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10.1 INTRODUCTION

This section identifies the assessment methodologies which have been adopted for the assessment of the onshore aspects of the Rhyl Flats project. The key elements of the onshore aspects of the project are principally the:

- overhead electric lines;
- underground electric cable; and
- onshore substation option.

The primary study area is that affected by the route of the electricity line and substation/terminal pole location. For some issues (*eg* landscape) baseline information is presented for a wider area, where this is considered relevant.

10.2 ECOLOGY

10.2.1 Introduction

This section presents the approach to the assessment of impacts on nature conservation interests. The assessment examines permanent, long and short-term impacts that will result from the development of the Rhyl Flats project, from occupation or disturbance of habitats and species affected by the permanent works or during the construction period. The existing situation is described and areas of designated or other known nature conservation interest are identified in *Section 11*. The assessment of impacts and relevant mitigation measures that have been incorporated into the proposals are reported in *Section 12*.

This section includes the sources of information and describes the survey methodologies and their limitations.

10.2.2 Sources of Information

Information used in the assessment has been obtained from a number of sources including:

- a review of existing published information including local flora and bird reports;
- consultations with the following statutory and non-statutory nature conservation organisations;
 - Botanical Society of the British Isles (BSBI);
 - Countryside Council for Wales (CCW);
 - Conwy County Borough Council (CCBC);

- Clwyd Badger Group;
 - Clwyd Bat Group;
 - Clwyd Bird Recording Group;
 - Denbighshire County Council (DCC);
 - Environment Agency (EA);
 - Flintshire County Council (FCC);
 - North Wales Wildlife Trust (NWWT).
- habitat and fauna field surveys undertaken by Cousins Environmental Consultants Ltd in November and December 2001 and February 2002.

10.2.3 *Survey Methodologies and Limitations*

Habitat Surveys

A Phase 1 Habitat Survey ⁽¹⁾ was carried out using standard methodology (JNCC 1993). The habitat surveys were undertaken during the period 17th – 18th November 2001, which is late in the season and outside the optimum field survey period. Due to access restrictions the survey was undertaken from public roads and rights of way only, as far as possible covering an area 250 m either side of the centre line of the proposed route.

Habitats are described in this section using Phase 1 habitat classification. Plant nomenclature (English and scientific names) follows that in Stace (1997).

Faunal Surveys

The need for water vole ⁽²⁾ and great crested newt ⁽³⁾ surveys was identified during consultations with CCW. These surveys were undertaken in December 2001 and February 2002. Historical records and findings from the above surveys indicated the need for otter ⁽⁴⁾ and badger ⁽⁵⁾ surveys. These were undertaken in December 2001 and February 2002 respectively. It has not been possible given the time of year to undertake a survey for bats, breeding birds, or amphibians and the assessment approach to these species is outlined in the relevant sections below. Surveys for other herpetiles ⁽⁶⁾ and invertebrates were not considered necessary given the scale of the works proposed and the low nature conservation value of the habitats affected.

Further surveys for great crested newts and bats will be undertaken prior to construction to help inform the specific requirements for mitigation measures.

(1) A standardised system developed by the former Nature Conservancy Council to allow identification of areas of habitat of nature conservation interest relatively rapidly over a wide area.

(2) Protected under the *Wildlife and Countryside Act 1981 and amendments, Section 9 (4)* only. Protection for the water vole's places of shelter but does not safeguard the animal itself.

(3) Protected under the *Wildlife and Countryside Act 1981 and amendments and the Conservation (Natural Habitats, & c) Regulations 1994*.

(4) Full protection under the *Wildlife and Countryside Act, 1981 and amendments and the Conservation (Natural Habitats, & c) Regulations 1994*.

(5) Badgers are protected under the *Protection of Badgers Act, 1992*.

(6) Amphibians and reptiles.

Water Vole Surveys

CCW requested that a water vole surveys was undertaken. The surveys were completed by Cheshire Ecological Services during the period 6th to 13th December 2001 with further survey in February 2002 following a re-alignment of the route, to cover areas not previously surveyed. The standard methodology as outlined in Strachan (1998) ⁽¹⁾ was used. Bank-sides of watercourses and water bodies were searched for signs of water vole activity such as faeces, latrines, feeding stations, burrows, grazed 'lawns', nests, footprints and runways in vegetation. December and February are not ideal months for surveying for water vole as many of the usual signs would not have been visible. However, the aim of the survey was to confirm the presence or absence of water vole and to identify the need for specific mitigation.

