition of important habitats such as peatlands were target noted.

The width of corridor surveyed varies according to the terrain, and is constrained to a small degree by lack of access permission. Two areas where access was restricted are:

- Land to the south of the Scottish Coal conveyor belt. Due to difficulty of access and associated health and safety issues, this area was surveyed from the north of the conveyor. Survey was carried out using binoculars to ensure greater detail of the habitats in this area and aid identification of flora present. However, as the overhead line is to be located to the north, impacts would be localised.
- Land to the north of Glaikhead. Access to this area was not initially permitted during the Phase 1 and NVC survey period. As a result, the area between Glaikhead and Johnshill was surveyed in early December 2008 to Phase 1 level.

Otters

The otter and water vole surveys were carried out in June and July 2007 in accordance with guidance provided by National Rivers Authority and Royal Society for Nature Conservation (1994).

The otter survey aimed principally to find resting sites such as holts (enclosed dens) and couches (surface dens) that could be impacted by the proposed works. All evidence of otter activity was recorded such as spraint, prints, runways, slides and haul-out places.

Where the proposed overhead line route crosses a waterbody, 250 metres up and downstream, including both sides of the embankments, were surveyed for signs of otters.

Water Voles

The water voles surveys were undertaken in June and July 2007 following guidance provided by Strachan, R. (1998).

Searches for evidence of water voles were made primarily for latrines, droppings, feeding stations, foot prints, nests, burrows, tunnels/runways and lawns.

The water vole surveys were undertaken simultaneously with the otter surveys and over the same survey area.

Although there had been heavy rainfall in the preceding months, the survey was carried out in good conditions of low rainfall and low water levels at an appropriate time of year for water voles.

Badgers

Surveys for badgers were undertaken during June and July 2007. The survey covered the overhead line route and approximately 100m either side. The survey was primarily aimed at locating and recording any setts that could be impacted by the proposal. Badger setts found were classified according to standard protocol which puts them into four main categories: main setts, annexe setts, subsidiary setts and outlying setts. Evidence of badger activity was also recorded such as prints, badger hairs, tracks, latrines, scratching posts and foraging activity . Survey work was confined to daylight hours and therefore no setts were watched at night.

Bats

The route was surveyed for habitat with bat potential, possible roosting sites and foraging routes. Trees highlighted as holding bat roosting potential were surveyed with binoculars for external signs which may indicate use by bats, such as black staining, cracks and crevices. Any

trees to be felled with medium to high roosting bat potential were highlighted for further survey.

The survey method is in line with the method described in Bat Surveys; Good Practice Guidelines 2007, Bat Conservation Trust and as stated in Bat Workers Manual 3rd Edition, Joint Nature Conservation Committee in addition to Woodland Management for Bats, Forestry Commission.

Impact Assessment Methods

The stages in the impact assessment are outlined below. In summary, the process involved:

- Evaluation of ecological receptors;
- Identification of the types of potential impacts on these receptors and ensure all relevant legislation is adhered to;
- Description of the changes that these activities would have on receptors; and
- Identification of the significance of the impact talking into account the effectiveness of mitigation measures.

Evaluation of Ecological Receptors

For a full assessment it is necessary to have some concept of the value of the site as a whole as well as its value in context of the ecological receptors that it supports. The value or potential value of an ecological resource or feature is determined within a defined geographical context as follows (Guidelines for Ecological Impact Assessment, 2006):

- International;
- UK;
- Scotland;
- South Lanarkshire;
- Local; and
- Within zone of influence only.

Designated sites and features are taken into account where relevant. There are several designations which are relevant to the overhead line connection, these are discussed in section 8.3.

The biodiversity value of ecological resources and features is assessed on a range of criteria as identified by Ratcliffe, 1989 and those applied as part of the Biodiversity Action Planning process and described in the IEEM Guidelines. This also takes into account potential value, secondary or supporting value, social value and economic value.

The EIA methodology is based on both experience gained by the consultants and guidance produced by such bodies as the Institute of Environmental Management and Assessment (IEMA) and the Institute of Ecology and Environmental Management (IEEM). The most recent guidelines, (2006) Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006) advocate an approach to evaluation and impact assessment with less emphasis on conforming to tables such as 8.2 below and recommends an approach to valuation that involves teasing apart the different values that can be attached to the ecological receptors under consideration. The following tables set out the framework used to rationalise evaluations in the first instance, however, these are used in combination with professional judgement.

Table 8.2 Resource Evaluation Criteria

Value of Resource	Selection Criteria
Very High (International)	An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, and or Ramsar site) or an area that SNH has determined meets the published criteria for such designations, irrespective of whether or not it has yet been notified. A viable area of a habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat that are essential to maintain the viability of a larger whole. UK Red data book species or listed as occurring in 15 or fewer 10 km squares in the UK (categories 1 and 2 in the UK BAP), or of uncertain conservation status or global conservation concern in the UK BAP. A regularly occurring, nationally significant population/ number of any internationally important species.
High (UK)	A nationally designated site (e.g. SSSI, ASSI, NNR, Marine Nature Reserve) or a discrete area that meets the selection criteria for national designation (e.g. SSSI selection criteria) irrespective of whether or not it has yet been notified. A viable area of a priority habitat identified in the UK BAP or of smaller areas of such habitat, which are essential to maintain the viability of the whole. Any regularly occurring population of a nationally important species that is threatened or rare in the regional or Council area. A regularly occurring, regionally or Council area significant population/number of any nationally important species. A feature identified as of critical importance in the UK BAP.
Medium – High (Scotland)	Sites that exceed the Council area level designations but fall short of SSSI selection guidelines, where these occur. Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of the whole. Viable areas of key habitat identified as being of Regional Value in the appropriate Natural Area profile. Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation. A regularly occurring, locally significant number of a regionally important species.
Medium (South Lanarkshire)	Council area sites and other sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on Council ecological criteria. Semi-natural ancient woodland greater than 0.25ha. A viable area of habitat identified in the Council area BAP. A regularly occurring, locally significant number of a Council area important species. Any regularly occurring, locally significant population of a species that is listed in a Council 'red data book' or BAP on account of its regional rarity or localisation.
Low – Medium (Local)	Areas of habitat identified in a Council BAP or in the relevant Natural Area Profile. Sites/ features which are scarce within the Council or which appreciably enrich the Council habitat resource. A population of a species listed in a Council BAP on account of its rarity in the locality or in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. Semi-natural ancient woodland smaller than 0.25ha. A diverse and/or ecologically valuable hedgerow network.
Low (Within zone of influence only)	Areas of habitat considered to appreciably enrich the habitat resource within the context of the neighbourhood, e.g. species-rich hedgerow.
Negligible	No significant ecological value.

Impact Significance

Determining the significance of an identified impact is not always straightforward. The significance of the impacts of this scheme has been determined by considering the value of the resource affected and the following potential impact parameters:

- Positive or negative – positive impacts as a result of the development are also identified;
- Magnitude – determined quantitatively where possible;
- Extent – the area over which the impact will be felt;
- Duration – time until recovery or replacement;
- Reversibility – permanent or temporary impact; and
- Timing and frequency.

The most recent guidelines produced by the IEEM (2006) advocate a less rigid approach to the assessment of impacts than was previously the case, with more emphasis on expert opinion and the merits of each ecological receptor in its own context. This is because the rigid use of matrices widely used until now can actually devalue the significance of local biodiversity, which has been recognised to lead to a gradual erosion of local biodiversity which consequently affects national biodiversity.

The approach used in this assessment is therefore to describe the impacts and state if the impacts are significant or not significant on each particular receptor. Where residual impacts are predicted to be absent, the distinction is made by determining a neutral impact.

Regulatory Framework

The following sections set out the legal and policy designations and protection afforded to ecological sites and protected species in the national and local context.

Habitats

A range of sites are designated in the UK under various Conventions, Directives and Regulations for their nature conservation importance and interest. The general aim of these designations is to conserve and protect ecological resources in addition to raising awareness and understanding. Other non-statutory sites are afforded some protection through local plans. Table 8.3 below outlines the common statutory and non-statutory designations which apply to the assessment of the overhead line route.

Table 8.3 Common Statutory and Non Statutory Designations

Designation	Description
Special Area of Conservation (SAC)	SACs are strictly protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the habitat types and species, which range from sand dunes and forest to bogs and heath land, identified in Annexes I and II of the Directive (as amended).
Special Protection Area (SPA)	SPAs are strictly protected sites classified in accordance with Article 4 of the Birds Directive. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species.
Site of Special Scientific Interest (SSSI)	These are exemplary places in Scotland for nature conservation. They are special for their plants or animals or habitat, their rocks or landforms or a combination of these. Designation is a legal process.
Ancient Woodland Inventory (AWI)	In Scotland, Ancient Woodlands are woodlands that have been established since or before 1750AD. They are non-statutory sites and are not legally protected but they are afforded some protection in, for example, structure and local plans.
Semi Natural Woodland Inventory (SNAWI)	These are sites shown as semi-natural woodland in c.1860 but not shown as woodland on the 1750 maps. These are woodlands that have apparently arisen between 1750 and 1860.
Local Sites	These non-statutory sites are sites designated by a local authority as being of local nature conservation value but are not notified as SSSIs. They have a variety of titles dependent upon the designating authority and include: Sites of Importance for Nature Conservation and Urban Wildlife Sites.

Protected Species

In addition to designated sites, a number of species have now become so rare or vulnerable that they are also afforded protection through international/European and national law. Other species are considered to contribute to our 'quality of life'. Although these species do not benefit from legal protection, they can be key considerations in the planning process.

Activities affecting protected species must usually be conducted under licence obtained from the appropriate body, which in Scotland is SNH.

Proposed development must be able to show that all reasonable measures have been taken to ensure that protected species are not subject to disturbance. Under certain circumstances, licences can be issued to facilitate development that may impact European Protected Species (EPS) and badgers. There is no equivalent licensing for Schedule 5 species (WCA). Table 8.4 outlines the key forms of protection afforded to species.

Table 8.4 Key Protection Afforded to Species

Form of Protection	Description
The Habitats Directive	Annex II of the Directive lists the European protected species that are afforded special protection under this Directive. The provisions of the Habitats Directive were transposed into Scottish law by the Conservation (Natural Habitats &c) Regulations 1994. Schedule 2 of the Regulations lists the European protected species of animals whilst Schedule 4 lists the European protected species of plants. This has been amended by the Conservation (Natural Habitats &c) Amendment (Scotland) Regulations 2007.
The Birds Directive	Bird species listed in Annex I of the Directive regularly occur in Britain but are protected under EEC law. Member countries are required to classify as SPAs the most suitable sites for these species and also for all regularly occurring migratory species.
Wildlife and Countryside Act, 1981, as amended by the Nature Conservation (Scotland) Act 2004	Bird species listed in Schedule 1, animal species listed in Schedule 5 and plant species listed in Schedule 8 of the WCA 1981, as amended, are protected. All breeding birds are protected. The control of invasive species in Schedule 9.
Protection of Badgers Act 1992, as amended by the Nature Conservation (Scotland) Act 2004	Badgers and their setts are protected

The Nature Conservation (Scotland) Act 2004

This act places a duty on every public body to further the conservation of biodiversity consistent with the proper exercise of its functions. In the context of the overhead lines this biodiversity duty applies to South Lanarkshire Council in assessing the planning application.

Planning Policy

A summary of planning policy is provided in Chapter 5 of this ES. This includes national, regional and local policy objectives. With respect to wildlife, it is the intention of certain planning policies that sites and species of nature conservation concern are to be protected from development. Where development is allowed that would harm such sites or species, then enhancement and benefit for wildlife should be included.

Scottish Planning Policy Guidance

The Scottish Executive has produced National Planning Policy Guidance 14: Natural Heritage (NPPG 14). NPPG 14 stipulates the Government's policy approach for the conservation and enhancement of Scotland's natural heritage. NPPG14 is to be reflected in development plans.

The policy provides guidance on the approach to be taken for designated sites of national and international importance, local and non-statutory designations as well as specifying the "importance of safeguarding and enhancing natural heritage beyond the confines of designated areas". It should be noted that NPPG 14 has implications for both rural and urban environments. In addition, NPPG 14 is supported by guidance contained in the Scottish Executive's Planning Advice Note 60: Planning for Natural Heritage (PAN 60).

Biodiversity Action Plans (UKBAP)

The UK Biodiversity Action Plan (UK BAP) (1994) sets out the UK's response to Article 6 of the Convention on Biological Diversity. It lists priority species and priority habitats that require particular attention. Separate Action Plans for these priority species and habitats have been produced setting out clear, measurable targets.

These Habitat Action Plans and Species Action Plans can be used to aid the impact assessment. In the first instance, they assist in evaluating ecological receptors that are not protected. Secondly, they can assist in assessing potential impacts, both negative and positive against national targets.

The UK Biodiversity Action Plan [BAP] (UK Biodiversity Steering Group, 1995, updated 2007) lists 59 bird species as priority species requiring conservation action, and consequently action plans have been developed for the conservation of these species.

The proposed development is contained within a geographic area covered by the South Lanarkshire local BAP (LBAP). Habitats and bird species for which action plans have been prepared, including for this area are detailed on the UKBAP website.

The Scottish Biodiversity List

The Scottish Biodiversity list was drawn up in response to the Nature Conservation (Scotland) Act 2004. It lists habitats and species that are considered to be of Principal Importance for the purpose of biodiversity conservation in Scotland.

As for the national (UK), biodiversity list, the Scottish Biodiversity list assists in evaluating the importance of non protected species and habitats, but unlike the national and local biodiversity strategies, there are no plans or targets for these species.

South Lanarkshire Biodiversity Action Plan (SLBAP)

The South Lanarkshire Biodiversity Action Plan lists species and habitats that have been assessed in a local context as requiring action. This includes a list of key species and Indicator species associated with SLBAP habitats.

8.3 Baseline Situation

Site Context

The route of the proposed OHL runs from Andershaw Windfarm on to Coalburn Substation as shown on Figure 3.1 In total the route is approximately 15km long with elevations along the route generally between 200m and 350m AOD. The majority of surrounding landscape is dominated by improved grassland, rough grazing and moorland and restored former opencast workings with pockets of commercial plantation spruce woodland.

