

**Dounreay – Mybster 275 / 132 kV
Environmental Statement:
Volume 1: Non-Technical Summary**

January 2013

Scottish Hydro Electric Transmission plc

Dounreay – Mybster 275 / 132 kV

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CONTENTS

1	ABOUT THIS DOCUMENT	1
2	THE CONSENT APPLICATIONS	3
2.1	NEED FOR DEVELOPMENT	3
2.2	SECTION 37 CONSENTS	3
2.3	DEEMED PLANNING PERMISSION	3
3	DESCRIPTION OF THE PROPOSED DEVELOPMENTS	4
4	CONSULTATION	7
4.1	STAKEHOLDER CONSULTATION	7
4.2	SCOPING	7
5	ROUTE SELECTION AND ALTERNATIVES	8
5.2	ROUTEING PRINCIPLES	8
5.3	ALTERNATIVE ROUTE CORRIDORS AND ALIGNMENTS	9
6	THE EXISTING ENVIRONMENT	10
6.1	INTRODUCTION	10
6.2	LANDSCAPE AND VISUAL AMENITY	10
6.3	ECOLOGY AND NATURE CONSERVATION	11
6.4	ORNITHOLOGY	11
6.5	CULTURAL HERITAGE	12
6.6	GEOLOGY, HYDROGEOLOGY AND HYDROLOGY	12
6.7	SOILS, LAND USE AND AGRICULTURE	13
6.8	TRAFFIC AND TRANSPORT	13
6.9	RECREATION AND TOURISM	13
6.10	NOISE ENVIRONMENT	14
7	ENVIRONMENTAL EFFECTS	15
7.1	MITIGATION	15
7.2	POSITIVE EFFECTS	15
7.3	NEGATIVE EFFECTS	16
7.4	MINOR EFFECTS - LANDSCAPE	16
7.5	OTHER MINOR EFFECTS	17
7.6	TEMPORARY EFFECTS	17
7.7	CUMULATIVE EFFECTS	17
8	NEXT STEPS	19

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1 ABOUT THIS DOCUMENT

1.1 Introduction

1.1.1 This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) which reports on the Environmental Impact Assessment (EIA) that has been carried out. The ES has been prepared to accompany two separate applications under section 37 (s37) of the Electricity Act 1989, to construct and maintain the following overhead transmission lines (OHL) in Caithness (the Proposed Developments):

- a proposed 275 kV OHL between Dounreay and Spittal substations; and
- a proposed 132 kV OHL between Spittal and Mybster substations.

1.1.2 The applications are being made by Scottish Hydro Electric Transmission plc (SHE Transmission) (the Applicant).

1.1.3 Both OHLs will be constructed using lattice steel towers. The exact location of individual towers will be subject to further agreements with landowners, site investigations and detailed design. The s37 applications and the ES define a three dimensional Limit of Deviation (OHL LOD) for which consents to construct the OHLs are being sought. An additional LOD is also defined to accommodate the associated construction works including access tracks (associated works LOD). The OHL LOD and associated works LOD (the LODs) for the Proposed Developments are shown in Figures NTS 1.1 to NTS 1.3.

1.1.4 Environmental Impact Assessment (EIA) is a process that identifies and assesses the potential environmental impacts (both positive and negative) of certain types of development for which consent is being sought, and aims to prevent, reduce or control negative environmental impacts. The requirements for EIA, the procedures to be followed and the information to be provided in the ES are set out Regulations: in this case, the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.

1.1.5 The aims of this NTS are to summarise the content and the main findings of the ES in a clear and consistent manner to assist the public in understanding what the environmental effects of the Proposed Developments are likely to be. The full ES (Volume 2: Main Report; Volume 3: Figures; Volume 4: Technical Appendices) provides a more detailed description of the LODs, the characteristics of the Proposed Developments and the findings of the Environmental Impact Assessment (EIA).

1.1.6 The full ES and supporting Technical Appendices can be viewed at the following locations:

Thurso Service Point

Council Offices
Rotterdam street
Thurso, KW14 7AF

Caithness Planning and Building

Standards Office
Market Square
Wick, KW1 4AB

Thurso Library

Davidson's Lane
Thurso
Caithness
KW14 7AF

Caithness Mobile Library (Wick)

- 1.1.7 Copies of this NTS can be obtained free of charge from:
SHE Transmission Community Liaison Manager
Marianne Townsley
10 Henderson Road
Inverness
IV1 1SN
- 1.1.8 Electronic versions of the applications, including the ES, are available to download from the Applicant's website at www.sse.com/DounreayMybster.
- 1.1.9 Copies of the full ES and Technical Appendices are also available at a cost of £200 in hard copy format (including postage and packaging) or on CD-ROM (price £20).

2 THE CONSENT APPLICATIONS

2.1 Need for Development

2.1.1 The Proposed Developments essentially replace and reinforce existing 132 kV OHLs between Dounreay and Mybster substations and form an integral part of the reinforcement of the existing 132 kV and 275 kV transmission network between Beaully and Dounreay. This forms an element of the Caithness, Moray Firth and Shetland (CMS) Strategy to enable significant new renewable energy generation in the north of Scotland. This increase in renewable energy generation is being encouraged by the Scottish Government as a key part of its policy to tackle climate change and create sustainable economic growth.

2.2 Section 37 Consents

2.2.1 The Applicant is seeking two separate consents under s37 of the Electricity Act 1989 for installation of the following OHLs:

- the proposed 275 kV OHL from Dounreay to Spittal supported by lattice steel towers, via a proposed new substation south of Thurso; and
- the proposed 132 kV OHL from Spittal to Mybster, also supported by lattice steel towers.