The locations of the watercourses and water bodies surveyed and the findings from each of the survey locations are contained in *Annex E*.

Otter Surveys

A survey for signs of otter adjacent to and within watercourses, such as holts, tracks and spraints, was undertaken by Cheshire Ecological Services in December 2001.

Badger Surveys

Cheshire Ecological Services undertook a badger survey on the 13th and 14th February 2002. A systematic walk was undertaken within a 50 metre corridor either side of the proposed power line route (incorporating all hedgerows, ditches, fence lines and roadsides) checking for field signs that would indicate the presence of badger. The signs looked for included, setts, sett entrances, paths, paw-prints, foraging marks, latrines; and hair caught on barbed wire *etc.*

The badger survey findings are contained in a separate and confidential report ⁽²⁾.

Bats

Trees observed during the habitat survey were assessed for their suitability as bat ⁽³⁾ roosts (as far as possible given access restrictions). A full bat survey has not been undertaken, however, any trees to be felled during construction will be subject to prior survey to establish if bats are present (see *Section 12.1*).

(1) Strachan R (1998) *Water Vole Conservation Handbook*. English Nature, the Environment Agency and the Wildlife Conservation Research Unit, Oxford.

(2) Cheshire Ecological Services (2001) *Badger Survey of the COWL Proposed Overhead Power Line Route*, Cheshire Ecological Services. Badger is a species which can be subject to persecution and hence the report has been made available only to Conwy County Borough Council (CCBC), who are the relevant planning authority, to Countryside Council for Wales (CCW), who advise Government on issues relating to protected species and to the local badger group.

(3) All British bat species are protected under the *Wildlife and Countryside Act 1981 and amendments and the Conservation (Natural Habitats, & c) Regulations 1994*.

Birds

The assessment of effects on birds has been based on information that was collated through:

- a review of relevant published bird records from the area including copies of the Clwyd Bird Reports (1999, 1993-95, 1991-92, 1990 and 1989) ⁽¹⁾, the New Breeding Bird Atlas (Gibbons *et al*, 1993) and the Wetland Bird Survey (Musgrove *et al*, 2001);
- a review of the habitat types along the route corridor that were recorded during the Phase 1 Habitat Survey along with the known habitat preferences of bird species previously recorded in the area (see above) to identify those bird species that might occur in habitats along the route and could be affected by the overhead lines;
- information supplied by local consultees including from the Clwyd Bird Recording Group and the local raptor group;
- a review of recent literature on the effects of overhead power lines on birds, particularly those by Bevanger (1998) and Janss (2000) to help determine species that are known to be especially vulnerable.

The aim of the assessment work was to determine the likely presence of bird species and populations in the area that could be vulnerable to the construction and operation of the overhead lines and to determine the need for any specific mitigation measures.

Great Crested Newt Surveys

Cheshire Ecological Services undertook a preliminary survey of ponds, ditches and other watercourses within a 500 m wide corridor of the transmission line route in December 2001 and February 2002 see *Annex E* and assessed them for their suitability as breeding areas for great crested newt. This survey was restricted by the extent of marginal vegetation that was visible at this time of year. The terrestrial habitat around ponds was also assessed for its suitability for newt including any refugia, which were searched for newts. Due to the survey being undertaken outside of the optimum survey period, standard methodologies such as those outlined in Gent & Gibson (1998), to determine presence and absence of this species in breeding ponds, were unable to be adopted.

10.2.4 Impact Assessment Method

The potential for nature conservation impacts has been assessed in the light of habitats and the species that will be affected by the proposals (see *Section 11.2*). The significance of impacts has been evaluated taking into account the following factors:

(1) No reports have been produced for the period 1996-1998 (*pers comm*, Clwyd Bird Recording Group, 2002).

- the magnitude of the effect, as determined by its intensity and by its extent in space and time;
- the vulnerability of the habitat or species to the change caused by the development;
- its ability to recover;
- the value, in nature conservation and ecological contexts, of affected species, populations, communities, habitats and ecosystems.