Designated Sites

Statutory Designated Sites

There are a number of internationally/nationally and regionally designated sites in the vicinity of the overhead line corridor. Only European Sites within 4km and all others within 2km have been included within the assessment as those outwith this distance are not considered to be affected by the development. Sites designated for their bird assemblages are considered in Chapter 9 Ornithology. Table 8.5 and Figure 8.1 identify protected sites within the study area, and these are briefly described below.

Coalburn Moss SAC & SSSI

One of the best examples of active raised bog in the United Kingdom, a habitat which is now restricted.

Red Moss SAC & SSSI

A complex area of mire vegetation situated in the broad valley of the Black Burn north of Crawfordjohn.

Muirkirk Uplands SSSI

The upland habitats of this SSSI principally comprise a mosaic of blanket bog, wet and dry heath and acid grassland which, as a whole represents one of the best examples of upland habitat within south-west Scotland. This SSSI also supports an assemblage of moorland birds and raptors, on which further information can be found in Chapter 9 Ornithology.

North Lowther Uplands SSSI

Qualifying interests of North Lowther Uplands SSSI includes uplands, blanket bog, dry heath and acid grassland. This SSSI also supports an assemblage of moorland birds and raptors, on which further information can be found in Chapter 9 Ornithology.

Millers Wood SSSI

An area of birch and rowan woodland of a type which is rare and unusual in the district.

Table 8.5 Protected Sites

Site Name	Designation	Qualifying Interest	Location
Coalburn Moss (224ha)	Special Area of Conservation and Site of Special Scientific Interest (SAC and SSSI)	Active raised bogs Degraded raised bog	Immediately south of Coalburn substation and west of the B7078.
Red Moss (75ha)	Special Area of Conservation and Site of Special Scientific Interest (SAC and SSSI)	Active raised bogs	Approximately 1.7km north east of Andershaw windfarm adjacent to the B7078.
Muirkirk Uplands (8,666ha)	Site of Special Scientific Interest (SSSI)	• Biological: Habitat: Uplands; • Biological: Habitat: Blanket Bog; • Biological: Species: Birds: Assemblage of moorland birds; • Biological: Species: Birds: Hen harrier (breeding); • Biological: Species: Birds: Hen harrier (wintering); and • Biological: Species: Birds: Short-eared owl	Occupies up-lands areas approximately 4km west of the study area.
North Lowther Uplands (7,802ha)	Site of Special Scientific Interest (SSSI)	• Biological: Habitat: Uplands, Blanket Bog, Dry Heath and Acid Grassland • Biological: Species: Birds, Assemblage of Moorland Birds • Biological: Species: Birds, Hen Harrier	Approximately 2.7km south of Andershaw windfarm. Site lies within an upland area on the southern fringes of the study area.
Millers Wood (13ha)	Site of Special Scientific Interest (SSSI)	• Biological: Habitat: Woodland	Approximately 2.6km south west of the village of Douglas.

Ancient Woodland Inventory Sites

Non-Statutory designated sites contribute to the biodiversity of the study area and form an important component in the overall landscape.

The Ancient Woodland Inventory and the Semi-natural Ancient Woodland Inventory lists 6 woodland sites within 2km of the proposed overhead line corridor. There are a number of smaller sites that are unnamed, however, named sites are listed in Table 8.6 below.

Table 8.6 Ancient Woodland Inventory Sites

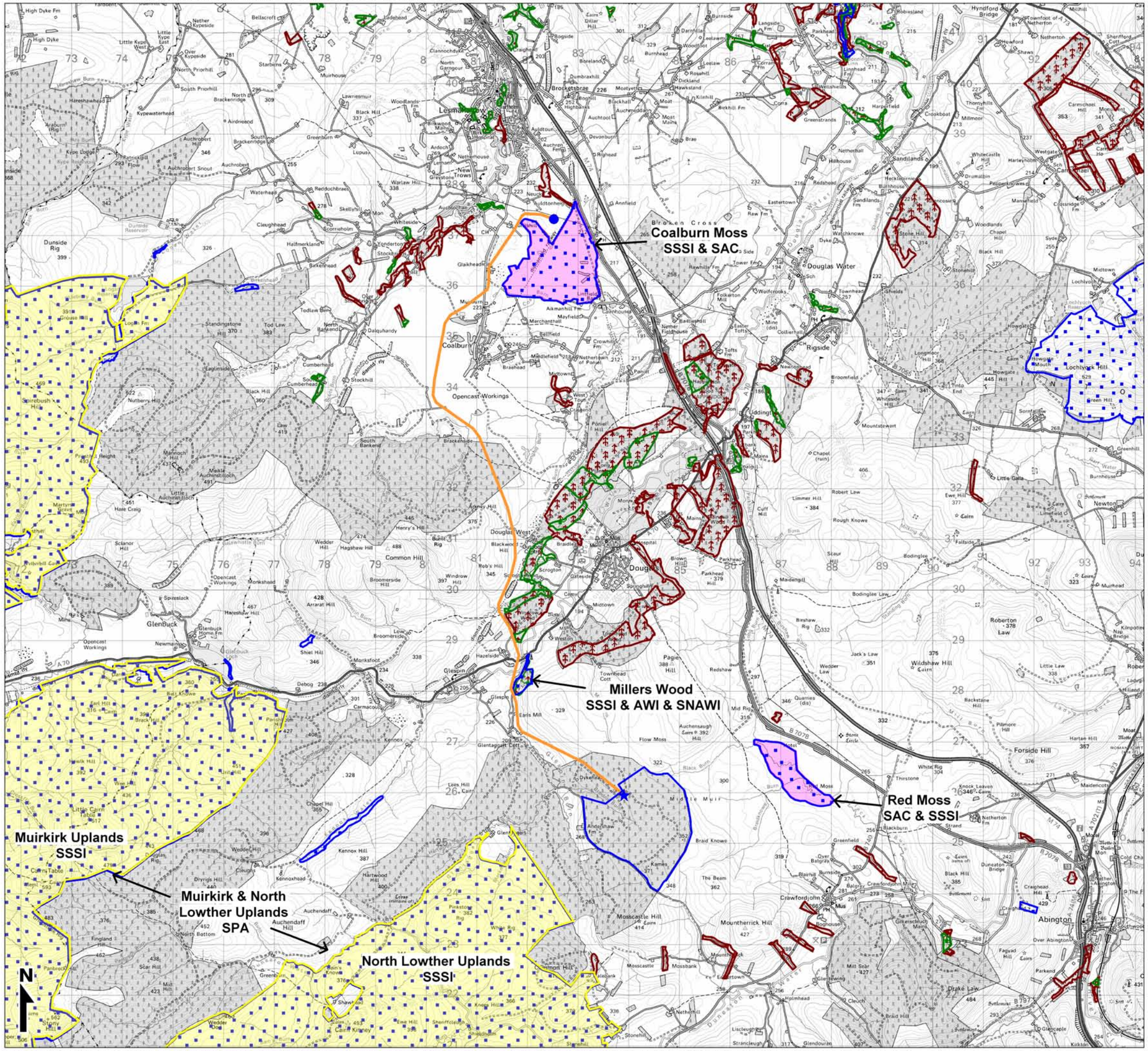
Woodland Type	Name	Grid ref	Size (Hectares)	Distance from overhead line
Ancient (Of Semi-Natural Origin)	Millers Wood (AWI/SNAWI)	NS819282	12.33	30m
Ancient (Of Semi-Natural Origin)	Windrow Wood (AWI)	NS820297	37.3	50m
Long Established (Of Plantation Origin)	Long Plantation (AWI/SNAWI)	NS832323	21.68	200m
Long Established (Of Plantation Origin)	Townhead Wood (AWI)	NS839291	95.79	750m
Long Established (Of Plantation Origin)	Auchenbegg Wood (AWI/SNAWI)	NS794353	2.14	750m
Long Established (Of Plantation Origin)	Chapelhill Wood (AWI)	NS784362	4.12	2km

Habitats and Notable Flora

The Phase 1 survey covered the entire overhead line route to a distance of approximately 250m either side of the proposed line, with the width of the corridor varying according to the terrain. The Phase 1 Habitat Survey was supplemented with additional information according to NVC classification of plant communities to community level, or sub-community level if possible. See Figure 8.2 Sheets 1 - 4.

Summary of Survey Area

The route corridor runs predominantly through unenclosed upland margins that are heavily grazed and modified by agriculture. Trees and woodland are notably scarce; the proposed route avoids any broad leaved woodland, and only cuts though coniferous plantation. The most common habitat in the survey area is marshy grassland, dominated by sharp flowered rush (*Juncus acutiflorus)* and often forming a mosaic with mire edge vegetation dominated by heath rush (*Juncus squarrosus)* and coarse grassland of purple moor grass (*Molinia caerulea)*. The marshy grassland is generally species poor, however there are localised areas of base rich flushing, either forming bryophyte flush features or increasing the range of plants locally. These flushed areas are accompanied by a general increase in species richness through the marshy grassland. The grasslands are generally improved, however there are frequently occurring areas of species rich and unimproved grasslands on steep slopes with often base



Legend

- Proposed Overhead Line Route
- Andershaw Substation
- Andershaw Boundary
- Coalburn Substation
- Special Protection Area
- Special Area of Conservation
- Site of Special Scientific Interest
- Ancient Woodland Inventory
- Semi Natural Ancient Woodland Inventory

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 8.1: Key Ecological Constraints			
Scale	1: 75,000	Drawn by	VB	Rev.
Date	Dec '08	Checked by	IAB	-

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rich grassland, or a base-rich/acid mosaic. The restored opencast areas of Dalquhandy have been restored to a mix of plantation woodland and grassland. Both these habitats are young, and their interest is more in the structure they provide for birds, than their intrinsic botanical value. Some particular features, notably the open water areas on Dalquhandy offer more botanical interest and have been avoided by routeing. Semi natural habitats present along the route include fragments of intact blanket bog, bryophyte dominated springs and flushes, semi natural woodland, unimproved acid and base rich grassland and dry heath. Rare species include spignel (*Meum athamanticum*) and broad leaved cotton grass (*Eriophorum latifolium*). Generally these have been avoided through the development of the overhead line route.

Semi-Natural Woodland

The established semi natural woodland along the route is generally upland birch woodland belonging to W11 *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland and/or W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland. The woodlands were generally not individually surveyed to NVC level as these have been avoided by the proposed route. Wood pasture exists along the roadside to the west of Millers Wood SSSI, comprised of about 30- 40% cover of birch and rowan (*Sorbus aucuparia*) over stands of bracken (*Pteridium aquilinum*) and moderately species rich grassland with common bent (*Agrostis capillaris*), sheep's fescue (*Festuca ovina*), red fescue (*Festuca rubra*) meadow buttercup (*Ranunculus acris),* ribwort plantain *(Plantago lanceolata)*, lesser stitchwort (*Stellaria graminea*), crested dog's tail (*Cynosurus cristatus*), selfheal (*Prunella vulgaris*), cock's foot (*Dactylis glomerata*), white clover (*Trifolium repens*) and bird's foot trefoil (*Lotus corniculatus*).

Calcareous Grassland

Most of the base rich grassland recorded was unimproved, occurring on steep valley sides, often on skeletal soils and conforming to CG10 Festuca ovina-Agrostis capillaris-Thymus polytrichus grassland. The drier stands were CG10a, the Trifolium repens-Luzula campestris sub community with common bent (Agrostis capillaris) and sheep's fescue (Festuca ovina) forming the sward, with a variety of herbs, typically wild thyme (Thymus polytrichus), hare bell (Campanula rotundifolia), ribwort plantain (Plantago lanceolata), white clover (Trifolium repens), yarrow (Achillea millefolium) and common dog's violet (Viola riviniana). Some stands included slightly flushed areas, which could be picked out by a distinct increase in fairy flax (Linum catharticum) and small sedges. These stands are more in keeping with CG10b the Carex pulicaris-Carex panacea sub community.

Acid Grassland

The unimproved and semi improved grassland falls into three communities depending upon the soils, drainage and grazing:

U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland: This ubiquitous community is found on the steep, well drained slopes supporting acid grassland. In some valleys, it forms a mosaic with CG10a described above.

U5 *Nardus stricta –Galium saxatile* grassland: This is found on the less well drained slopes which are intensively grazed, dominated by hard grass (*Nardus stricta*) and is generally perceived as having low conservation status.

U6 *Juncus squarrosus* grassland: This habitat type is considered as being of low conservation value. It arises on shallow slopes with poor drainage, either in combination with U5 (described above) or in relation to rundown blanket bog.

Mires

M17a Scirpus cespitosus-Eriophorum vaginatum blanket mire

This represents all the area of intact, or slightly modified blanket mire. The stands viewed did not have particularly extensive sphagnum layers, but did have patchy areas of *Sphagnum papillosum* and *S. capillifolium*. A few hummocks are present, but no bog pools or Sphagnum lawns were observed and the leafy hepatics associated with this community were not recorded. However, round leaved sundew (*Drosera rotundifolia*) was frequent, and some stands also had some bog asphodel (*Narthecium ossifragum*). The stands generally look grassy, dominated by hare's tail cotton grass (*Eriophorum vaginatum*) but it is not tussocky, equally the abundant purple moor grass (*Molinia caerulea*) is also not tussocky. Deer sedge (*Trichopherum cespitosus*) is frequent as is tormentil (*Potentilla erecta*) giving a relatively good fit to this community. Heather (*Calluna vulgaris*), cross leaved heath (*Erica tetralix*) and to a lesser extent cowberry (*Empetrum nigrum*) form a low sub shrub layer, but there is also a high frequency of bilberry (*Vaccinium myrtillus*), the latter not being typical for this community. It is debatable whether these areas can be considered as active blanket bog (and hence qualify for Annex 1 of the Habitats Directive), given the fragmentation and small size, but M17a and M20 are both listed as communities within the Annex 1 habitat of active blanket bog.

M20 Eriophorum vaginatum blanket and raised mire

This habitat type is generally situated in upland areas and on ground above the overhead line route. It is represented in Phase 1 classification by dry modified blanket bog. It is strongly dominated by tussocky hare's tail cotton grass (*Eriophorum vaginatum*) with occasional mire species, but is generally species poor. The stands seen along the route were generally small and fragmented, or in a mosaic with M25 representing mire edge conditions (see below) implying limited potential for restoration and therefore of no particular elevated significance.