2.3 Deemed Planning Permission

2.3.1 In addition to the s37 consents, deemed planning permission is also being sought under section 57 of the Town and Country Planning Act 1997 (as amended) for certain associated works including: the creation of new temporary and permanent access tracks; limited widening of access junctions onto existing roads in certain locations; and other temporary construction requirements (construction compounds, temporary scaffolding to existing OHLs) to facilitate construction of the Proposed Developments.

3 DESCRIPTION OF THE PROPOSED DEVELOPMENTS

3.1 Overview of the Proposed Developments

- 3.1.1 The Proposed Developments are located within Caithness and cover a linear development area of approximately 30 km between the existing Dounreay substation (NGR NC 983 666) to the west, the proposed location for a new Thurso South substation (NGR NC 122 649) to the north, and the proposed extension of the existing Mybster substation (NGR ND 169 516) to the south.
- 3.1.2 The Proposed Developments will involve the construction of 26 km of double circuit 275 kV OHL, supported on lattice steel towers, between the existing substation at Dounreay, and a proposed substation at Spittal, via a proposed substation at Geiselittle, south of Thurso (known as Thurso South) (the proposed 275 kV OHL); and 4 km of double circuit 132 kV OHL supported on lattice steel towers between the proposed substation at Spittal and a proposed extension to the existing Mybster substation (the proposed 132 kV OHL).
- 3.1.3 The Proposed Developments will also require associated works for which deemed consent is required, as described in Section 2 above. In addition, the LODs have been defined to accommodate temporary diversion works. These may be the subject of separate s37 applications depending on the detailed design.
- 3.1.4 For much of their length the Proposed Developments will follow the general route of the existing 132 kV OHL. The final design of the Proposed Developments will be confirmed through further design development prior to construction. Key parameters for which consent is being sought are defined by three dimensional Limits of Deviation (LOD) in which the Proposed Developments will be constructed ('the OHL LOD').
- 3.1.5 Access will be required to construct the towers and string conductors. The access requirements have not been finalised at this stage. For the purposes of this assessment, an indicative access strategy has been developed which describes where existing tracks are anticipated to be upgraded, and where new permanent and new temporary tracks may also be established.
- 3.1.6 The associated works LOD accommodates the requirements of the indicative access strategy and also defines the area within which other works associated with the construction of the Proposed Developments will take place.
- 3.1.7 Construction of the Proposed Developments is expected to take approximately 36 months. Construction will be completed in phases and will include: 'enabling works' (preconstruction preparations, construction of access tracks); followed by installation of tower foundations and towers; after which the OHL conductors will be strung between the towers. Following I commissioning of the Proposed Developments, all construction sites will be reinstated.
- 3.1.8 Temporary diversions of the existing 132 kV OHL will be required at certain locations in order to complete the construction of the Proposed Developments. This will be carefully programmed to ensure risk to the electricity transmission network and customer supply is minimised at all times.

- 3.1.9 Maintenance activities will be required throughout the life of the Proposed Developments and these will include regular line and tower inspections, to check for natural wear and tear, but also may include occasional unscheduled maintenance in response to unanticipated events, such as inclement weather.
- 3.1.10 The EIA regulations require that the ES provides an estimate, by type and quantity of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the Proposed Developments.
- 3.1.11 In operation, the Proposed Developments will not give rise to any significant residues or emissions. There will be no activity associated with the operation of the new OHLs that will give rise to air or soil pollution. There will be no vibration, light or significant heat from either the proposed 275 kV OHL or the proposed 132 kV OHL.
- 3.1.12 Electromagnetic fields (EMFs) arise from electrical charges. They are common in the home and arise from power supplies (domestic ring main) and from domestic appliances. They also arise from, amongst other things, overhead transmission lines and underground cables, radio waves from TV, radio and mobile phones, radar and satellite communications. The UK Health Protection Agency (HPA) is the governing body responsible for policy and guidance on EMF. It has published occupational exposure and public exposure guidelines to ensure the protection of human health in different situations. The levels of EMF predicted for the Proposed Developments, based on the respective voltages, are over a hundred times lower than the exposure guidelines and are therefore considered to represent no risks to people living and working in the vicinity of the Proposed Developments.
- 3.1.13 Although not a part of the Proposed Developments for which consent is being sought, the existing 132 kV OHL between Dounreay and Spittal will be removed, within 2 years of construction of the Proposed Developments. The existing 132 kV OHL between Spittal and Mybster will remain in place maintaining the existing network south to Shin.
- 3.1.14 The OHL LOD and the associated works LOD are shown in Figures NTS 1.1 to NTS 1.3. Typical lattice steel towers of the types likely to be used on the proposed 275 kV OHL and on the proposed 132 kV OHL are shown on Figure NTS 1.4 and NTS 1.5 below.



**Figure NTS 1.4: Illustrative Image
of likely 132 kV OHL towers**



**Figure NTS 1.5: Illustrative Image
of likely 275 kV OHL towers**

4 CONSULTATION

4.1 Stakeholder Consultation

4.1.1 Consultation has played a key role throughout the process, from initial consideration of route corridor options (2011) and route selection within the preferred corridor (early 2012) through to formal scoping (September 2012). A Consultation Document was issued in May 2012. Public exhibitions were held in Thurso and in Halkirk in July 2012 which sought feedback on the proposals and on the preferred route. Subsequent consultation has continued with a variety of groups, including the Highland Council (THC) Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH), Scottish Water (SW) and Historic Scotland (HS).

4.2 Scoping

4.2.1 A scoping report was submitted to the Energy Consent and Deployment Unit (ECDU) of the Scottish Government under Regulation 7 of the aforementioned EIA Regulations to request a 'Scoping Opinion', i.e. an indication of the information to be provided within the ES.

4.2.2 A scoping opinion was received from the Scottish Government in September 2012.

5 ROUTE SELECTION AND ALTERNATIVES

5.1 Introduction

5.1.1 The EIA Regulations require that where developers have considered alternatives to the Proposed Developments, these are summarised in the ES.