Reference has been made also to the Guidelines for Ecological Evaluation and Impact Assessment published in the Institute of Ecology and Environmental Management's (IEEM) Bulletin ⁽¹⁾, guidelines from the Institute of Environmental Assessment (IEA, 1995) ⁽²⁾ and the standard methodology for assessing the ornithological impacts of windfarms as developed jointly by Scottish Natural Heritage (SNH) and the British Wind Energy Association (BWEA) (Percival *et al*, 1999).

A more detailed account of the criteria used in the assessment is contained in *Annex E*.

10.3 *TERRESTRIAL ARCHAEOLOGY*

10.3.1 *Introduction*

The approach to the assessment of potential effects of the proposals on terrestrial archaeology is described in the following sections.

10.3.2 *Land Study Area*

In order to set data relating to the development area in context, a 'Land Study Area' (LSA) was defined for the collation of terrestrial information. The LSA is shown on *Figure 10.1*.

10.3.3 *Approach and Guidance*

The methodology adopted for the archaeological assessment reflects best practice in carrying out archaeological desk-based assessments, as codified by the Institute of Field Archaeologists (IFA) *Standard and Guidance for Archaeological Desk-based Assessment* (IFA 1999).

Although there is little formal guidance in the UK on how the archaeological heritage should be addressed in carrying out EIA, the following stages are commonly applied:

(1) Latest draft available through the IEEM website (www.ieem.co.uk).

(2) Now part of the Institute of Environmental Management and Assessment (IEMA).

- scoping;
- consultation;
- baseline description of known and potential archaeological resource; and
- assessment, including:
 - identification of development-related impacts on the archaeological heritage, based on information about the construction and operation of the proposal;
 - consideration of the significance of the effects – including indirect, secondary and cumulative effects – of any such impacts, taking into account previous disturbance and the importance of the known and potential archaeological heritage;
 - proposals for mitigating significant adverse effects on the archaeological heritage; and
 - identification of any residual effects, being effects that will occur notwithstanding mitigation.