M23 Juncus effusus/acutiflorus-Galium palustre rush-pasture

These areas are mapped as marshy grassland. Generally the large tracts observed are very average, if not species poor. Base rich flushing is target noted.

M25 Molinia caerulea-Potentilla erecta mire

This community represents species poor vegetation dominated by purple moor grass (*Molinia caerulea*) on poorly drained soils. No areas were recorded that were species rich.

Bryophyte Springs and Flushes

M32 Cratoneuron commutatum-Festuca rubra spring

These springs exist in one or two of the hillsides, occurring as intrinsically small habitats within large stands of marshy grassland. The dominance of the rushes abruptly ceases to be replaced by a *Cratoneuron commutatum* bryophyte mat, with small sedges such as *C. panicea, C.viridula ssp. oedocarpa, C. viridula ssp. brachyrrhyncha* and *C. dioica* with some marsh arrowgrass (*Triglochin palustre*). Associated flushing occurs giving rise to species such as butterwort *Pinguicula vulgaris*. The marshy grassland downhill from these features is invariably enriched. The rarity, broad leaved cotton grass (*Eriophorum latifolium*) is found at several of these flushes. Such springs and flushes usually appear as clusters as the geology permits. The nature of the terrain and small size of this habitat, do not facilitate the mapping of each spring/flush, and the number and frequency along the overhead line route is unknown.

Otter and Water Voles

No otter holts were identified along any part of the route with only otter prints noted at one location on the banks of the Douglas Water under the A70 roadbridge at Hazelside. It is certain that otter holts will be located at some juncture further up or downstream along this watercourse. However, although no holts were identified within the survey corridor at the time of survey, it should be noted that otters are a highly mobile species and can colonise new temporary lying up sites throughout the year.

No confirmed water vole burrows were identified along any section of the overhead line route corridor. Burrows on the eastern banks of the Glespin Burn just south of the road bridge at Earls Mill indicated that voles had previously inhabited the eastern sections of the bank but holes appeared abandoned with no other corroborating evidence identified. No droppings, latrines or lawns were noted. Some areas of land, particularly towards Coalburn substation were highlighted as containing areas with water vole potential, but due to the high volume of ferrous pollution within the drainage ditches and intense sheep farming within the fields containing marshy land, it was considered to reduce the value of the landscape for this species.

It should be noted that mink prints were identified at the A70 road bridge on the banks of the Douglas Water. Mink are a voracious predator of water vole and may be attributed to the absence of water voles in this area.

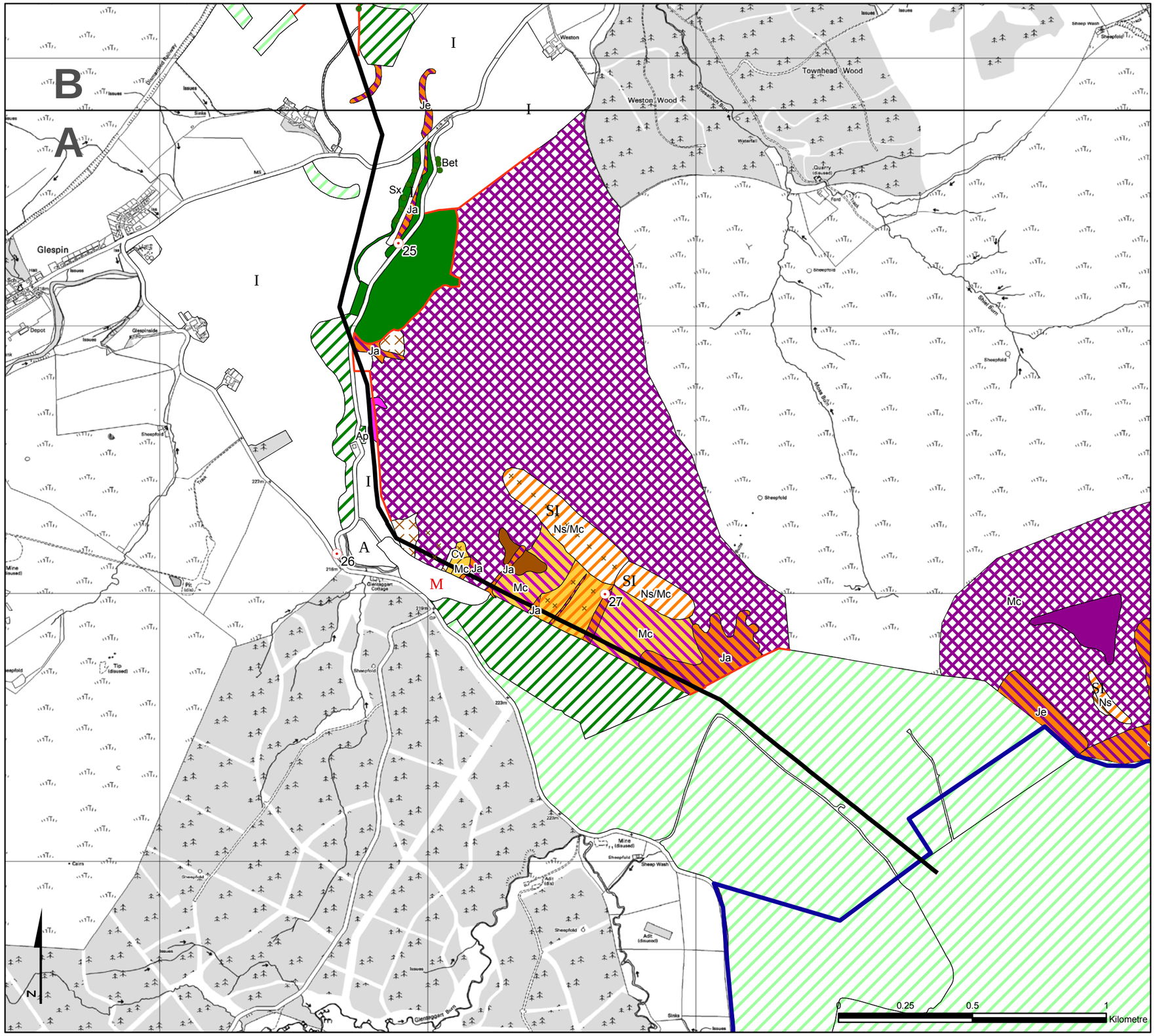
Badgers

No records of badger setts were held by the Lanarkshire badger group for this area, but it was noted that badgers have previously been sighted in the area.

No badger setts were identified within the overhead line corridor with a single badger hair found on a break in a stone dyke bounding Windrow Wood. No further evidence of badger was found within the immediate area. It is likely that badgers are present within Windrow Wood, outwith the study area. Much of the landscape along the overhead route is unsuitable for badger setts mainly due to the marshy nature of the landscape and lack of free draining sloping areas.

Bats

Bat potential throughout the area can be considered as limited although several established broadleaved and evergreen trees, particularly towards Coalburn substation, can be classified as having medium bat roosting potential. The river corridors can also be considered as offering good general bat foraging habitat. It is predicted that limited tree removal is anticipated along the route with only trees within the sitka spruce plantations to be lopped or felled. These trees provide only low bat potential.



Legend

- Overhead Line Route
- Andershaw boundary
- Coalburn Substation
- Semi-natural broadleaved woodland
- Plantation broadleaved woodland
- Semi-natural coniferous woodland
- Mixed plantation woodland
- Scattered scrub
- Mixed scattered trees
- Unimproved acid grassland
- Semi-improved acid grassland (SI)
- Unimproved neutral grassland
- Semi-improved neutral grassland (SI)
- Unimproved calcareous grassland
- Improved grassland (I)
- Marshy grassland
- Continuous bracken
- Scattered bracken
- Tall ruderal
- Acid dry dwarf shrub heath
- Wet dwarf shrub heath
- Dry heath/acid grassland mosaic
- Wet health/acid grassland mosaic
- Sphagnum blanket bog
- Sphagnum raised bog (RB)
- Wet modified bog mire
- Dry modified bog mire
- Acid/neutral flush
- Swamp
- Open standing water
- Artificial mine (M)
- Arable land (A)
- Amenity grassland (A)
- Restored grassland
- Hedge
- Fence
- Intact Wall
- Defunct wall
- Target note

Codes	Dominant Species	Codes	Dominant Species
Ac	*Acer campestre*	Ja	*Juncus acutiflorus*
Ae	*Arrhenatherum elatius*	Je	*Juncus effuses*
Ap	*Acer pseudoplatanus*	Jsq	*Juncus squarrosus*
Bet	*Betula* sp	Mc	*Molinia caerulea*
Cm	*Cataegus monogyna*	Ns	*Nardus stricta*
Cv	*Calluna vulgaris*	Pt	*Pteridium aquilinum*
Cxro	*Carex rostrata*	Sa	*Sorbus aria*
Dc	*Deschampsia cespitosa*	Sph	*Sphagnum* sp
Ev	*Eriophorum vaginatum*	Sx	*Salix* sp
Fs	*Fagus sylvatica*		

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 8.2 Phase 1 Habitat Survey Sheet 1 of 4			
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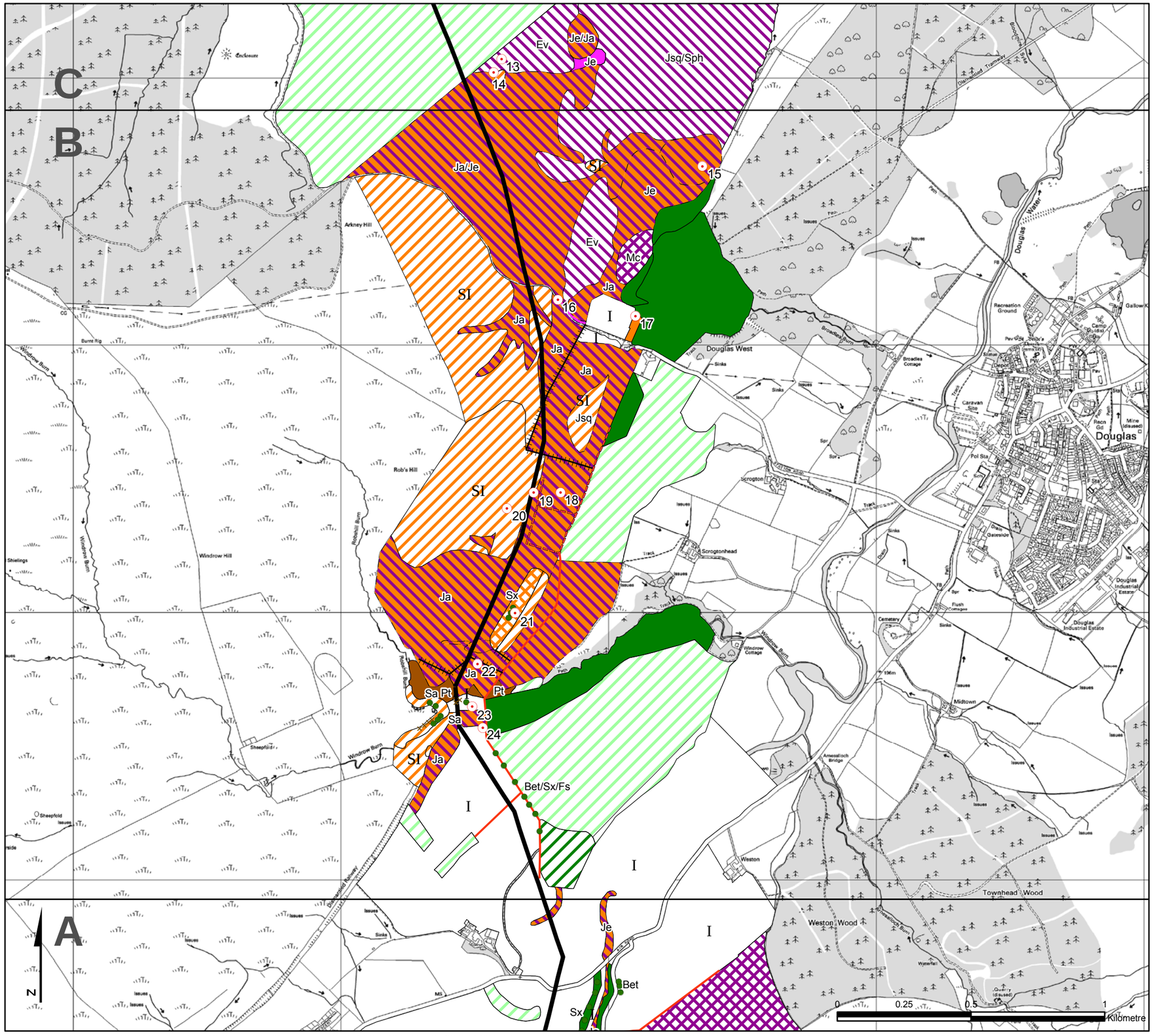

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Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 8.2 Phase 1 Habitat Survey Sheet 2 of 4			
Scale	1:15,000	Drawn by	JM	Rev.
Date	Jan' 09	Checked by	IAB	-