5.1.2 Various alternatives were considered during the design process following guidance set out by SHE Transmission (formerly SHETL):

- The ‘do-nothing’ scenario involved leaving the transmission network in Caithness in its current form. This was not considered viable within the context of the Scottish Government’s strategy and policy commitments for renewable energy generation and tackling climate change;
- Alternative reinforcement strategies. SHE Transmission have undertaken a detailed review of alternative strategies looking at factors including technical capacity; cost; planning issues; and environmental impact; to achieve the required reinforcement objectives;
- Alternative route corridors. Various route corridors were considered in order to identify the corridor or corridors most capable of accommodating the Proposed Developments; and
- Alternative route options. A series of possible route alternatives were developed within the preferred route corridor in order to identify the preferred route.

5.2 Routeing Principles

5.2.1 The SHE Transmission (formerly SHETL) (2004) guidance¹ emphasises the importance of giving due consideration to environmental sensitivities and particularly to reducing visual intrusion as much as possible as a routeing principle. Specifically, it applies the ‘Holford Rules’ first developed in 1959 by Sir William Holford and which continue to inform transmission line routeing in the UK today.

5.2.2 Taking account of both SHE Transmission guidance and the Holford Rules, the following principles informed the routing process;

- the need to avoid areas of highest amenity value;
- the need to avoid smaller areas of high amenity value;
- reducing visual impact by choosing the most direct line, therefore requiring fewer angle towers;
- general landscape and visual amenity (backcloth and screening);

¹ SHE Transmission (formerly SHETL) (2004): Electricity Transmission Development Proposals in Scotland: A guidance document outlining the SHE Transmission approach to the routeing of high voltage steel lattice tower transmission lines, leading to an application for consent in Scotland.

- opportunities to mitigate the wirescape of the area and to minimise 'new' visual impact by following the routes of existing electricity infrastructure wherever possible;
- minimise land-take, or severance, of existing agricultural land;
- minimising impact on traffic and access;
- opportunities to avoid areas of residential amenity such as residential dwellings and curtilages; and
- known information on proposed wind farms.

5.3 Alternative Route Corridors and Alignments

5.3.1 Route corridors of 2 km width were defined for the Proposed Developments following the routing principles discussed above. Following identification of the preferred corridor, a series of possible route alternatives were developed within the preferred corridor and these were analysed and compared. The LODs for the Proposed Developments were identified as the outcome of this process.

6 THE EXISTING ENVIRONMENT

6.1 Introduction

6.1.1 The following sections summarise the character and sensitivity of the environmental setting for the Proposed Developments and the baseline against which the potential effects of the Proposed Developments have been assessed.

6.2 Landscape and Visual Amenity

6.2.1 Special Landscape Areas (SLA) at Dunnet Head and the Flow country and Berriedale Coast lie within 10 km of the Proposed Developments. Farr Bay, Strathy and Portskerra SLA lies just over 10 km.

6.2.2 The Proposed Developments are located predominantly with the 'mixed use and settlement' landscape character type (LCT). Close to Dounreay the Proposed Developments lie in an Open Intensive Agriculture LCT. At Mybster, the Proposed Developments lie within the Sweeping Moorlands LCT.

6.2.3 High Cliffs, sheltered bays, dunes and long beaches define the northern coast with Thurso and Scrabster typifying the coastline with harbour and urban infrastructure.

6.2.4 Landform is largely open and gently rolling with some areas of flat plain associated with the River Thurso, rising to 244 m AOD at Ben Dorrery. Spittal Hill, Hill of Oirig, Hill of Shebster, Buckies Hill and Hill of Forss form other lower, but prominent elevations. Sweeping moorland and peatland is found around Mybster.

6.2.5 Tree cover is typically sparse, resulting in an open landscape with the exception of small blocks of woodland associated with farmsteads and dwellings, occasional hedgerows and isolated groups of wind pruned deciduous trees.

6.2.6 Land use is primarily made up of mixed agriculture with scatter settlements. Field sizes are generally quite large and bounded by post and wire fences, traditional drystone dykes or the characteristic Caithness stone flag walls.

6.2.7 Man-made elements within the existing landscape comprise key coastal settlement at Thurso, with small villages. The A9, A836, A882, B874 and B870 are the main roads in the vicinity of the Proposed Developments, along with the Thurso to Wick railway. The existing 132 kV OHL follows a similar alignment as that for the Proposed Developments from Dounreay through to Mybster. There is a 275 kV OHL approaching Dounreay from the west. 11 kV and 33 kV woodpole OHLs also exist within the area. A number of wind farms are operational, or under construction within the wider vicinity of the Proposed Developments.

6.2.8 Existing visibility of the LODs for the Proposed Developments has been evaluated through a series of 30 viewpoint locations along the LODs, taking account of location of existing settlements, known cultural heritage features, roads and cycleways.

6.2.9 The landscape around the central part of the Proposed Developments is generally open with good visibility across and within it. Some localised screening is available

from areas of elevated topography. Visibility to the west of the Proposed Developments is more fragmented and visibility towards the Proposed Developments is lost as the land falls behind Beinn Ratha. To the east the land falls to the east of Hill of Orlig, breaking the view into the study area from the east.