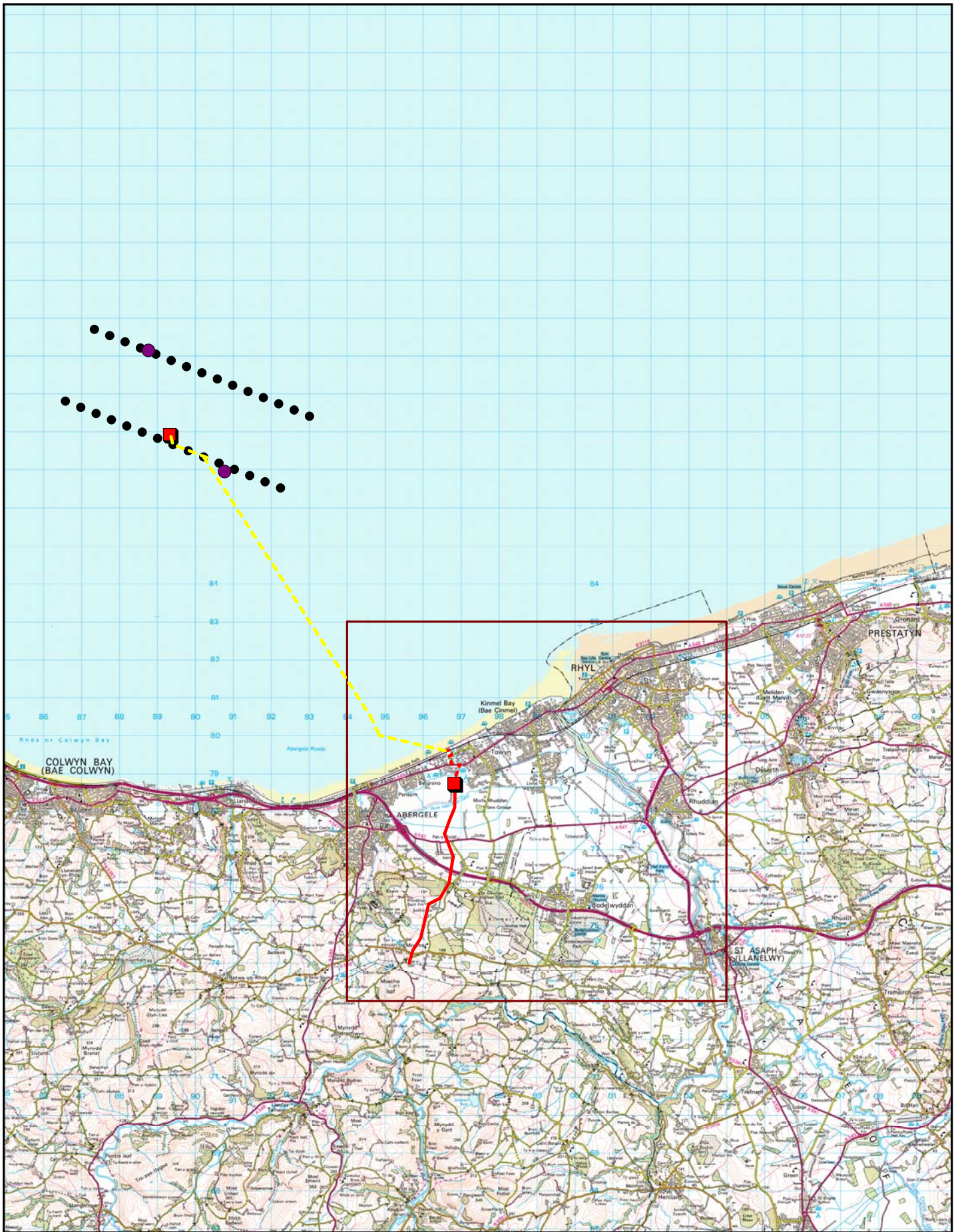

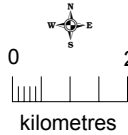








Figure 10.1
Study Area for
Terrestrial
Archaeological Assessment

-  Onshore Cable Route
-  Offshore Cable Route
-  Substations
-  Met Masts
-  Turbines
-  Archaeological Study Area

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Sources

The following organisations were the principal sources (other than the references listed) of information for the desk-based assessment of the onshore aspects of the proposal:

- Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW);
- Clwyd-Powys Archaeological Trust – Services, Sites and Monuments Record (SMR);
- Cadw: Welsh Historic Monuments; and
- Flintshire Record Office.

Consultation

In addition to requesting data, the following organisations were consulted in respect of issues that might be of concern to the curatorial authorities:

- Clwyd-Powys Archaeological Trust – Curatorial Section; and
- Cadw: Welsh Historic Monuments.

Site Visit

A site visit was undertaken on 25 September 2001 to examine the terrestrial routes of all proposed buried and overhead cables at Rhyl and Abergele. The routes of overhead cables were viewed and digitally photographed from public land.

10.3.4 *Relevant Legislation, Planning Documents and Policy*

Ancient Monuments and Archaeological Areas Act 1979

Monuments that are of national importance can be protected by being added to the schedule (list) of monuments protected under the Ancient Monuments and Archaeological Areas Act 1979 (as amended). It is an offence to damage such a ‘scheduled monument’ or to carry out a range of specified activities, unless a licence for these activities has been obtained, in the form of ‘scheduled monument consent’. Monument is a wide term that covers many types of archaeological site, including buildings, structures, works, caves, excavations and their sites. Monument can also mean the site of any vehicle, vessel, aircraft or other movable structure. As monuments that are situated in, on or under the seabed within UK territorial waters (referred to as a monument in territorial waters) can be scheduled, then it would be possible to schedule a historic wreck. The Ancient Monuments and Archaeological Areas Act 1979 is administered in Wales by Cadw.

Treasure Act 1996

Discoveries in England and Wales over 300 years old that consist mainly of gold and silver and coin hoards are generally ‘treasure’ for the purposes of the

Treasure Act 1996. Discoveries of treasure have to be reported to the Coroner within 14 days of discovery.

Planning Guidance

In Wales, *Planning Guidance (Wales): Planning Policy* (Welsh Office 1999) sets out the policies of the National Assembly of Wales on the historic environment, including archaeology. It states that the desirability of preserving an ancient monument and its setting is a material consideration in determining a planning application whether that monument is scheduled or unscheduled, and that where nationally important remains, whether scheduled or not, and their settings are affected by proposed development, there should be a presumption in favour of their physical preservation.