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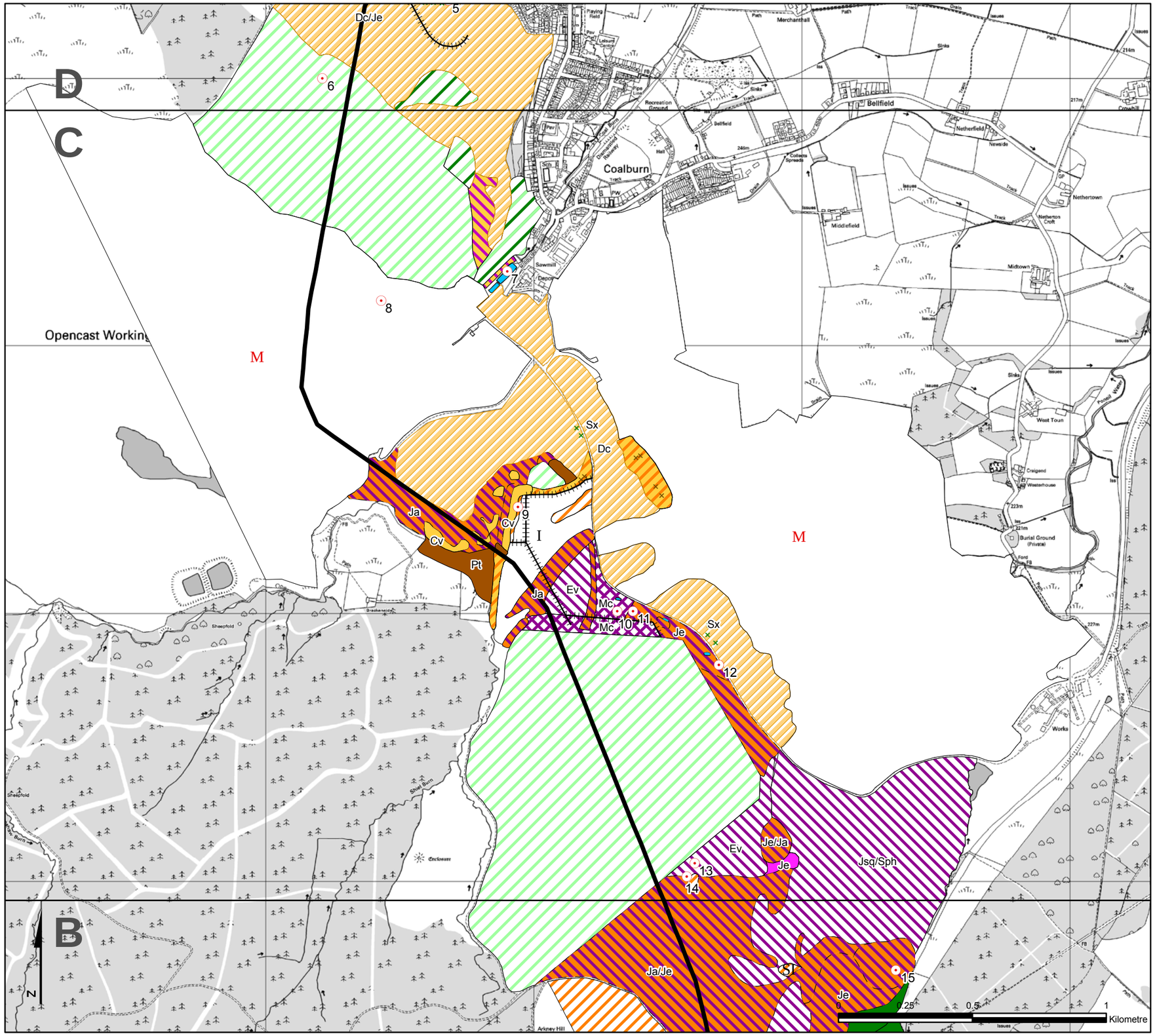

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SP TRANSMISSION

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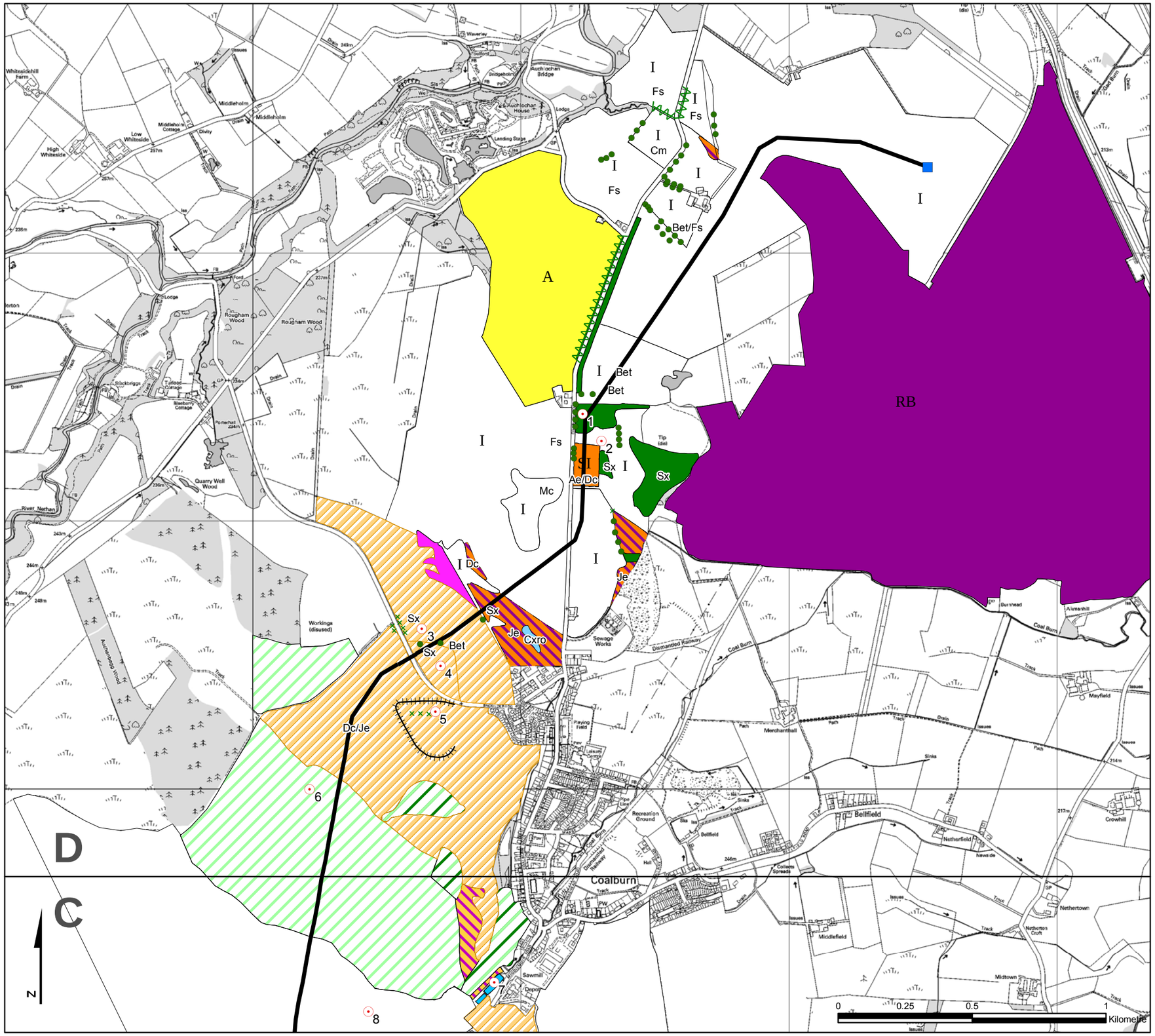

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SP TRANSMISSION

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8.4 Identification and Evaluation of Ecological Receptors

The following table outlines the assessment of the ecological features immediately adjacent to proposed the overhead line development and within the wider area. Value has been determined, whilst taking into consideration guidance in Table 8.2, through professional judgement by evaluating each features level of designation, distance to the overhead line corridor and importance to the area as a whole. All protected sites have been assessed in Table 8.7 below. The remaining ecological receptors are evaluated in terms of the importance of the site for their ecology and to achieve compliance with all relevant legislation and are summarised in Table 8.8 below.

Table 8.7 Assessment of Protected Sites

Ecological Receptor	Distance from Overhead Line	Value
Coalburn Moss (SAC & SSSI)	50m	Very High
Red Moss (SAC & SSSI)	1.7km	Very High
Muirkirk Uplands (SSSI)	4km	High
North Lowther Uplands (SSSI)	2.7km	High
Millers Wood (SSSI/AWI/SNAWI)	30m	High
Windrow Wood (AWI)	50m	Medium
Long Plantation (AWI/SNAWI)	200m	Medium
Townhead Wood (AWI)	750m	Medium
Auchenbegg Wood (AWI/SNAWI)	750m	Medium
Chapelhill Wood (AWI)	2km	Medium

Table 8.8 Assessment of Remaining Ecological Features

Ecological Receptor	Description	Value	Legislation
Habitats and Notable flora	Semi natural habitats identified along the route include semi-natural woodlands, unimproved acid and base rich grassland, mires and bryophyte dominated springs and flushes.	Low – Medium	–
Otters	Even though no otter holts were identified within the study area, it is still considered to be an ecological receptor due to the mobility of the species.	Low – Medium	Schedule 2 of the Conservation (Natural Habitats) regulations 1994 as amended
Water Voles	No active water vole burrows were identified within the study area, however this species is still considered to be an ecological receptor due to the presence of, however unsubstantiated, burrows along the Glespin burn.	Low – Medium	Section 9 of the Wildlife and Countryside Act 1981 (as amended)
Badgers	No badger setts were identified within the study corridor, however it is likely that the construction corridor lies within clan home ranges. New setts are therefore possible in the works vicinity.	Low	Protection of Badgers Act 1992, as amended by the Nature Conservation (Scotland) Act 2004.
Bats	There are some potentially good areas for foraging bats, principally the river corridors, but generally habitat is too open to support much bat activity. No bat roosts were found and the potential for bat roosts is very limited.	Low	Schedule 2 of the Conservation (Natural Habitats) Regulations 1994 as amended

8.5 Predicted Impacts

Construction

General

Potential impacts on ecological resources in the vicinity of the proposed overhead lines includes:

- Dust, noise and movement caused by humans and machinery throughout the proposed development site that disturbs or otherwise impacts on flora and fauna;
- Disturbance and/or pollution of surface water resulting from construction activities next to watercourses resulting in entry of polluting matter, such as grease or oils, to sensitive habitats and watercourses; and
- Disruption or damage to designated areas or habitats with high ecological value.

Designated Sites

The proposed overhead line avoids all statutory and non statutory designates sites with Coalburn Moss SAC and SSSI, Millers Wood SSSI and Windrow Wood AWI and SNAWI being the closest designated sites to the line. Coalburn Moss is a water dependant terrestrial ecosystem and therefore particularly sensitive to indirect impacts. However, it will not be detrimentally impacted as the overhead lines will pass the site approximately 100m west of the moss and the intervening land is highly modified so there is little, if any hydrological connectivity. The final 100m of the grid connection into Coalburn substation will be an underground cable laid in a trench. This is unlikely to impact on the subsurface drainage and in turn impact on the SAC due to the positioning of the cable on land above that of the moss. The intervening land has been modified so there is likely to be limited direct hydrological connectivity.

Millers Wood and Windrow Wood have been avoided in developing the route and will be unaffected by construction of the overhead lines with no tree felling anticipated.

The effects of construction on designated sites are therefore predicted to be Neutral.

Habitats and Notable Flora

There is potential for habitat loss and degradation from construction and access of machinery to construction areas. Several areas along the overhead line route corridor contain pockets of land with botanical interest. In summary, described in a south to north orientation, areas of high botanical value and interest are as follows:

- A rare plant, spignel (*Meum athamanticum*) see target note 26, was found at the road verge at the road bridge.
- The sloped wood pasture to the west of Millers Wood SSSI supports a discrete area of semi-natural woodland on a steep slope down from the road to the river. The remainder of the slope supports wood pasture, with grazed smooth grassland and occasional birch (*Betula pendula*). At the base of the slope there is a linear stand of marshy grassland running parallel to the road. Between here and the river, there is a narrow improved field, and the river itself has tree lined reaches.
- The route crosses a steep valley at the NW corner of Windrow Wood. This valley has several habitats of interest. At the crossing point, there is more interest on the northern slope, where calcareous grassland occurs on the thin skeletal soils around some rock exposures and there are small areas of dry heath dominated by heather (*Calluna vulgaris*) within stands of bracken, see target note 21.
- Further north are areas of localised base rich flushing in addition to a steep sided fenced square pond, see target note 19.
- To the east of the overhead line route an area of particular note is a stand of intact blanket mire, see target note 15, in addition to base rich flushing lining the eastern margin of the track.
- Some open water features, see target note 6, and pockets of restored peatland habitat are present, see target notes 3 & 4, south of Coalburn, north of Shoulderrig Road. This area of restored peatland habitat can be considered as a feature of interest.
- An area of ecological interest to negotiate is the derelict ground to the west of the bing at Glaikhead. This is a mix of open ground with ruderal species such as weld (*Reseda luteola*), rosebay willowherb and vipers bugloss (*Echium vulgare*) and areas that are regenerating woodland. See Target Note 1.

Full details on these areas and all target notes can be found in Appendix D and on Figure 8.2 (Sheets 1 - 4).

Some features of interest may be affected during the construction stage through the positioning of the wood pole structures, working areas and access routes.

Otters

Although no resting sites of otters were identified in the vicinity of the development the rivers, streams and other water bodies will undoubtedly fall within occupied home ranges, therefore, there is the potential for the baseline situation to change before construction works commence. Otters are a highly mobile species and inhabit a large range and as such may adopt a new natal holt or resting site in the period between the baseline otter survey and overhead line construction.

Construction disturbance by rivers will be during the daytime, of very limited spatial magnitude, and have a very short duration. For these reasons, and the current lack of resting sites in proximity to the proposed works, construction disturbance is not considered to be significant.

It is predicted that construction impacts on otters are not significant.

Water Voles

No evidence of water voles currently inhabiting any part of the overhead line route was recorded. The construction will not affect the quality of habitat available to any re-colonising water voles.

Construction impacts are therefore neutral.

Badgers

No badger setts were identified along the survey corridor and sett habitat is limited due to wet ground conditions. Construction impacts on badgers are not considered to be significant.

Bats

During construction there is the potential for direct impacts on bats through the felling of trees. A number of mature broadleaf trees were identified throughout the overhead line corridor that provided medium bat roosting potential. Removal of these trees could have a direct affect on a colony of bats that may be roosting within a cavity in the tree. However, it is anticipated that tree removal is limited to the coniferous plantations which hold limited potential for roosting bats.

Disturbance, including noise, artificial lighting and vibrations, from construction activities can have an affect on bats roosting in the near vicinity to the construction area. Bats are nocturnal and early morning, late evening construction activities can affect nocturnal species, especially during autumn, winter and early spring when the daylight hours are shorter. In addition, artificial lighting can have an effect on bats by creating a barrier across the site and attracting food resources, such as moths, away from usual feeding grounds. In context of the overhead line construction, these impacts are not considered to be significant with works taking place during daylight hours and limited noise and vibrations from the pole installation.