6.3 Ecology and Nature Conservation

6.3.1 The Proposed Developments pass through or close to nationally and internationally designated Nature Conservation Sites as listed in Table 6.1 below:

Table 6.1: National and Internationally designated Nature Conservation Sites	
River Thurso Special Area for Conservation (SAC) and Site of Special Scientific Interest (SSSI)	The SAC is designated for supporting an important population of atlantic salmon <i>Salmo salar</i> . The SSSI was designated to protect nationally important flood-plain fen habitat and flowering plants that grow along the margins and the banks.
Loch Lieurary SSSI.	This SSSI was notified for its basin fen habitat;
Westfield Bridge SSSI	This SSSI was notified for national important fen meadow and calcareous grassland habitat

6.3.2 Between Dounreay and Thurso the Proposed Developments pass through arable and pasture land in the form of semi-improved and marshy grassland. Localised areas of river edge habitat occur at the Forss Water and the River Thurso. There are two areas of peatland habitat (to the west of Yellow Moss plantation; and at the Moss of Geise) which are remnants of peatland now isolated by surrounding farmland.

6.3.3 Between Thurso and Mybster the Proposed Developments also pass through semi-improved and marshy grassland. A further area of peatland habitat exists to the north of Spittal substation. In addition a small area of wet heath identified approaching Mybster forms the edge of a much wider peatland located to the south and west of the Proposed Developments.

6.3.4 A National Vegetation Classification (NVC) of the identified peatland habitat confirmed five areas of ecologically sensitive 'Groundwater Dependent Terrestrial Ecosystems' (GWDTE) within the LODs for the Proposed Developments.

6.3.5 Otter *Lutra lutra* are known to occur along the River Thurso, although no evidence of holts or couches was recorded during ecology surveys. Common pipistrelle bat *Pipistrellus pipistrellus* was recorded in low numbers close to St Thomas's Chapel, Skinnet and Westfield Village.

6.3.6 Surveys found no evidence of other sensitive fauna (wildcat, polecat, water vole, red squirrel, badger, and fish species).

6.4 Ornithology

6.4.1 Three Special Protection Areas (SPA) designated for their internationally important ornithology interests lie within 3 km of the Proposed Developments.

- 6.4.2 Caithness Lochs SPA and RAMSAR site is made up of six lochs and one wetland area and was designated for the wintering populations of three internationally important bird species: Greenland greater white-fronted goose *Anser albifrons flavirostris*; (Icelandic) greylag goose *Anser anser*, and (Icelandic) whooper swan *Cygnus cygnus*.
- 6.4.3 The lochs of this SPA are also designated as a RAMSAR site as they support a wide diversity of aquatic and wetland plant species that support the overwinter bird populations.
- 6.4.4 At the closest point (south of Westfield) this SPA lies approximately 2.4 km from the Proposed Developments.
- 6.4.5 Caithness and Sutherland Peatlands SPA includes areas of peatland across Caithness and Sutherland and was designated for breeding populations of a range of international important bird species that it supports. Five of the designating species for this SPA were recorded during site surveys. These were: short-eared owl *Asio flammeus*; hen harrier *Circus cyaneus*; merlin *Falco coumbarius*; golden plover *Pluvialis apricaria*; dunlin *Calidris alpina schinzii*. At the closest point (south east of Mybster substation), this SPA lies approximately 2.8 km from the Proposed Developments.
- 6.4.6 North Caithness Cliffs SPA was designated for its international important breeding population of cliff nesting birds: razorbill *Alca torda*; peregrine falcon *Falco peregrinus*; atlantic puffin *Fratercula artica*; northern fulmar *fulmarus glacialis*; black-legged kittiwake *Rissa tridactyla*; and common guillemot *Uria aalge*.

6.5 Cultural Heritage

- 6.5.1 Caithness has a rich archaeological heritage, with special importance for its Neolithic and Iron Age sites. It is the heartland of the 'broch' and also contains important Norse settlement remains. In close proximity to the LODs for the Proposed Developments 18 recorded cultural heritage features have been identified, including 3 scheduled monuments (SAMs), a Broch, at Knock Urray near Dounreay; St Thomas's Chapel, near Skinnet; and St Magnus Hospital and Chapel.
- 6.5.2 A number of other cultural heritage features, including listed buildings, have been identified outside the LODs, on which the possibility of indirect impacts on their setting has been considered.
- 6.5.3 There are also a number of areas along the LODs of the Proposed Developments where, although no visible archaeology is apparent, there is considered to be potential for as yet undiscovered buried archaeology features.

6.6 Geology, Hydrogeology and Hydrology

- 6.6.1 The Proposed Developments are underlain by sedimentary rocks deposited approximately 400 million years ago, during the Devonian period and belonging to the Caithness Flagstone Group, comprising mudstone, sandstones, and limestones. Overlying the solid geology, superficial deposits consists of glacial sediments, with river terrace deposits and alluvium located within the river valleys, and peat in flat or low lying areas.

- 6.6.2 The Proposed Developments are underlain by a moderately permeable aquifer, which is an important source of local public water supply, private water supplies and baseflow to local rivers.
- 6.6.3 The Proposed Developments cross a number of water courses, drains and ditches of differing sizes. The main rivers are the River Thurso and the Forss Water. In addition, land in agricultural production will be subject to field drainage.
- 6.6.4 Water quality in the Dounreay Burn and in the River Thurso is currently good but poorer in the Forss Water.
- 6.6.5 There is the potential for flooding along the Dounreay Burn, Forss Water, River Thurso and tributaries and also the Burn of Achanarras.

6.7 Soils, Land use and Agriculture

- 6.7.1 Soil resources within the LODs for the Proposed Developments reflect the nature of the parent material. Mineral soils are predominantly loam and sandy loam in texture. Topsoil range from shallow (<100 mm) peaty soils to moderate depths (c. 250 mm) loam/sandy loam soils. Small pockets of peatland have been identified along the LODs for the Proposed Developments, particularly in the area of the Moss of Geise. The Proposed Developments reach the edge of a larger extent of peatland on the approach to Mybster, which extends to the south.
- 6.7.2 The Proposed Developments cross 35 different landholdings, the majority of which are involved in livestock farming. A small proportion of the area used for arable production and forestry. Other land uses in the vicinity of the Proposed Developments include Baillie Wind Farm (which is under construction). Agricultural land is predominantly capable of average production value and below².

