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Date	27/11/13

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East Lothian Council

REPORT TO: Members' Library Service

MEETING DATE:

BY: Depute Chief Executive (Partnerships and Community Services)

SUBJECT: Planning Guidance for Wind Farms of Over 12MW: Supporting Documentation

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1 PURPOSE

1.1 To make members aware of two documents that support the Council's *Planning Guidance for Wind Farms of Over 12MW*.

2 RECOMMENDATIONS

2.1 Members are asked to note the contents of the Appropriate Assessment and the Environment Report prepared in support of the *Planning Guidance for Wind Farms of Over 12MW*.

3 BACKGROUND

3.1 A finalised version of the *Planning Guidance for Wind Farms of Over 12MW* is to be presented to Cabinet for approval on the 10th December 2013. The Guidance is supported by an Appropriate Assessment prepared under Habitats Regulations and an Environment Report prepared under Strategic Environmental Assessment Regulations. These two documents are appended to this report.

4 POLICY IMPLICATIONS

4.1 None

5 EQUALITIES IMPACT ASSESSMENT

5.1 This report is not applicable to the well being of equalities groups and Equality Impact Assessment is not required.

6 RESOURCE IMPLICATIONS

6.1 Financial - none

6.2 Personnel - none

6.3 Other - none

7 BACKGROUND PAPERS

7.1 Planning Guidance for Wind Farms of Over 12MW, ELC, November 2013

7.2 Report by Depute Chief Executive (Partnerships and Services for Communities) to 10th December Cabinet: *Planning Guidance for Wind Farms of Over 12MW*

AUTHOR'S NAME	Ian Glen
DESIGNATION	Policy and Projects Manager
CONTACT INFO	iglen@eastlothian.gov.uk (01620)827395
DATE	27 November 2013

ENVIRONMENTAL REPORT

GUIDANCE FOR WINDFARMS OF OR OVER 12MW

PREPARED BY EAST LOTHIAN COUNCIL
UNDER THE TERMS OF THE ENVIRONMENTAL ASSESSMENT (SCOTLAND) ACT 2005

Partnerships and Services for Communities
East Lothian Council
John Muir House
Haddington
EH41 3HA

November 2013

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PART 1

To:

SEA.gateway@scotland.gsi.gov.uk

or

SEA Gateway
Scottish Executive
Area 1 H (Bridge)
Victoria Quay
Edinburgh
EH6 6QQ

PART 2

An Environmental Report is attached for:

Guidance for Windfarms of or Over 12MW (GWOTM)

The Responsible Authority is:

East Lothian Council

PART 3

Contact name	Ms J Squires
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PART 4

Signature	J Squires
Date	28.11.2013

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ABBREVIATIONS

AGLV	Area of Great Landscape Value
ASP	Areas of Significant Protection
BGS	British Geological Survey
CARS	Water Environment (Controlled Activities) (Scotland) Regulations 2005
CO2	Carbon dioxide
EIA	Environmental Impact Assessment
ELBAP	East Lothian Biodiversity Action Plan
ELC	East Lothian Council
ELLP	East Lothian Local Plan 2008
ELSP	Edinburgh and the Lothians Structure Plan 2015
ER	Environment Report
ES	Environment Statement
ETSU	Energy Technology Support Unit
FCS	Forestry Commission Scotland
GWOTM	Guidance for Windfarms Over 12 Megawatts
HGDL	Entry in the Inventory of Historic Gardens and Designed Landscapes
LBAP	Local Biodiversity Action Plan
LBS	Local Biodiversity Site
LCS	Landscape Capacity Study for Wind Turbine Development in East Lothian published May 2005
LDP	The forthcoming East Lothian Local Development Plan One
Kw	Kilowatt
MW	Megawatt
NPF	National Planning Framework
PANx	Planning Advice Note x = series number
PPS	Plans, Programmes and Strategies
SAC	Special Area of Conservation
SEA	Strategy Environmental Assessment
SEPA	Scottish Environment Protection Agency
SHEP	Scottish Historic Environment Policy