Construction impacts on bats are not predicted to be significant.

Operation

General

Potential operational effects in the vicinity of the proposed overhead lines includes:

- Permanent land take and loss of habitat; and
- Maintenance of the overhead line route, including tree felling and lopping.

Designated Sites

There are no predicted operational effects on designated sites within the overhead line corridor.

Habitats and Notable Flora

Operational effects on habitats and notable flora are not considered to be significant. Some lopping and felling of trees posing a danger to the overhead line through natural growth and succession may be required, although this will be minimal. As such, operational impacts are not predicted as being significant.

Otters and Water Voles

Habitat loss from the construction of the overhead lines is not considered to be significant in the long term in respect to commuting and foraging otters or water voles in the area due to the small area of habitat loss. There is abundant similar habitat, such as marshy grasslands, small streams and rivers, in the surrounding area.

Operational effects on these species are therefore not considered as being significant.

Badgers

During operation there are no adverse affects predicted on badger populations in the area.

Bats

Large volumes of tree felling can create a negative impact on commuting corridors for bats. Bats use linear routes for commuting and if such a feature is removed can sever bats from their foraging grounds. However, as tree removal is limited and isolated to areas of existing rides within the forestry plantations, it is unlikely to affect any commuting routes or foraging areas currently used by bats in the area.

Operational impacts on bats are therefore not predicted as significant.

8.6 Mitigation

General

The following general mitigation measures will be implemented:

- Suitable precautions to prevent entry of pollutants into any bodies of water will required. Works near watercourses will be carried out following guidance detailed in SEPA Pollution Prevention Guidelines, namely PPG1 and PPG5;
- Works near or at trees will follow guidance detailed in British Standard 5837:2005 Trees in Relation to Construction – Recommendations;
- Crossing of water courses will aim for minimal riparian impact by positioning the wood pole structures back from the river bank so that as much of the riparian zone is spanned as possible;
- Pre-construction checks for protected species will be undertaken in areas of interest along the proposed route;
- Access routes will be minimised, and access routes through sensitive areas will be designated prior to works; and
- Construction will be during daylight hours.

More specific mitigation measures for each receptor are specified below.

Designated Sites

No impacts on designated sites are predicted due to the intervening distance between the proposed overhead line and designated sites. Where construction activities will be undertaken in the area near Coalburn Moss construction areas will be clearly demarcated and staff briefed on the proximity of the SAC in order to ensure that no construction workers, vehicles or plant encroach upon the SAC.

Habitats and Notable Flora

Mitigation measures primarily focus on avoidance of notable flora and habitats during routeing and construction. A pre-construction survey of areas of interest will be undertaken by a suitably qualified ecologist. The ecologist would be advise on micrositing of wood pole structures where appropriate and supervise the removal and reinstatement of vegetation.

Some areas and specific habitat types outlined for specific monitoring and avoidance are set out below:

- Bryophyte springs and flushes: When positioning wood pole structures an ecologist will be present ensure impacts on these habitats are avoided or reduced;
- Positioning of the wood pole structures within bracken or the heath rush grassland to the northern half of the valley where the route crosses the dismantled railway will minimise impact.

These areas are of local importance and are not part any national designations but should still be avoided if at all possible due to their overall significance in a local context. Eradication of habitats, even only of local importance can have a severe detrimental impact on the overall biodiversity of the region.

Otters and Water Voles

Pre-construction surveys of the Douglas Water, Glespin Burn and other watercourses will be undertaken in order to minimise the risk of disturbance to resting sites of otters potentially present in the vicinity of the construction works.

As otters are crepuscular, work by water bodies will commence no earlier than one hour after sunrise and finish no later than one hour before dusk to minimise disturbance to mammals in the area.

Badgers

A preconstruction walk over will be undertaken in high risk areas to identify any newly excavated setts. The only high risk area identified during the site surveys was in the vicinity of Windrow Wood.

Bats

If any established broadleaved trees are identified for felling, a pre-development check for roosting bats will be undertaken. If any signs of bats are found, a licence will be required and replacement roost habitats necessary.

8.7 Residual Impacts

A summary of the residual impacts on each ecological receptor are described below and set out in Table 8.9.

Designated Sites

No construction or operational impacts are predicted on designated sites in the area, as such residual impacts on designated sites are predicted to be **Neutral** and therefore **Not Significant**.

Habitats and Notable Flora

The majority of the areas discussed in section 8.3 will be avoided by the proposed route of the overhead line. The areas of concern that require mitigation as mentioned in section 8.6 above are the sloped wood pasture to the west of Millers Wood, the steep valley at the north western corner of Windrow Wood, base rich flushing at Scrogtonhead, restored peatland within the restored opencast and an area of regenerating woodland at Glaikhead.

An ecologist will be present to advise on wood pole structure placement in these areas. Residual effects on habits and notable flora are predicted to be **Not Significant**. This is due in part to the small area required to erect the wood pole structures, and in turn a small loss of area of habitat value which will not be detrimental to the feature as a whole.

Otters and Water Voles

Impacts on these species are **Not Significant**.

Badgers

Residual impacts on badgers are **Not Significant**.

Bats

It is anticipated that no trees outwith the coniferous plantations will require to be felled. Where tree felling is required it will be kept to a minimum and as such, effects on bats are predicted to be **Not Significant**.

Should a roost be identified during pre-construction surveys, impact significance can increase. However, in accordance with The Conservation (Natural Habitats, &c.) Regulations 1994 as amended the appropriate approach to mitigation would be agreed. This would include surveys to identify the species of bat and population size, micrositing wood pole structures and minimising construction disturbance.

Table 8.9 Summary of Residual Impacts

Ecological Receptor	Conservation Value	Description of Potential Impact	Mitigation	Residual Impact
Designated Sites	Low – Very High	None predicted	Avoided during identification and designing of proposal.	**Neutral**
Habitats & Notable Flora	Low - Medium	Loss of small areas local importance of ecological interest	Avoidance, on site ecologist to advise on positioning of wood poles in areas of sensitivity.	**Not Significant**. Overall area required for development is minor.
Otters & Water Voles	Low – Medium	Temporary disturbance,	Pre-construction check	**Not Significant**. No holts to be destroyed. Minimal disturbance.
Badgers	Low	Temporary disturbance	Pre-construction walkover	**Not Significant**. No setts to be destroyed. Minimal disturbance.
Bats	Low	Temporary disturbance, roost destruction	Pre-construction check as required, minimising of tree removal	**Not Significant**. Further survey could potentially reveal bats roosting in trees that may require removal and increase the impact significance.

8.8 Summary

The baseline survey and consultations identified the following ecological receptors that could potentially be affected by the proposed overhead lines:

- Designated sites: Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), Ancient Woodland Inventory (AWI) and Semi-Natural Ancient Woodland Inventory (SNAWI);
- Habitats and notable flora: Semi-natural woodlands, unimproved acid and base rich grassland, mires and bryophyte dominated springs and flushes; and
- Protected species: Otters, water voles, badgers and bat species.

Due to the location of designated sites in relation to the proposed overhead line route and no anticipated tree removal from designated woodlands, impacts on protected sites are considered to be neutral and consequently are not considered to be significant.

Habitats and notable flora are not predicted to be significantly affected by the overhead lines due to the small area of land take required for the wood pole structures and access points and limited areas of botanical importance or interest affected. Guidance on pole micrositing and access routes from an on site ecologist in sensitive areas is recommended to minimise impacts as far as possible.

No otter holts, water vole burrows, badger setts or bat roosts were identified throughout the survey period, although badgers were found to be present in the area, otters are using water courses and scattered broadleaf trees in the vicinity of the overhead line route carry medium bat roosting potential. Pre-construction checks in sensitive areas will establish any change to the baseline surveys and will dictate the requirement for any licensing or avoidance measures prior to construction.

9. Ornithology

9.1 Introduction

This chapter assesses any potential ecological impacts on bird populations using the route of the proposed overhead line. Ornithological interests have been assessed in detail in part due to the location of the proposed overhead line and the relative proximity of Muirkirk and North Lowther Uplands Special Protection Area (SPA) to the site. At its closest point this statutory designation is located approximately 2km to the south of the overhead line route and regularly supports breeding populations of European importance of the Annex 1 species.

The collation of baseline data involved general breeding bird surveys, specific methods for particular breeding species and monitoring of wintering birds using the Vantage Point Survey (VPS).

This chapter describes the existing baseline conditions and presents an assessment of the potential effects associated with the construction and operation of the proposed overhead lines. Where appropriate it advises on mitigation measures to be incorporated into the project. The residual impacts remaining after mitigation has been implemented are then discussed.

9.2 Methods

This section summarises the methods adopted for the desk study, breeding and wintering bird surveys and impact assessment methodology. Detailed descriptions of the methodologies followed in undertaking breeding and wintering bird surveys are contained with Appendices E and F respectively.

Consultations and Data Gathering

All relevant statutory and non statutory bodies were consulted regarding the proposed overhead line works in July and August 2008. Responses are summarised in Table 9.1 below.

Table 9.1 Summary of Consultation Responses

Consultee	Summary of Consultation Responses
SNH	Provided information pertaining to designated sites within the study area and advised on bird surveying methods to be followed.
South Lanarkshire Council Local Biodiversity Officer	Highlighted the need to undertake protected species surveys.
Scottish Wildlife Trust	No reply.
RSPB	Undertook a data search and provided records relevant to the study area including breeding merlin, black grouse and short eared owl.
British Trust for Ornithology	Provided overview of records held.
South Strathclyde Raptor Study Group	Provided a short report of recorded Raptor (including short eared owl and raven) observations within the study area.

Ornithological Surveys

The methodology adopted involved both a desktop search and field survey. The desktop study included review of existing available information, relevant legislation, policies and methodologies, including:

- Environment Impact Assessment (Scotland) Regulations 1999;
- Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000;
- Nature Conservation (Scotland) Act 2004;
- National Planning Policy Guideline 14: Natural Heritage 1999;
- Scottish Executive 2004;
- SNH 2005;
- SNH 2005a;
- Institute for Ecological and Environmental Management (IEEM) 2006; and
- Bibby *et al.* 2000.

The desk study has been supplemented by undertaking breeding and wintering bird surveys. The surveys have been undertaken following consultation with SNH and aim to:

- Provide an ecological evaluation of the impacts of the proposed overhead lines on breeding and wintering bird species; and
- Highlight any habitat areas of particular bird conservation interest along the route.

Breeding Birds

Following consultation and scoping the proposed overhead line route was assessed remotely in early spring 2007 in order to determine the most appropriate field methods. The following surveys were undertaken during a three week period between the end of April and mid-June 2007 to assess the breeding bird populations along proposed overhead line corridor:

- Upland breeding bird survey using the Brown and Shepherd (1993) methodology designed for surveying upland waders. The survey was extended to record all bird species found;
- Breeding Bird Survey (Bibby *et al.,* 2000) was carried out along lowland stretches of the proposed route; and
- A black grouse survey was undertaken following methods in Etheridge and Baines (1995) on open ground near woodland.

Surveys were undertaken from about an hour before sunrise (first light) until an hour after sunrise on 25th and 26th April, and on 16th and 17th May 2007. Surveys were carried out in calm or light wind, dry conditions. Further details on the specific methodologies are contained within Appendix E.

Wintering Birds

Following consultation it was agreed that a Vantage Point (VP) survey would be undertaken from various locations along the proposed overhead line. The survey methodology used in this study is based on *Survey Methods for Use in Assessment of the Impacts of Proposed Onshore Wind Farms on Bird Communities* (SNH, 2005) specifically Section 8, which details methods for the assessment of associated infrastructure. Further information on the surveying methodology is contained within Appendix F.

The low-mid height band corresponds to the range of flight heights at which a bird flying within the overhead line airspace might collide with a wire.

The route followed by target species was plotted on a field map and was numbered 1, 2, 3 etc., for each flight recorded, and cross referenced with the recording form.

Using this methodology, the data provides more detailed information regarding flight paths, flying times and heights of soaring and over-flying birds. Specifically, this approach enables monitoring of groups such as raptors, waders and wildfowl to be carried out more effectively than could be achieved using a transect or roaming methodology.

IMPACT ASSESSMENT METHODS

Overview

The main stages in the impact assessment process are summarised below:

- Evaluation of ecological receptors;
- Description of the changes that these activities would have on receptors and the magnitude of this change; and
- Identification of the significance of the impact talking into account the effectiveness of mitigation measures.

Both temporary and permanent effects are assessed. Temporary effects extend into the short to medium term (<25 years), while permanent effects extend indefinitely into the future (>25 years).

Evaluation of Ecological Receptors

The method of evaluation and assessment used has been developed using the *Guidelines for Ecological Impact Assessment* (Institute of Ecology and Environmental Management (IEEM), 2006) and Guidelines *for Baseline Ecological Assessment* (Institute of Environmental Assessment, 1995).

These criteria are based on determining firstly the sensitivity of the receiving site/feature/species (the receptor) and secondly the magnitude of the potential impact on the receptor, in order to provide an overall impact scoring and therefore the predicted impact significance. The value of each receptor of nature conservation interest is assessed incorporating additional advice within the Ratcliffe criteria (1977) and the IEEM Guidelines for Ecological Impact Assessment, as shown in Table 9.3.

The impact assessment is complicated by the differing responses and sensitivities of birds to impacts from the proposed overhead line. These are based on the way a particular species behaves, its conservation status and physical attributes. The guidance issued by Birdlife International (Langston and Pullan, 2003), shown in Table 9.2 has been considered when assigning the values for nature conservation outlined in Table 9.3.

The international/national assessment criterion that has been applied in this study is the threshold (in terms of species richness and numbers of breeding or non-breeding bird populations of any key species) for the selection of internationally and nationally important sites; that is to say Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs) respectively.