Landscapes, Parks and Gardens

A Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales has been prepared. Sites which are included in the Register are not subject to additional statutory controls, but inclusion is a factor in determining planning applications. The first part of the Register covers parks and gardens. *Planning Guidance (Wales): Planning Policy* (Welsh Office 1999) advises that local planning authorities should protect registered parks and gardens and take the first part of the Register into account in determining planning applications.

The second part of the Register, covering landscapes, has been published in two volumes of a Register: Landscapes of Outstanding Historic Interest (Cadw 1998); and Landscapes of Special Historic Interest (Cadw 2001). Both categories of landscape are regarded as of national importance, with the landscapes of outstanding historic interest generally being larger and the landscapes of special historic interest generally being smaller with fewer, less diverse interests. *Planning Guidance (Wales): Planning Policy* (Welsh Office 1999) advises that information on landscapes in the second part of the register should be taken into account by local planning authorities in considering the implication of developments which are of such scale that they would have a more than local impact. Specifically, the Register is intended to make available information on the aesthetic and amenity value of historic elements of registered landscapes to inform the Environmental Impact Assessment, and planners are advised to take this information into account when considering whether a development is likely to have a significant impact on the historic landscape.

10.4 AIRBORNE NOISE

10.4.1 Introduction

The scope of the assessment of airborne noise associated with the onshore components of the wind farm covers the construction and operation of the

electricity substation. Potential noise impacts from the overhead lines are considered to be negligible for 132 kV lines.

10.4.2 *Guidance*

When assessing the potential noise due to electricity substation operation, we have considered the guidance within BS 4142 : 1997 for the assessment of the likelihood of complaints from the introduction of a new noise source into an existing noise environment and the WHO guidance concerning sleep disturbance.

The assessment of construction site noise has taken account of the guidance within BS 5228 : Part 1 : 1997 which details the methods of best practice to minimise the potential for disturbance of near neighbours to a construction site and the construction methods for such a facility.

10.4.3 *Approach*

The assessment of noise from the proposed substation considers the effects of noise resulting during operation and construction.

An assessment has been performed of effects during operation by reference to measured noise emissions from an existing substation.

Baseline noise levels were established by carrying out monitoring at Happy Days Holiday Park. This site was selected as representative of background levels at the proposed substation location. The proposed site for the electricity substation was visually inspected during the installation and removal of the sound level meter located at Happy Days Holiday Park. It was determined, from listening to the existing noise environment, that the measurements obtained at Happy Days Holiday park were representative of the noise environments to be found at the proposed location for the electricity substation.

10.5 *TRAFFIC AND TRANSPORT*

10.5.1 *Introduction*

This section describes the approach to the assessment of transport and traffic effects of the onshore elements of the proposed wind farm *ie* impacts relating to the installation and maintenance of the grid connection to the electricity distribution network. The affected part of the highway network, the scale of the construction activity and the likely traffic and related environmental effects of the onshore elements are described in *Sections 11 and 12*.

10.5.2 *General Approach*

At the time of writing, advice was due to be published by the Department of Transport, Local Government and the Regions (DTLR) on the content and

preparation of Transport Assessments (TAs). This advice will replace current guidance on the preparation of Traffic Impact Assessments (TIAs) ⁽¹⁾. In the absence of the TA guidance, the existing TIA guidance has been used in this assessment.

The impacts of generated traffic during the construction and operational phases of the grid connection are based on the difference between baseline flows (*ie* those which would occur in the absence of the development) and traffic flows predicted to occur as a result of the development during both construction and operation.

10.5.3 *Traffic Conditions*

Based upon the criteria set out in the TIA guidelines, it is considered that the traffic impacts of a development will potentially cause a significant impact and may require a TIA where:

- generated traffic levels cause baseline two-way traffic on the adjoining highway to increase by over 10%, or 5% where the adjoining highway is already congested; or
- the development generates over 100 movements (a return journey is two movements) in a peak hour.

With reference to the thresholds outlined above it is important to understand that the guidelines state “it is...not possible to provide any hard and fast rules as to what constitutes a significant traffic impact and hence for which a full traffic impact assessment should be undertaken”. The IHT guidelines’ for TIA are intended to assist in determining over what area a TIA should be undertaken.

10.5.4 *Assessment of Traffic-Related Environmental Impacts*

The assessment of traffic-related environmental impacts is based on the Institute of Environmental Management and Assessment (IEMA, formerly IEA) guidelines ⁽²⁾.