6.8 Traffic and Transport

- 6.8.1 The A9, A836, A882, B874 and B870 are the main roads within the vicinity of the Proposed Developments, along with the Thurso to Wick railway. In addition the area is served by a network of minor and local roads. Existing traffic flows for the roads surrounding the Proposed Developments suggest that they are currently operating below capacity.

6.9 Recreation and Tourism

- 6.9.1 The remoteness of the landscape, wildlife and fishing, along with the history and archaeology of the area makes Caithness attractive to tourism and recreation. The Special Landscape Areas at Dunnet Head and Flow Country and Berriedale, Braal Castle north of Halkirk and also the River Thurso all form particular foci for recreation in the area of the Proposed Developments.
- 6.9.2 The National Cycle Network Route 1 runs west to east in the vicinity of the Dounreay to Thurso section of the Proposed Developments.

² Based in the Land Capability for Agriculture classifications (LCA)

6.9.3 A recent study by Highland and Island Enterprise also identifies that the Thurso area benefits from 'non-discretionary business tourism', including use of hotels and other services for individual business travel.

6.10 Noise Environment

6.10.1 The noise environment is typical of a rural setting with a small number of specific localised noise sources, associated with transport infrastructure and agricultural activity. Noise from the A9 is a dominant feature. Noise is also generated from other roads and from the Thurso to Wick railway.

7 ENVIRONMENTAL EFFECTS

7.1 Mitigation

- 7.1.1 Mitigation measures are measures which can be taken to avoid, minimise or control potential effects arising from a proposed development. At the outset, potential negative effects are avoided or reduced through the design process, modifying the design to eliminate or reduce aspects likely to give rise to an effect. Potential effects which cannot be avoided or reduced by design changes can be reduced or controlled by applying management measures, for example to control construction activities or effects connected with operation and maintenance.
- 7.1.2 The location and definition of the LODs in which the Proposed Developments will be constructed have been informed by a set of routing principles to ensure sensitive environmental features are avoided where ever possible. The route selection process has aimed to avoid or reduce potential effects on protected landscape and cultural features, on farming and other land uses, on residential amenity, habitats and on areas used by important bird species and other animals.
- 7.1.3 Within the LODs, later micro-siting of individual tower locations and of the locations of access tracks, construction work areas and laydown areas will ensure that identified environmental impacts are further mitigated as necessary.
- 7.1.4 In addition, construction impacts will be controlled by a project specific Construction Environmental Management Document (CEMD) which will be part of the contract documentation for the main Contractor to be employed by SHE Transmission to construct the Proposed Developments. Implementation of the environmental mitigation measures as set out within the CEMD will be monitored and managed throughout the construction process by an Environmental Clerk of Works (ECoW) and a SHE Transmission Environmental Project Manager, working alongside the main Contractor, to ensure appropriate implementation of all environmental commitments.
- 7.1.5 The anticipated effects of the Proposed Developments taking account of relevant mitigation proposals are summarised below.

7.2 Positive Effects

- 7.2.1 The Proposed Developments are part of the Scottish Government's plans to strengthen the transmission network in the north of Scotland, to improve connections to the grid for existing and future renewable generation, both on and offshore. Providing the means to export electricity to the grid strengthens the attractiveness of the north as a location for onshore and offshore renewable generation. In this way, the Proposed Developments have a potentially positive effect in securing future generation and the socio-economic benefits to the region which are associated with it.
- 7.2.2 On a local level, the Proposed Developments also offer the potential opportunity to manage local sections of the wayleave to bring about local ecological benefits. Any opportunity to achieve this will be identified during detailed design development prior to construction.

7.3 Negative Effects

- 7.3.1 Visual amenity relates to the human experience of the landscape. It is therefore affected by population distribution, settlement pattern, the nature of the location at which impacts occur, the number and types of viewers affected etc.
- 7.3.2 The Proposed Developments are predicted to give rise to a significant negative impact only in a small number of locations along the proposed 275 kV OHL, and only for a short period of time. There-after, visual effects are predicted to be minor.
- 7.3.3 A short term, but significant, negative effect will arise on views from Achnabust, Achnavast, St Thomas's Chapel at Skinnet, and from properties on the eastern edge of Halkirk during the temporary presence of the Proposed Developments with the existing 132 kV OHL. Once the existing 132 kV OHL is removed between Dounreay and Spittal substations, a significant effect will no longer arise.
- 7.3.4 No significant impacts are anticipated as a result of the Proposed Developments from viewpoints covering the proposed 132 kV OHL between Spittal and Mybster.
- 7.3.5 Surveys have been undertaken to determine the species and numbers of birds flying across the LODs at heights which correspond to the likely heights of the Proposed Developments. The survey data has been used to predict the probability of a bird colliding with the wires of the Proposed Developments and to assess the significance for the local population.
- 7.3.6 Of particular importance in this part of Scotland are Greenland Greater White Fronted Geese, Greylag Geese and Whooper Swan populations.
- 7.3.7 In the absence of any mitigation, predicted numbers of collisions as a proportion of each population are 0.45%, 1.4% and 0.9% respectively. Although small in percentage terms these collisions represent potentially significant negative effects for Greenland Greater White Fronted Geese, Greylag Geese and Whooper Swan.
- 7.3.8 These significant negative effects can be reduced however, by fitting 'bird diverters' to certain sections of the Proposed Developments. These devices encourage birds to modify their flight behaviours to avoid the OHLs. Scientific studies indicate that fitting these devices to the earth wires of new OHLs can reduce collisions by up to 60%. The predicted number of collisions would fall to 0.24% of the population of Greenland Greater White Fronted Geese, less than 1% for Greylag geese and 0.4% for Whooper swan. Whilst still a small reduction, the resulting effects on each population have been assessed as not significant.
- 7.3.9 No significant negative effects are predicted on any other environmental feature or resource, following mitigation.