Table 9.2 Determining Nature Conservation Value (Adapted from *Biodiversity Evaluation Methods*, Hill et al., 2005)

Nature Conservation Value	Selected Examples
Very High (International)	• An internationally designated site or candidate site (SPA, Special Area of Conservation (SAC), Ramsar Site, Biogenetic reserve). • Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive. • Regularly occurring globally threatened species. • Any regularly occurring populations of internationally important species that are rare or threatened in the UK or of uncertain conservation status. • A regularly occurring significant population/number of any internationally important species. • Sites hosting significant populations of species under the Bonn Convention; • Sites hosting significant populations under the Bern Convention.
High (National)	• A nationally designated site (SSSI, National Nature Reserve (NNR)) or a discrete area which meets the published selection criteria for national designation irrespective of whether it has yet to be notified. • A viable area of a UK BAP priority habitat or of smaller areas of such habitat that is essential to maintain the viability of a larger whole.
High (National)	• A regularly occurring significant population/number of any nationally important species i.e. listed on the 1981 Wildlife and Countryside Act (as amended). • Any regularly occurring population of a nationally important species that is threatened or rare in the county or region. • A feature identified as of critical importance in the UK BAP; and • Sites maintaining UK Red Data Book species that are listed as being either of unfavourable conservation status in Europe, of uncertain conservation status or of global conservation concern.
Medium (Regional/ County)	• Any regularly occurring significant population of a species or habitat listed as being nationally scarce, or in the South Lanarkshire BAP on account of its association with a habitat for which a Habitat Action Plan (HAP) has been prepared due to its regional rarity or localisation. • Significant populations of a regionally/county important species. • Sites such as Sites of Importance for Nature Conservation, selected on Regional/Council area criteria. • Any regularly occurring significant population that is listed in a Local BAP on account of its rarity or localisation; • Sites that exceed criteria for Local Nature Reserve but do not meet SSSI selection criteria; • Scottish Wildlife Trust Wildlife Sites; • Sites supporting populations of priority species identified in the UK Biodiversity Action Plan or birds on the Birds of Conservation Concern Red List.
Low (Local)	• Local Nature Reserves; • Sites/features that are scarce within the locality or which appreciably enrich the local area's habitat resource. • A diverse and/or ecologically important valuable hedgerow network. • A significant population of a local important species i.e. listed on a Local BAP. • Species populations of local importance.
Parish (Negligible)	• Sites with little local biodiversity interest but considered to appreciably enrich the habitat resource within the context of the neighbourhood

Receptor Sensitivity

Sensitivity criteria are described below in Table 9.3

Table 9.3 Species Sensitivity Criteria

Sensitivity	Criteria
High	Species or populations occupying habitats remote from human activities, or that exhibit strong and long-lasting (guide: >20 mins) reactions to disturbance events.
Moderate	Species or populations that appear to be warily tolerant of human activities, or exhibit short-term reactions (guide: 5-20 minutes) to disturbance events.
Low	Species or populations occupying areas subject to frequent human activity and exhibiting mild and brief reaction (including flushing behaviour) to disturbance events.

Impact Magnitude

The next step is to assess the magnitude of the impacts on the features during both construction and operational phases. Magnitude is determined by taking into account the sensitivity of a target species (Table 9.2), which may determine the interaction between birds and the feature of concern, and the temporal and spatial magnitude of the impact.

Table 9.4 Spatial Magnitude Criteria

Spatial Magnitude	Description
High	Major loss or alteration to key elements or features of the baseline conditions such that the post development attributes would be fundamentally changed. Guide: 21-80% of population lost.
Moderate	Loss or alteration to one or more key element or feature of the baseline conditions such that post development attributes would be partially changed. Guide: 6-20% of population lost.
Low	Minor shift away from baseline conditions. Change arising from the loss or alteration would be discernible but the underlying attributes would be similar to pre-development circumstances or patterns. Guide: 1-5% of population lost.
Negligible	Very slight change from baseline condition. Change barely distinguishable, approximating to the "no change" situation. Guide: < 1% population lost.

Spatial and temporal criteria are assessed in the production of an overall assessment of impact magnitude (IEEM 2002) (Table 9.6).

Table 9.5 Criteria for Assessing Magnitude of Ecological Impacts

Impact Magnitude	Magnitude Criteria
Major negative	The proposal, either on its own or in conjunction with other proposals, is likely to cause a permanent adverse effect on the integrity/characteristics of an ecological receptor, both of which could lead to a change in the ability of a species to retain its current population levels (at a regional or higher level).
Intermediate negative	The proposed development will have effects which would result in changes in the distribution of a species but not affect its population status at a regional level or would alter key attributes of a site without changing a site's evaluation.
Minor Negative	The proposed development will have effects which would neither alter key attributes of a site nor change its evaluation, or will affect the distribution or status of a species at a local level.
Neutral	No effect or the effect is so small as to be *de minimus.*
Positive	The proposal is likely to benefit the receptor in terms of its conservation status, but not so far as to achieve favourable conservation status.

The significance of impact is assessed by taking into the importance and sensitivity of a receptor and the magnitude of the impact.

Table 9.6 Assessment of Impact Significance

Nature Conservation Value of Site or Species	Magnitude of Potential Impact			
	Major Negative	Intermediate Negative	Minor Negative	Neutral
International (Very High)	Major Adverse	Moderate Adverse	Minor Adverse	None
National (High)	Major Adverse	Moderate Adverse	Minor Adverse	None
Regional (Medium)	Moderate Adverse	Moderate Adverse	Minor Adverse	None
Local (low)	Minor Adverse	Minor Adverse	Minor Adverse	None
Parish (Negligible)	None	None	None	None

Where a residual impact significance is assessed as Major in accordance with Table 9.6, this represents a significant impact. A residual Moderate Adverse impact is also considered to be significant but could be reduced with further survey and revised impact-specific mitigation. Residual impacts which are of slight adverse do not need to be treated as significant effects under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.

IEEM guidelines (IEEM 2006) indicate that significance should be considered in relation to how the impact of a scheme will affect the conservation status and integrity of the feature, where integrity is defined as "the coherence of its ecological structure and function, across its whole area, that enables it to sustain the levels of populations of the species for which it was classified". This principle is transferred to the impact significance for each target species that was recorded during the surveys.

A value is assigned to a species based on its distribution and status, which may reflect its rarity and/or historical trends in numbers, range or distribution. These factors may in turn be reflected by the inclusion of species in lists of species protected at international or national level, in lists of species of conservation concern, or by being the subject of a Species Action Plan in the UK Biodiversity Action Plan (UKBAP). Two wader species, lapwing and curlew, have been recommended for inclusion in a revised list of UKBAP species (BRIG 2007). However, the presence of a species on non-statutory lists does not in itself mean that the species is of high concern within the context of any particular scheme, and professional judgement is required to assign a realistic value to a species in that context.

Assessment of the impacts of windfarm developments, and by extension, associated infrastructure, on birds normally need not consider birds outwith the above categories (SNH 2006). Sensitivity of a species to potential effects of a development is therefore a main driver of any assessment of the significance of impacts.

Regulatory Framework

The following sections set out the legal and policy designations and protection afforded to ecological sites and bird species in the national and local context.

Habitats

The two common statutory designations relating to ornithology are Special Protection Areas (SPA) and Sites of Special Scientific Interest (SSSI).

SPAs are classified under the EC Directive on the Conservation of the Birds Directive. The Directive requires the Member States of the European Community to identify and classify the most suitable territories, in size and number, for certain rare or vulnerable species (listed in Annex I of the Directive) and for regularly occurring migratory species. SPAs are intended to safeguard the habitats of the species for which they are selected and to protect the birds from significant disturbance.

SSSIs represent the best of Scotland's natural heritage. They are 'special' for their plants, animals or habitats, their rocks or landforms, or a combination of such natural features. Together they form a network of the best examples of natural features throughout Scotland, and support a wider network across Great Britain and the European Union.

Birds

Statutory Legislation

Birds are afforded various levels of protection and conservation status on a species by species basis, with the inclusion of a number of species in the following tow acts of legislation:

- Wildlife and Countryside Act 1981 (as amended);
- EC Birds Directive 1979 (79/409/

The most significant general legislation for British birds lies within Part 1 of the Wildlife and Countryside Act 1981 (as amended by the Nature Conservation (Scotland) Act 2004). This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/FFC) are implemented in Great Britain. Under Part 1, Section 1 of this legislation as amended it is an offence to:

- Intentionally or recklessly kill, injure or take any wild bird;
- Intentionally or recklessly take, damage or destroy the nest of any wild bird while that nest is in use or being built or to prevent a bird from reaching its nest;
- Intentionally or recklessly take or destroy the egg(s) of any wild bird.

The above legislation effectively prevents any kind of development works from occurring that might have a detrimental effect on any nesting birds (with nesting usually occurring between February/March and July).

In addition to the above protection for all breeding birds under the Wildlife and Countryside Act, Schedule 1 of the Act lists a number of species which are protected by special penalties at all times.

Annex 1 of the EC Birds Directive also lists rare and vulnerable species of wild birds that are subject to special conservation measures.

Non Statutory Status

Royal Society for the Protection of Birds (RSPB) Birds of Conservation Concern (BoCC):
The RSPB (2002) has compiled Birds of Conservation Concern (BoCC) Red and Amber Lists for species of conservation concern. Red List species are those whose breeding population or range is rapidly declining (50% or more in the last 25 years), recently or historically, and those of global conservation concern. Amber List species are those whose breeding population is in moderate decline (25 – 49% in the last 25 years), rare breeders, internationally important and localised species and those of unfavourable conservation status in Europe.

Biodiversity Action Plans (UKBAP):
The UK Biodiversity Action Plan [BAP] (UK Biodiversity Steering Group, 1995, updated 2007) lists 59 bird species as priority species requiring conservation action, and consequently action plans have been developed for the conservation of these species. The proposed development is contained within a geographic area covered by the South Lanarkshire local

BAP (LBAP). Habitats and bird species for which action plans have been prepared, including for this area are detailed on the UKBAP website.

9.3 Baseline Situation

Site Context

The proposed overhead line route is approximately 15km long and runs from Andershaw Windfarm through landscape dominated by improved grassland, rough grazing and moorland and restored former opencast workings with pockets of commercial plantation spruce woodland before terminating at Coalburn Substation. (Figure 3.1.) The route bypasses the settlement of Coalburn , the main residential development in the near vicinity of the overhead line corridor, by approximately 250-500m.

Designated Sites

Statutory Designated Sites

There are a number of internationally/nationally and regionally designated sites in the vicinity of the overhead line corridor. Table 9.7 and Figure 8.1 (see Chapter 8 Ecology and Nature Conservation) identify such existing key features within the study area, and these are briefly described below.

Muirkirk and North Lowther Uplands SPA

This Special Protection Area regularly supports breeding populations of European importance of the Annex 1 species: Hen harrier, short-eared owl, merlin, peregrine and golden plover. The hen harrier population on this site is one of the largest in Britain. The short-eared owl is widely dispersed across its British distribution and the population in Muirkirk and North Lowther Uplands is one of the largest in Britain.

Muirkirk and North Lowther Uplands SPA also regularly supports a wintering population of hen harrier**.**

The boundaries of the SPA are coincident with those of North Lowther Uplands SSSI and Muirkirk Uplands SSSI and are located to the south west of the study area.

Muirkirk Uplands SSSI

The mosaic of habitats within the Muirkirk Uplands supports a diverse upland breeding bird community which is of national importance. The upland moorland bird assemblage includes teal, hen harrier, buzzard, merlin, peregrine, short-eared owl, red grouse, golden plover, dunlin, snipe, curlew, redshank, whinchat, stonechat, wheatear, and ring ouzel.

In particular, the site is of importance, both nationally and internationally, for breeding hen harrier and short-eared owl. Hen harriers also winter within the site in nationally important numbers.

North Lowther Uplands SSSI

North Lowther Uplands Site of Special Scientific Interest is situated to the south of the Muirkirk Uplands SSSI and supports an assemblage of moorland birds and raptors. The range of habitats, many of them heather dominated, provides a mosaic of breeding and foraging habitats for the diverse upland bird community which is of national importance. Amongst the species present are hen harrier, short-eared owl, merlin, peregrine, golden plover, red grouse, raven, dunlin, snipe, teal, curlew, redshank, whinchat and wheatear.

The breeding population of hen harriers is of both national and European importance.

Table 9.7 below summarises each designation and their key existing features.

Table 9.7 Protected Sites

Site Name	Designation	Qualifying Interest	Location
Muirkirk and North Lowther Uplands	SPA	Regularly supporting breeding populations of European importance of the Annex I species: • hen harrier (*Circus cyaneus*); • short-eared owl (*Asio flammeus*); • merlin (*Falco columbarius*); • peregrine (*Falco peregrinus*); and • golden plover (*Pluvialis apricaria*).	Occupies a considerable area of upland approximately 2km to the south and 4km west of the study area.
Muirkirk Uplands	SSSI	• Biological: Species: Birds: Assemblage of moorland birds; • Biological: Species: Birds: Hen harrier (breeding); • Biological: Species: Birds: Hen harrier (wintering); • Biological: Species: Birds: Short-eared owl; • Biological: Habitat: Uplands; • Biological: Habitat: Blanket bog	Occupies uplands areas 4km west of the study area.
North Lowther Uplands	SSSI	• Biological: Species: Birds, Assemblage of Moorland Birds • Biological: Species: Birds, Hen Harrier; • Biological: Habitat: Uplands, Blanket Bog Dry Heath and Acid Grassland	Approximately 2.7km south of Andershaw windfarm. Site lies within an upland area on the southern fringes of the study area.

Breeding Birds

The following section summarises the results of the breeding bird surveys conducted along the proposed overhead line route. The full results of the survey including tables and maps can be found in Appendix E.

Non-Target Species

Black grouse

No black grouse were recorded during dedicated surveys, and no field signs were noted at any time. Evidence provided by the RSPB suggested that black grouse have in the past been present.

Buzzards

SSRSG hold records of buzzards along the line routes, and birds were seen over the corridor on several occasions during the present study.

Sparrowhawks

Sparrowhawks are regular along the more wooded parts of the corridor, but none were seen during the present study.

Kestrels

A pair of kestrels were present around the southern end of the overhead line corridor in April 2007, and a single bird was seen hunting around the proposed Andershaw windfarm site during June 2007.

Upland Waders

Other species recorded during survey of the upland sections of the corridor included the red-listed skylark and reed bunting.

Lowland breeding birds

During the lowland breeding bird survey, on ground below around 220m OD, an amber-listed wader species, ringed plover, was found breeding, together with 7 red-listed and 7 amber-listed passerine or near-passerine species.