The IEMA guidelines (at *Section 3.15*) propose two rules for defining the area in which the assessment should be undertaken;

- *Rule 1 - include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%).*
- *Rule 2 - include any other specifically sensitive areas where traffic flows have increased by 10% or more.*

(1) Institute of Highways and Transportation (1994) Traffic Impact Assessment, IHT

(2) Institute of Environmental Assessment (1993) **Guidelines for the Environmental Assessment of Road Traffic**, Guidance Notes No 1, IEA

Where receptors are in close proximity to the road network and increases of over 30% are predicted, the IEMA guidelines note that a more detailed assessment should be undertaken to establish the extent of any impact.

10.5.5 *Summary of Criteria*

The criteria which have been used in the assessment of traffic-related impacts are summarised in *Table 10.1*.

Table 10.1 *Criteria for the Assessment of Traffic Related Impacts*

Potential Impact	Assessment	Assessment Criteria
Traffic conditions	Percentage change in traffic flow	Potentially significant impact if: <ul style="list-style-type: none"> Traffic flows increase by > 10% Traffic flows increase by > 5% (where network is sensitive) Trips (in/out combined) increase by >100
Impacts on Cyclists and Pedestrians	Percentage change in traffic flow	Significant impact if traffic flows increase by >30%
Traffic-related environmental impacts	Percentage change in traffic flow	Potentially significant impact if: <ul style="list-style-type: none"> Average/daily traffic flows or HGV flows increase by > 30% Average/daily traffic flows or HGV flows increase by > 10% (where network is sensitive)

10.6 *LANDSCAPE AND VISUAL AMENITY*

10.6.1 *Introduction*

This section presents the approach to the landscape and visual assessment that considers the potential effects of the proposed transmission line grid connection, substation building and the associated works on the landscape character and quality, and the visual amenity of the locality. A detailed explanation of the methodology is provided in *Annex L*.

10.6.2 *Current Assessment Guidance and Source Data*

The methods used to characterise and evaluate the baseline environment and assess the potential effects of the proposals on this baseline have been based on current guidelines for landscape and visual assessment. These include:

- *Landscape character assessment* - Interim Landscape Assessment Guidance (LUC 1999) and LANDMAP – the Landscape Assessment and Decision Making Process (CCW 2001).
- *Assessment of effects* - Guidelines for Landscape and Visual Assessment (LI/IEA 1995).

The assessment has drawn on information provided by the Colwyn Borough Local Plan, and the Clwyd Landscape Assessment (CCC, 1995). The Conwy County Borough Council Draft Unitary Development Plan (CCBC, 2001 internet version), and the Draft Study to Identify Areas of Landscape Value (CCBC, 2001) have also been examined, and the different designations and character areas commented upon.

This assessment has been based on the landscape designations and character areas described in the Colwyn Borough Local Plan (CCBC 1999) and its supporting landscape character assessment - the Clwyd Landscape Assessment (CCC 1995).

10.6.3 *Study Area*

The study area for the assessment of potential effects on landscape and visual amenity was a 2 km corridor either side of the proposed route for the electricity line from the landfall to connection to the existing electricity grid shown in *Figure 11.2, Section 11*.

10.6.4 *Approach*

The detailed method of assessment is described in detail in *Annex L*. In general terms, the assessment has involved information review, fieldwork observations and photography, and computer-based data processing and analysis. It has been undertaken in several stages:

- *The proposed development* - a review of the visual characteristics of the proposed transmission line (and the associated works) and the measures that have been incorporated into the design to mitigate the potential landscape and visual effects.
- *Landscape context* - an assessment of the existing landscape of the study area, to describe the components of the landscape, to identify the landscape designations in the study area, and to review the landscape character types defined in the Clwyd Landscape Assessment (CCC, 1995). Then, for each landscape character type, to establish the quality of the landscape, the location of visual receptors, and the nature of views.
- *Visual analysis* - a viewpoint analysis to predict the changes to the views from a selection of viewpoints that represent the more sensitive receptors in the study area.

- *Landscape assessment* - an assessment of the potential effects of the development on landscape fabric and landscape character in the study area.
- *Visual assessment* - an assessment of the potential effects of the development on the visual amenity of the study area.
- *Conclusions* - a summary of the landscape and visual assessments, and conclusions on the acceptability of the development in this locality.