7.4 Minor Effects - Landscape

- 7.4.1 A minor adverse landscape effect is predicted as a result of the proposed 275 kV OHL between Dounreay and Spittal. The southern extent of the proposed 132 kV OHL approach to Mybster substation is also predicted to have a minor adverse impact on a small element of sweeping moorlands landscape character type. Following removal of the existing 132 kV OHL between Dounreay and Spittal the identified impacts would be reduced particularly in areas of mixed agricultural and

settlement, which represents the vast majority of the LODs of the Proposed Developments.

7.5 Other Minor Effects

7.5.1 A number of other possible effects have been identified, including:

- potential effects on water quality in the River Thurso, potentially affecting spawning success for Atlantic Salmon;
- temporary disturbance to sensitive bird species;
- construction noise and lighting affecting sensitive species (e.g. otter in the River Thurso corridor, and a potential bat roost identified within the vicinity of the Proposed Developments);
- effects on the setting of St Thomas's Chapel Scheduled Ancient Monument at Skinnet, from both tower placement and upgrade of access tracks;
- temporary disruption to existing land use and drainage patterns during construction;
- temporary disruption to recreation activities during construction; and
- the potential to affect identified Groundwater Dependent Terrestrial Ecosystems (GWDTE), particularly during the construction of access tracks.

7.5.2 The ES has identified however that these potential effects can be effectively mitigated so that any residual effects which may remain after mitigation are assessed to have been minor or negligible.

7.6 Temporary Effects

7.6.1 Impacts arising during the construction process are temporary, generally short term and intermittent. Construction impacts such as noise and dust generation, runoff and localised changes to traffic movements etc. can be difficult to predict with any certainty as they result from specific construction activities, in certain locations at different stages of the development process. Given these uncertainties the ES has considered the principal activities that will occur during construction and explained what measures will be adopted to control them.

7.6.2 Actions required to avoid, reduce or control environmental impacts associated with construction, through the adoption of policies, procedures and site controls will be identified within a site specific Construction Environmental Management Document (CEMD) setting out relevant topic specific environmental management plans.

7.7 Cumulative Effects

7.7.1 The ES has considered the possible cumulative effects of the Proposed Developments with a number of other proposed developments including:

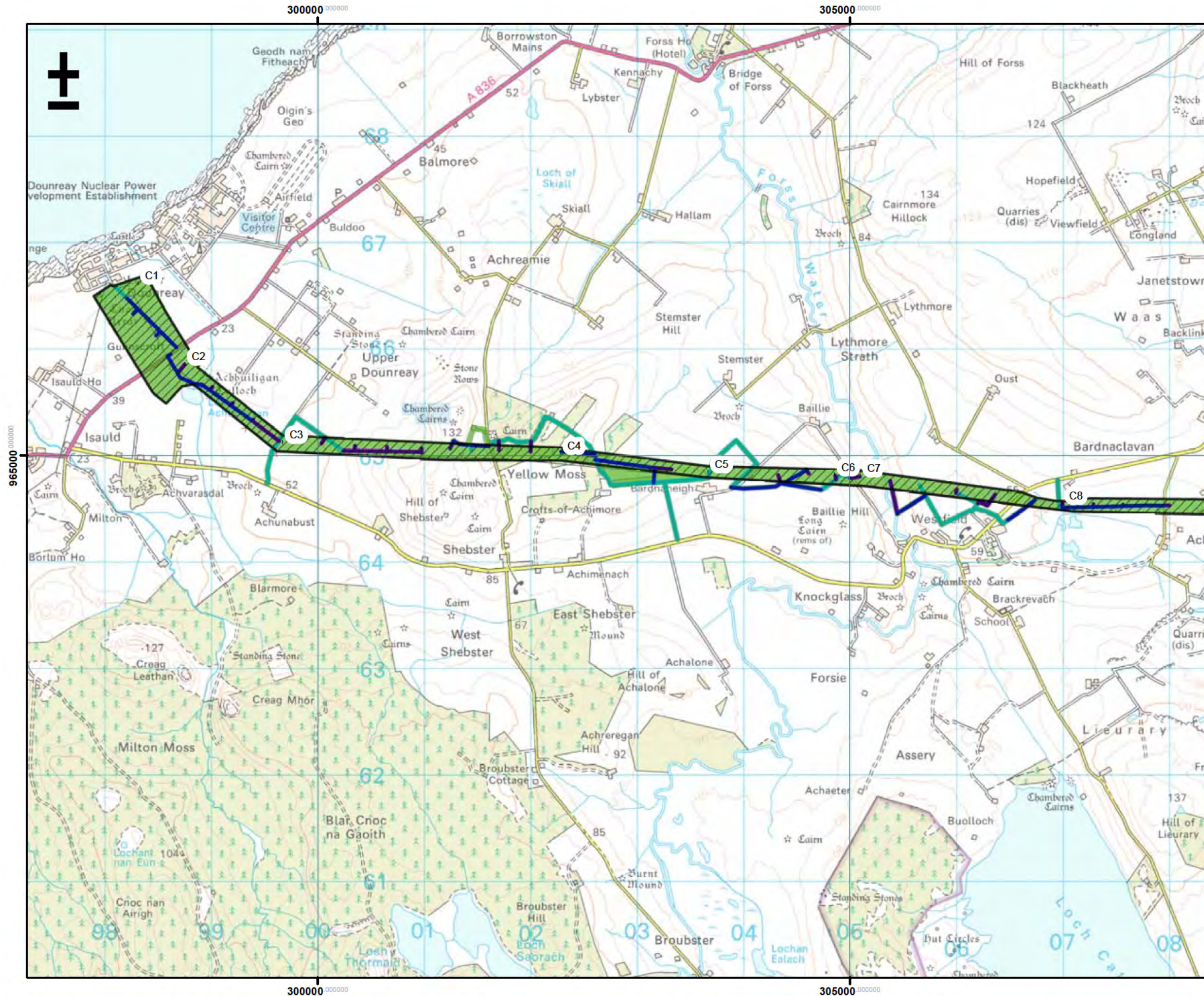
- five wind farm developments (Baillie wind farm, Forss 3 wind farm, Causeymire wind farm extension, Halsary wind farm, Camster wind farm);
- a number of additional small scale wind turbines;