Target Species

Hen Harriers

Single male hen harriers were seen on four dates and a single female hen harrier was seen on a further date in the immediate vicinity of the overhead line corridor. On three occasions, the birds were hunting, while on the other two occasions the (male) bird was flying directly over the corridor towards the east or the north. The flight vectors of these two flights converged on a brash-covered hillside and adjacent young conifer plantation around 1km to the west of the proposed overhead line route.

The results of a 1-hour vantage point watch on 19.06.07 were consistent with the view that this was the likely general nest area of this pair of harriers. On this occasion the male was seen to fly across the brash-covered hillside, and was followed for ~1km as it flew directly towards the south. Three observations thus suggested that the focus of activity of the male was on a site that is ~1km distant from the overhead line route. There was no indication that the birds' activities were centred on or near the proposed line corridor and it was therefore felt that an extended programme of vantage point watches was unnecessary. Hen harrier flight lines can be found in Figure 9.1. The South Strathclyde Raptor Study Group (SSRSG) records regular use of the general area of the route corridor for foraging in all years between 2002 and 2006.

COALBURN NORTH
COALBURN SOUTH
ROB'S HILL NORTH
ROB'S HILL SOUTH
EARLS MILL NORTH
EARLS MILL SOUTH
PAGIE HILL
HOTEL
Coalburn
Opencast Workings
Douglas
HAPPENDON
Rigside
Douglas Water
Broken Cross
Muir
Middle Muir

Legend

- Proposed Overhead Line Route
- Andershaw Substation
- Andershaw Boundary
- Coalburn Substation
- Wintering Vantage Point
- Wintering Viewing Angle
- Breeding Vantage Point (For Hen Harrier Survey)
- Breeding Transects

SP TRANSMISSION

Project	Andershaw - Coalburn Proposed 132kV Overhead Line			
Title	Figure 9.1: Breeding & Wintering Vantage Points & Transects			
Scale	1: 50,000	Drawn by	MSH	Rev.
Date	Apr '08	Checked by	SD	-

FABER MAUNSELL | AECOM

Short-eared Owl

The SSRSG records use of parts of the general area of the corridor by short-eared owl between 2002 and 2006. Breeding occurred in 1998 (RSPB) and in 2004 (SSRG) in the vicinity of the southern end of the overhead line route. No birds were recorded during surveys between pre-dawn and late afternoon in suitable habitat along the route corridors.

Peregrines

A Peregrine eyrie in the general vicinity of the corridors has not had confirmed breeding since 2003, and birds attempted to breed at another site in the vicinity of the overhead lines in 2006 (SSRSG). No peregrines were seen during the present study. The remains of two pigeon kills were present and are indicative of past but not recent peregrine activity around the proposed Andershaw windfarm site.

Merlins

Merlins regularly hunt over much of the line route (SSRSG), but none were seen during the present study.

Upland Waders

Curlew were frequent along both route corridors, where there were also fewer territories of snipe. Lapwing, redshank and oystercatcher were mainly present along the margins of unenclosed land.

The table below shows the estimated number of upland breeding wader territories.

Table 9.8 Breeding Wader Territories Approaching Within 500m of Proposed Overhead Line

Species		Number of Territories
Common	Latin Name	
Oystercatcher	*Haematopus ostralegus*	1
Lapwing	*Vanellus vanellus*	1
Snipe	*Gallinago gallinago*	3
Curlew	*Numenius arquata*	6
Redshank	*Tringa totanus*	0

It is notable that no breeding golden plovers were recorded during three survey periods. A flock of 14 golden plovers was seen over the overhead line corridor on 24th April 2007, around the time when pre-breeding groups may occupy the lowland fringes of breeding moors.

Lowland Breeding Birds

Birds recorded on lower ground (below around 220m OD), using Breeding Bird Survey methodology included three amber-listed wader species (oystercatcher, lapwing and redshank) found breeding.

Wintering Birds

The results of the wintering bird surveys are contained within Appendix F. The VP surveys recorded four species listed on Annex 1 of the EC Birds Directive (hen harrier, golden plover, merlin and peregrine) and five species (crossbill, fieldfare, hen harrier, merlin and peregrine) listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), three of which are target species.

Twenty three BoCC Amber species, ten of which are target species (curlew, kestrel, lapwing, merlin, mute swan, oystercatcher, peregrine, pink-footed goose, red grouse, and teal) were recorded during the winter VP surveys. Six BoCC Red species were recorded, one of which was a target species (hen harrier). Wintering vantage point locations and viewsheds are shown in Figure 9.3. Individual flightlines recorded during the VP surveys for each target species can be found in the Appendix.

Sites which regularly contain 1% or more of the total British non-breeding population of any bird species at any season are eligible for selection as a Site of Special Scientific Interest (SSSI [JNCC, 1989]). The number of individuals of the species recorded during the wintering VP surveys was not sufficient to reach the qualifying threshold for any form of national or international designation.

Non-Target Species

No species included in Annex 1 of EC Birds Directive 1979 (79/409/EEC) were recorded during the wintering non-target species surveys. A summary is provided below with full details found in the wintering bird survey report in the Appendix.

Finches were commonly recorded throughout the winter surveys including goldfinch, greenfinch, chaffinch, crossbill, siskin and lesser redpoll (BoCC Amber). Linnet (BoCC Red) was also recorded from the Hotel VP in the late winter surveys. Coal tit, great tit, long tailed-tit and blue tit were also regularly recorded at the Coalburn and Rob's Hill VPs where there is wood-land/scrub habitat. Other passerines recorded include goldcrest and dunnock, with blackbird, robin, reed bunting (BoCC Red) and stonechat (BoCC Amber) regularly recorded.

Song thrush (BoCC Red) and mistle thrush (BoCC Amber) were recorded at Earls Mill, Rob's Hill and Hotel VPs. Mistle thrush were recorded feeding with a flock of fieldfare (peak count 16) from Earls Mill South VP. Fieldfare (BoCC Amber) were recorded in small flocks from 7 of the 8 VPs throughout the surveys, with numbers noticeably decreasing towards the end of the winter survey season. Starlings (BoCC Red) were also recorded in flocks feeding and flying over from 7 of the 8 VPs, with peak feeding flock sizes of 100 recorded from Coalburn North and Pagie Hill.

Corvids were well represented, with carrion crow, jackdaw, magpie, raven and rook recorded frequently throughout the winter surveys. Up to 45 jackdaws were recorded during each survey on the disused building in the valley at the Earl's Mill VP, and were also recorded at Coalburn and Rob's Hill South VPs. Ravens were recorded undertaking display flights from all VPs. Carrion crow, magpie and rook were also abundantly recorded feeding and flying over.

Pigeons and doves were represented by collared dove, feral pigeon and woodpigeon throughout the majority of the survey area. Woodpigeon were frequently recorded undertaking display flights during the late winter surveys.

Gulls were seen throughout the surveys with the most common being black -headed gull (BoCC Amber) and common gull (BoCC Amber). Herring gull (BoCC Amber) were also recorded from Rob's Hill South and Earls Mill North, and lesser black-backed gull (BoCC Amber) from Coalburn North and Earls Mill North. A single great black-backed gull was recorded once from Rob's Hill North.

A single record of dipper was made at Earls Mill North. Grey wagtail (BoCC Amber) was recorded occasionally from the Rob's Hill VPs, and pied wagtail was recorded more frequently from 4 of the 8 VPs. Woodpeckers were recorded rarely with great spotted and green woodpecker (BoCC Amber) both recorded from Rob's Hill North only. Pheasant were recorded from 5 of the 8 VPs.

Skylark (BoCC Red) and meadow pipit (BoCC Amber) were common and widespread throughout the late winter surveys only and recorded in song/ display flight.

Target Species

Buzzard

This was the most frequently recorded species, with 208 flights totalling 329.33 minutes, and accounted for just over 40% of the total recorded flights for all species. Half of the flight time for this species was recorded at the high band (50+), with just under a third of the time spent at the low-mid band (3-25m). This species was widespread and common being recorded frequently from all VPs. They were frequently observed utilising existing overhead lines/posts as hunting perches. Displaying (soaring) birds were frequently recorded during the late winter surveys.

Curlew

This species was recorded frequently during the late winter surveys only, when the birds were returning to their breeding grounds. Thirty four flights were recorded, the majority of which were display flights, with half of these being at the low-mid band (3-25m). Curlew was recorded from all VPs.

Golden Plover

Seven flights were recorded for this species during the late winter surveys only, when the birds were returning to their breeding grounds. The flights were recorded from 2 VPs and represented less than 1.37% of the total survey time. Just over half of the recorded flight time for this species was spent at the low-mid height band (3-25m).

Goosander

Three flights were recorded for this species from the 2 VPs at Earls Mill. Both male and female birds were recorded over-flying, focused along Glespin Burn. Over three quarters of the recorded flight time was at the low-mid height band (3-25m); however, less than 1 minute of flight time was recorded.

Grey Heron

Thirteen flights were recorded for this species from 3 VPs. Birds were recorded flying over from the Earls Mill VPs and also frequently recorded hunting on the ponds and surrounding boggy areas overlooked by the VP at Coalburn North. The majority of flights were at the low (0-3m) and low-mid (3-25m) height bands representing this behaviour.

Hen Harrier

Two male hen harrier flights were recorded from Rob's Hill North and Earls Mill South at 15:40 and 11:08 respectively during the late winter surveys. Therefore it is likely that these records refer to foraging birds rather than birds commuting to/from favoured roosting areas. All of the flight time was spent at the low-mid height band (3-25m), although less than 1 minute of flight time was recorded.

Kestrel

This was the second most frequently recorded species, with 151 flights totalling 174.42 minutes, and accounted for nearly 30% of the total recorded flights for all species. The majority of the flight time for this species was recorded at the low-mid height band (3-25m). This species was widespread and common, being recorded frequently from all VPs. A pair of birds was noted hunting together from the Rob's Hill North VP.

Kestrel were frequently observed utilising existing overhead lines/poles as hunting perches.

Lapwing

This was the third most frequently recorded species, with 43 flights totalling 36.47 minutes. This accounted for just over 8% of the total recorded flights for all species. Nearly half of the flight time for this species was spent at the low-mid height band (3-25m) and nearly a third spent at the mid-high height band (25-50m). Lapwing were recorded from 5 of the VPs with display flights seen during the late winter surveys.

Mallard

Fifteen flights were recorded for this species from 5 of the VPs, totalling 5.13 minutes. Birds were often recorded undertaking short flights from one section of pond to the other from the Coalburn VPs. Birds were recorded over flying at other VPs. Flights were distributed across the flight bands.

Merlin

A single flight was recorded for this species totalling 0.62 minutes at the low-mid height band (3-25m) from the Coalburn South VP.

Mute Swan

Two birds were recorded on the waterbody near Johnshill from the Coalburn North VP during one survey on 18 March 2008. The birds were present throughout this survey. No flights were recorded for this species.

Oystercatcher

Two flights were recorded for this species from 2 VPs, totalling less than 1 minute of flight time at the low-mid height band (3-25m) and the high height band (50+).

Peregrine

Fourteen flights were recorded for this species from the Earls Mill VPs only, totalling 32.87 minutes, and accounted for nearly 3% of the total recorded flights for all species. Most flight time was spent at the high height band (50m+), with percentage of time decreasing down through the height bands. A pair of birds were seen in flight together, and birds were seen flying to and from the quarry to the south of the VPs.

Pink-footed Goose

Five flights were recorded for this species, totalling 5.92 minutes, from 3VPs with a peak flock size of approximately 120 individuals. Birds were seen over-flying only, entirely at the high height band (50m+).

Red Grouse

Two flights were recorded for this species from the Hotel VP during a single late winter survey. A peak count of 2 birds were seen, with the flight heights equally split between the low (0-3m) and low-mid (3-25m) height bands. Total flight time recorded is just over half a minute. This activity occurred approximately 1km from the proposed overhead line route.

Sparrowhawk

Three flights were recorded for this species from 2 VPs and totalling just over 2 minutes. Flight time is split between the low (0-3m), low-mid (3-25m) and mid-high (25-50m) height bands.

Teal

Five flights were recorded for this species from the Coalburn VPs. Flights were short and involved birds flying from one end of the pond to the other and therefore flight height is solely at the low height band (0-3m). Both sexes of birds were seen on the water bodies overlooked by the VPs, with up to 10 birds recorded foraging in the wetland habitat adjacent to the Coalburn South VP. Five birds were also flushed from a small pond near Rob's Hill.

Grey Goose sp.

Two flights were recorded of unidentified grey geese species. Both records were made from the Rob's Hill VPs and involved small flocks of approximately 20 and 40 individuals, with the latter flock being identified as possible greylag geese (*Anser anser*). The flights totalled 3.97 minutes, with the majority of this flight time at the high height band (50m+).

Wildfowl sp.

A single flight was recorded for unidentified wildfowl from the Earls Mill South VP. The flight consisted of a single bird and totalled 0.33 minutes, with the majority of this flight time spent at the low-mid height band (3-25m).

9.4 Identification and Evaluation of Ecological Receptors

Breeding Birds

A value is assigned to a species based on its distribution and status, which may reflect its rarity and/or historical trends in numbers, range or distribution. These factors may in turn be reflected by the inclusion of species in lists of species protected at international or national level, in lists of species of conservation concern, or by being the subject of a Species Action Plan in the UK Biodiversity Action Plan (UKBAP).

Two wader species, lapwing and curlew, have been recommended for inclusion in a revised list of UKBAP species (BRIG 2007). However, the presence of a species on non-statutory lists does not in itself mean that the species is of high concern within the context of any particular scheme, and professional judgement is required to assign a realistic value to a species in that context.

Assessment of the impacts of wind farm developments, and by extension, associated infrastructure, on birds normally need not consider birds outwith the above categories (SNH 2006). Sensitivity of a species to potential effects of a development is therefore a main driver of any assessment of the significance of impacts. The sensitivity of target species noted during the survey is listed in Table 9.9.