- the three associated substation developments (Spittal, Thurso South and Mybster); and
 - a pellet manufacturing facility at Geiselittle.
- 7.7.2 Localise cumulative impacts on the visual amenity of specific receptors are possible in certain areas along the LODs of the Proposed Developments but the wider effects on the receiving landscape would be no greater than for those arising from the Proposed Developments alone.
- 7.7.3 No ecologically significant impacts as a result of cumulative loss of habitats are expected, although some temporary disturbance to sensitive bird species may occur in the event of concurrent construction activities between the Proposed Developments, the associated substation developments and the pellet manufacturing facility at Geiselittle. The timing of construction work will be programmed to avoid sensitive ecological times of the year and to minimise any cumulative effect on sensitive species.
- 7.7.4 The potential for cumulative collision risk for sensitive bird species has been considered. Based on data available from Scottish Natural Heritage relating to the collision risk associated with other developments, no significant cumulative collision risk has been identified for Greenland greater white fronted geese, or for whooper swan. Although cumulative collision risk has been identified for greylag geese and for hen harrier, this is not considered to give rise to significant effects on local populations of either species.
- 7.7.5 No other cumulative effects have been identified within the ES.

8 NEXT STEPS

- 8.1.1 The EIA process provides the opportunity for the public to make comments on the information contained in an ES to Energy Consents and Deployment Unit (ECDU). If you have comments you would like ECDU to take into account when considering this application, please write to the following address:

Energy Consents and Deployment Unit
Scottish Government
4th Floor
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU



Legend

- OHL Limit of Deviation
- Associated works Limit of Deviation
- Thurso South substation
- Spittal substation
- Mybster substation

Indicative Access Strategy

- Permanent
- Temporary
- Upgrade Existing

'C1' - Markers define sections used to subdivide LOD for assessment purposes

Figure NTS 1.1:
Limits of Deviation

Project:
Dounreay-Mybster 275 / 132 kV

Client: Scottish Hydro
Electric Transmission plc

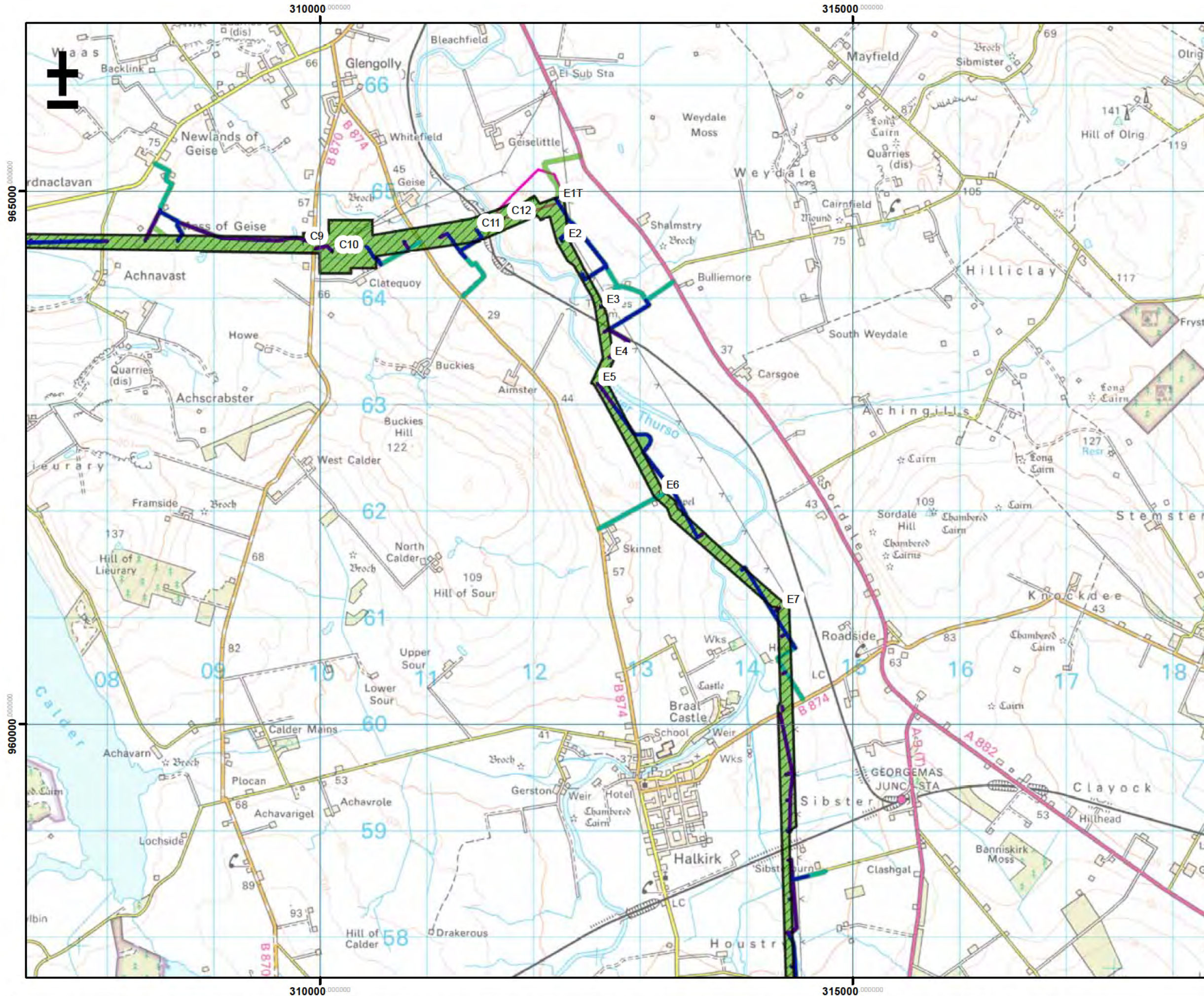
Project No: LT000023

Issue: 1

Date: January 2013

Drawn By: SC





Legend

- OHL Limit of Deviation
- Associated works Limit of Deviation
- Thurso South substation
- Spittal substation
- Mybster substation

Indicative Access Strategy

- Permanent
- Temporary
- Upgrade Existing

'C1' - Markers define sections used to subdivide LOD for assessment purposes

Figure NTS 1.2:
Limits of Deviation

Project:
Dounreay-Mybster 275 / 132 kV

Client: Scottish Hydro
Electric Transmission plc

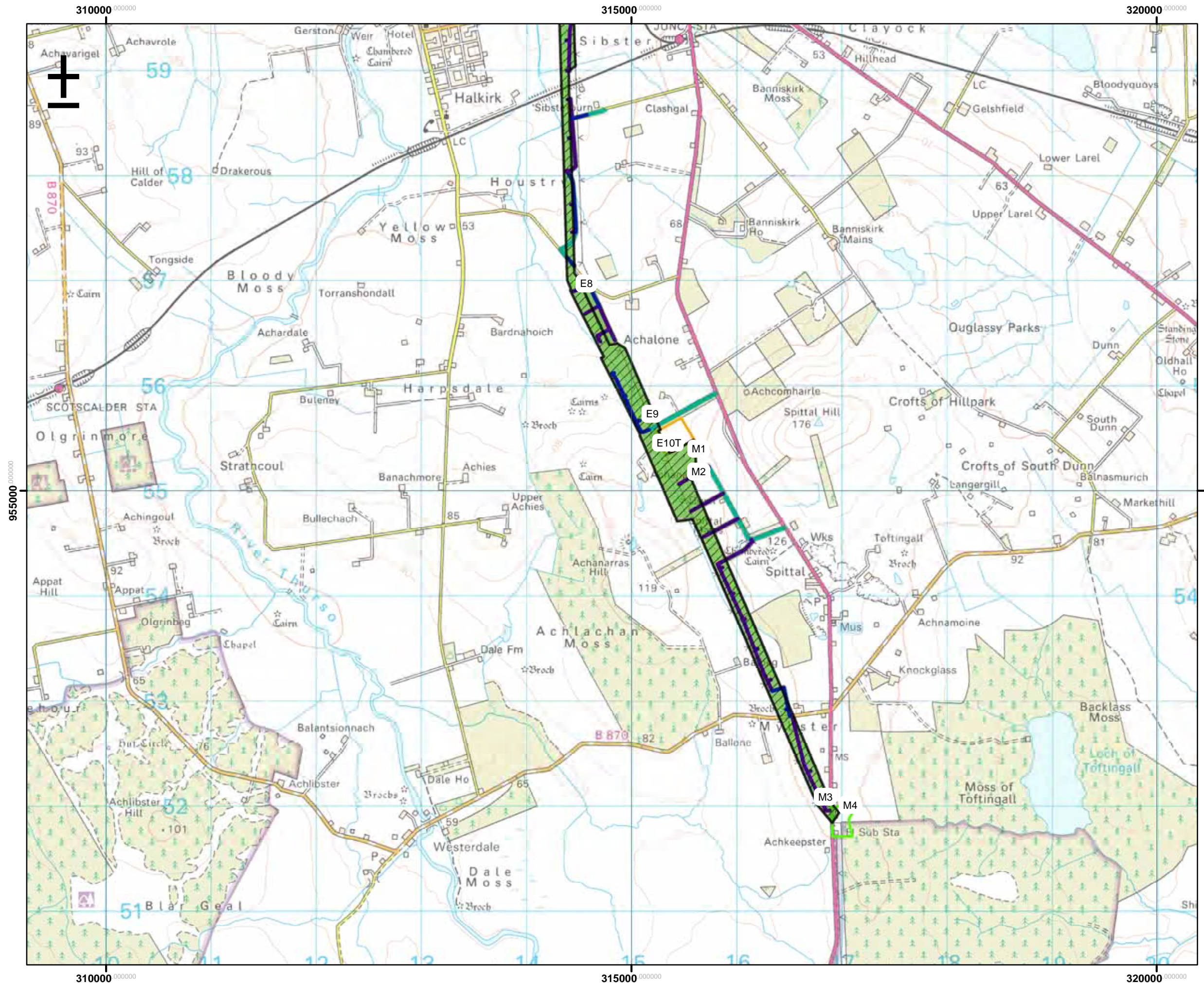
Project No: LT000023

Issue: 1

Date: January 2013

Drawn By: SC





OHL Limit of Deviation
 Associated works Limit of Deviation
 Thurso South substation
 Spittal substation
 Mybster substation

Indicative Access Strategy

Permanent
 Temporary
 Upgrade Existing

'C1' - Markers define sections used to subdivide LOD for assessment purposes

Figure NTS 1.3:
Limits of Deviation

Project:
Dounreay-Mybster 275 / 132 kV

Client: Scottish Hydro
Electric Transmission plc

Project No: LT000023

Issue: 1

Date: January 2013

Drawn By: SC