Table 9.9 Target Species Recorded During Breeding Bird Surveys

Species		Conservation and Legislative Status*	Nature Conservation Value
Common Name	**Latin Name**		
Hen harrier	*Circus cyaneus*	EC1, WCA1, BoCC Red	National (High)
Merlin	*Falco columbarius*	EC1 , WCA1, BoCC Amber	National (High)
Peregrine	*Falco peregrinus*	EC1 , WCA1, BoCC Amber	National (High)
Oystercatcher	*Haematopus ostralegus*	BoCC Amber, SLBAP	Local (Low)
Snipe	*Gallinago gallinago*	BoCC Amber, SLBAP	Local (Low)
Curlew	*Numenius arquata*	BoCC Amber, SLBAP, UKBAP	High Local (Low)
Redshank	*Tringa totanus*	BoCC Amber, SLBAP	Local (Low)
Goldenplover	*Pluvialis apricaria*	EC1	National (High)
Lapwing	*Vanellus vanellus*	BoCC Amber, SLBAP, UKBAP	Local (Moderate)
Short-eared Owl	*Asio flammeus*	EC1, BoCC Amber	National (High)

* See notes below

- EC1: species included in Annex 1 of EC Birds Directive 1979 (79/409/EEC).
- WCA1: species included in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- UKBAP: priority species under UK BAP
- SLBAP: priority species under South Lanarkshire BAP.
- BoCC Red/Amber refers to species included on the RSPB Red and Amber Lists of species of conservation concern (RSPB, 2002).

Wintering Birds

Evaluation criteria which can be used to assess the regional/county/local importance of sites are population size, species richness, breeding community quality and rarity (Hill, *et al*., 2005). The nature conservation values assigned to each target species in Table 9.10 below have been considered using these attributes. The recorded populations of target species of conservation importance (golden plover, hen harrier, merlin, and peregrine) do not fulfil the criteria for conservation value greater than Medium (Regional) importance. Buzzard, goosander, grey heron, mallard and sparrowhawk are not listed on international, national, regional or local conservation lists or legislation.

Species of Medium (Regional) importance are hen harrier, golden plover, merlin and peregrine. These species are attributed a higher conservation importance due to their inclusion in Annex 1 of the EC Birds Directive and/ or Schedule 1 of the Wildlife and Countryside Act 1981, rather than them being nationally significant populations.

Non-target species of conservation importance (Schedule 1 or BoCC Red list) recorded during the winter VP surveys include the following:

- Crossbill (likely breeder as heard singing during late winter surveys);
- Skylark (likely breeder as heard/seen in display flight during late winter surveys);
- Flocks of fieldfare;
- Linnet (likely breeder as heard singing during the late winter surveys);
- Reed bunting ;
- Song thrush; and
- Starling.

The wintering populations of all non-target species of conservation importance are low and are not considered to be of regional/county significance. All other species recorded are considered to be of no more than Negligible (Parish) nature conservation value due to their low conservation status or limited numbers.

A total of 60 species were recorded over the course of the wintering vantage point surveys, 17 of which were target species. The target species are shown in Table 9.10, along with their conservation status and assessed nature conservation value.

Table 9.10 Target Species Recorded During Wintering Bird Surveys

Species		Conservation and Legislative Status*	Nature Conservation Value
Common Name	**Latin Name**		
Buzzard	*Buteo buteo*	-	Low (Local)
Curlew	*Numenius arquata*	BoCC Amber, SLBAP, UKBAP	Low (Local)
Golden plover	*Pluvialis apricaria*	EC1	Medium (Regional)
Goosander	*Mergus merganser*	-	Low (Local)
Grey heron	*Ardea cinerea*	-	Low (Local)
Hen harrier	*Circus cyaneus*	EC1, WCA1, BoCC Red	Medium (Regional)
Kestrel	*Falco tinnunculus*	BoCC Amber	Low (Local)
Lapwing	*Vanellus vanellus*	BoCC Amber, SLBAP, UKBAP	Low (Local)
Mallard	*Anas platyrhynchos*	-	Low (Local)
Merlin	*Falco columbarius*	EC1, WCA1, BoCC Amber	Medium (Regional)
Mute swan	*Cygnus olor*	BoCC Amber	Low (Local)
Oystercatcher	*Haematopus ostralegus*	BoCC Amber	Low (Local)
Peregrine	*Falco peregrinus*	EC1, WCA1, BoCC Amber	Medium (Regional)
Pink-footed goose	*Anser brachyrhynchus*	BoCC Amber	Low (Local)
Red grouse	*Lagopus lagopus*	BoCC Amber, UKBAP	Low (Local)
Sparrowhawk	*Accipiter nisus*	-	Low (Local)
Teal	*Anas crecca*	BoCC Amber	Low (Local)

* See notes below

- EC1: species included in Annex 1 of EC Birds Directive 1979 (79/409/EEC).
- WCA1: species included in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).
- UKBAP: priority species under UK BAP.
- SLBAP: priority species under South Lanarkshire BAP.
- BoCC Red/Amber refers to species included on the RSPB Red and Amber Lists of species of conservation concern (RSPB, 2002).

9.5 Predicted Impacts

Breeding Birds

As mentioned in section 9.4 above, non target species are not required to be considered for assessment of impact by windfarm developments, including associated infrastructure. In the case of the proposed overhead line, it has been demonstrated that there are a range of non target species present. but the predicted impact will be negligible as construction will be outwith the breeding bird season which is the most sensitive period.

The potential impacts of the proposed overhead line are assessed for each of the identified valued species as identified in Section 9.4 above. Construction impacts are considered generically, while operational impacts are considered in relation to the species concerned.

Construction

Potential effects of overhead line construction on bird species are mainly restricted to habitat loss and disturbance. Habitat loss will be minimal, and will be restricted to the footprint of each individual pole. Reduction in bird habitats is therefore assessed as insignificant. Disturbance effects will in general be short-term, and restricted to the length of time required for pole erection and stringing of the overhead lines. However, the response of different species to disruption may vary, depending on whether the affected ground is used for foraging or nesting. The optimal time for construction is during autumn/winter, avoiding the breeding season, with consequently no impact on breeding bird populations. However, given the anticipated construction programme some activities are likely to be undertaken and sections of the overhead line may be constructed during this period; consequently disturbance could result.

Operation

Hen Harrier

Records of overflying hen harriers (both male and female) during black grouse and upland breeding bird surveys suggest that the higher parts of the route corridor lie within the home range of at least one pair of harriers. However, the absence of suitable tall vegetation within the vicinity of the route and likely construction areas means that it is unlikely that the overhead line corridor would provide a suitable nest site for the species. The principal potential impact on hen harrier in the line corridor is collision risk. Walks along existing stretches of line and adjacent areas provided no evidence of collision for any species. There is no reason to believe that the proposed overhead line would be of greater concern than the existing overhead lines in the same area.

Merlin

There were no records of this species during the black grouse and upland breeding bird surveys. Although this species can be elusive, there was no evidence that it was breeding within or near the route corridor. Comments on potential impacts are similar to those for hen harrier.

Peregrine

Although the species has nested near the route corridor in the recent past there were no records during the present breeding bird surveys. Comments on potential impacts are similar to those for hen harrier.

Oystercatcher

Oystercatcher territories were restricted to lowland parts of the route corridor and the upland fringe. It is clear that the species becomes habituated to the presence of overhead wires, and nesting pairs are frequent in the wider lowland area where overhead lines do not appear to be a deterrent to breeding.

Golden Plover

There was a single record of 14 birds of inconclusive status and there was no evidence that this species bred within 1km of the proposed overhead line.

Lapwing

Lapwings were frequent in parts of the lower-lying grasslands in the corridor. Collision risk is the main potential adverse impact of overhead lines on this species, but birds nesting in close proximity to existing lines appeared to be well-habituated to their presence.

Snipe

Snipe were occasional, particularly in the more northerly upland section of the proposed route. Collision risk is again the main potential adverse impact. Habituation to the presence of existing overhead lines is confirmed by the use of poles as ‘chippering’ posts.

Curlew

Curlews are frequent in both upland parts of the corridor. Territories are present near existing overhead lines, which in places pass through territories. Birds were occasionally noted flying above these overhead lines with clearance of <10m, and it is likely that birds become readily habituated

to their presence. There was no evidence of casualties along the existing overhead lines.

Redshank

The two redshank territories were restricted to a stream channel and adjacent grassland in the lowland section of the corridor. Elsewhere, birds become readily habituated to the presence of overhead lines and may use poles as song posts or vantage points. The main potential impact relates to collision risk.

Short-eared Owl

This species bred in the immediate vicinity of the route corridors at Andershaw in 2004, but no birds were recorded during the present survey. The species frequently shows low site-fidelity, and absence in one year cannot be used to forecast site use in subsequent years. Comments on potential impacts are similar to those for hen harrier.

Other Species

A number of red and amber-listed passerine species were noted along the line corridor but these are not generally regarded as being at risk from overhead lines.

Wintering Birds

The potential impacts to birds resulting from the construction and operation of the proposed overhead lines are as follows:

- Disturbance of foraging/hunting birds using the site on a regular basis caused by increased noise and human activity;
- Displacement of birds by the presence of the overhead lines (which can occur as both the deterrence of bird activity among and close to the overhead lines and also as a barrier effect to movement of target species); and
- Increased mortality due to collision with overhead lines and posts.

Potential adverse effects resulting from disturbance will occur during the construction period only.

The impact assessment has been based on the assessment methodology described in Section 9.2. A precautionary approach has been adopted when assessing the potential impacts of the proposed development, assuming a worst-case scenario.

Disturbance (During Construction)

Disturbance at present is currently low with the majority of the proposed overhead line route passing through upland grazed grassland. Infrequent dog walkers were noted from the Coalburn VPs, and the construction traffic to/from Hagshaw Hill windfarm noted from the Rob's Hill VPs is considered low disturbance. The disturbance during construction of scheme is expected to be greater than this; although this disturbance will only be temporary.

The responses of different species to disturbance depends on factors such as location, availability of adjacent undisturbed habitat, timing of construction works and a species tolerance or habituation to disturbance. The long term effects of disturbance are likely also to depend on a species' site faithfulness, which has some bearing on how permanent the effects of disturbance might be.

The impacts of disturbance on quiet, upland sites such as the area that the proposed overhead line route passes through, may be exacerbated by the habituation of birds to normally low levels of noise and other forms of disturbance associated with human activity.

Displacement (During Operation)

The presence of the overhead lines may cause visual effects that could deter target species from using the habitat along the route for foraging and hunting. This might be as a result of indirect effects such as changes in prey density and direct effects such as the presence of the overhead lines themselves.

The potential for displacement of all of the species listed below may result in both positive impacts in the form of decreased collision risk of target species and negative impacts in terms of a reduction in the availability or at least accessibility of hunting/foraging habitat and prey.

- Lapwing
- Curlew
- Golden plover
- Grey heron
- Pink-footed goose
- Mallard
- Goosander
- Hen harrier
- Oystercatcher
- Peregrine
- Red grouse
- Teal
- Mute swan

Realistically with regard to most raptor species (buzzard, kestrel, sparrowhawk and merlin) it is likely that they would use the overhead lines and supporting posts to their advantage as hunting perches, as noted on existing overhead lines/posts throughout the wintering VP surveys.

The effect of displacement on non-target species recorded during the wintering VP surveys are not considered to be significant . Many of the non-target species recorded were passerines. This species group is not considered particularly sensitive to disturbance (through displacement). Other species recorded such as corvids and gulls are not included in this table due to lack of research; however, it is considered that the effect of displacement for these species is not likely to be significant.

It is unlikely that the proposed route will act as a barrier to movement to any of the species recorded during the wintering VP surveys. Species such as kestrel, buzzard, curlew, gulls and corvids were all noted negotiating flights through or around existing overhead lines. It is likely that in terms of a barrier to movement the overhead line will have neutral impact magnitude.

Collision with Overhead Lines and Supporting Wood Pole Structures

The presence of overhead lines may create a risk of birds colliding with the wires and wood poles. In a study conducted in Norway, 80% of collision victims were ptarmigan species, with other species such as mallard, kestrel, golden plover, lapwing, woodpigeon, fieldfare, blackbird and song thrush represented by a few individuals only (Bevanger and BrØseth, 2004).

Black grouse (*Tetrao tetrix*) and capercaillie (*Tetrao urogallus*) are known to be particularly prone to collision with fences and wires. The only species of grouse recorded during the wintering VP surveys was red grouse. This species was recorded rarely during the wintering VP surveys (2 flights during one VP survey) with peak numbers of two individuals recorded approximately 1km from the proposed route. The habitats present along the route are unfavourable for this species; therefore the impact magnitude is considered to be minor negative.

For the other species recorded including waders, wildfowl and raptors, the collision rate is considered to be low. It is also suggested that overhead lines may be most dangerous to birds when they are first constructed, and that birds may learn to avoid the overhead lines (Bevanger and Brøseth, 2004), further reducing the risk of collision.

Kestrel, curlew, golden plover, grey heron, goosander, merlin and oystercatcher were all recorded for over 50% of their recorded flight time at the 3-25m height band, which is the band where collisions with the overhead lines is more likely to occur. Kestrel were recorded for 70.03% of the time at this flight height band, but from observation during the surveys were seen to be very aware of existing overhead line presence and adept at using them for the purpose of landing and using as hunting perches.

Collision mortality/injury from overhead lines and supporting poles for all species recorded during the wintering VPs is not considered likely to have a significant effect at a local level.

Potential Cumulative Effects

Overhead lines may act as a barrier to bird movement, with birds flying around a cluster of several overhead lines rather than flying between them. This is a different displacement mechanism from the form of displacement described above and would depend on the spacing and placement of the overhead lines in relation to existing overhead line infrastructure. Birds may be forced to fly around a dense cluster of overhead lines, whereas they might easily fly between overhead lines that were more widely spaced. This is only an issue if feeding, roosting (and breeding) areas, between which birds make regular movements, are effectively disconnected by a dense cluster of several overhead lines.

Overhead lines may become more of an obstacle for birds to negotiate where several overhead lines are present in the same area, and may lead to an increase in collisions. In developing the route of the proposed overhead line avoidance of existing infrastructure and clustering of with other overhead lines has been a key consideration. The majority of the overhead line avoids this; the only area considered to carry this potential impact is to the east of Hagshaw windfarm where a series of existing overhead lines connect to the Douglas West Substation. On this basis the cumulative effect is not considered to be significant.