SNH	Scottish Natural Heritage	SSSI	Site of Special Scientific Interest
SPA	Special Protection Area	TPO	Tree Preservation Order
SPG	Supplementary Planning Guidance	WCA	Wildlife and Countryside Act 1981
SPP	Scottish Planning Policy	WFD	Water Framework Directive

1 NON-TECHNICAL SUMMARY

1.1 This is the non-technical summary of the Environment Report (ER) which has been prepared for East Lothian's Guidance For Windfarms of or Over 12MW (GWOTM). The GWOTM covers the whole East Lothian Council area. The purpose of the GWOTM is to set out a spatial framework for windfarms over 12MW, guiding windfarm development to the areas best suited to it, and protecting areas from areas which are not. Following Scottish Government guidance most of the East Lothian area has been designated an Area of Significant Protection (ASP), and existing windfarms as Areas of Search (AS). The remaining area, a strip around Crystal Rig/Aikengall windfarms, is designated as an Area of Potential Constraint (APC). The aim of the Scottish Government is to guide windfarm development to those areas where they can operate effectively and other interests are not harmed. The GWOTM provides some additional guidance for windfarm development. Once formally approved, it will be a material consideration in the determination of windfarm planning applications in East Lothian.

1.2 Under the terms of the Environmental Assessment (Scotland) Act 2005, East Lothian Council has, in consultation with Scottish Environment Protection Agency, Historic Scotland and Scottish Natural Heritage, determined that Strategic Environmental Assessment (SEA) should be undertaken. The assessment has been carried out on the basis of possible alternatives within the Scottish Government's policy framework.

1.3 East Lothian Council has already discussed what issues should be looked at in consultation with the statutory authorities, SEPA, SNH, Historic Scotland and others. Where these bodies made comments, these were considered, and generally, changes have been made.

1.4 The objectives of the GWOTM are;

- that the interests of Areas of Significant Protection should be protected,
- that the interests which lead to potential constraints to windfarm development should not be significantly affected, and
- that the GWOTM will not result in the failure of Scottish targets for renewable energy generation to be met.

At the Scoping stage (where the planning authority in consultation with other government bodies such as Scottish Natural Heritage, Scottish Ministers, and the Scottish Environmental Protection Agency decide on the scope of the ER) some issues were 'scoped out'. The issues that remain are biodiversity, human health, soil, water, climatic factors, cultural heritage and landscape.

1.5 The GWOTM is not a stand-alone document; it is part of a wide range of policy documents that have a bearing on decision making. The guidance must make sure that it takes into consideration the aims of other policies. The main relationships are with the East Lothian Local Plan 2008 and Scottish Planning Policy, however it must also takes into account other international, national and local policies. Some of these plans aim to protect aspects of the environment, while others are mainly trying to achieve social or economic goals. The ER considers the relationship with other plans and programmes, and sets out how the GWOTM has taken these into account. Often this is done by following Scottish Minister web-based guidance, which also takes account of other policy aims.

1.6 The ER sets out relevant aspects of the current state of the environment, focussing on aspects that are most likely to be affected by large scale windfarm development (summarised in Table 1 below).

Table 1 Summary of Baseline Information

Topic	Baseline
Biodiversity	East Lothian has 1 Ramsar site, 2 Special Protection Areas (SPA's) 15 Sites of Special Scientific Interest (SSSI's), 1 Local Nature Reserve, 1 Country Park and around 55 Local Biodiversity Sites (LBS). Many of the qualifying interests – water birds and waders - of the SPA are in unfavourable condition, declining, or both. The same is true of SSSI's. Black grouse have declined from historic levels.
Population	Population of East Lothian is about 100,000 people, around 2/3 of which live in the 6 main towns. The remainder are in smaller settlements and also widely dispersed through East Lothian outwith the Lammermuir Plateaux.
Soil	East Lothian has a high percentage of prime quality agricultural land, as well as some peat in the uplands and rare soils.
Water	East Lothian is drained by 2 main rivers, the Tyne and the Esk however some upland areas drain into the River Tweed Special Area of Conservation (SAC). Drinking water status is a pass for all waters within East Lothian. For surface waters, 34% of were of good ecological status; the remainder were less than this.
Climatic factors	Greenhouse gas emissions over the last 3 decades have risen by an average of 1.6% per year. East Lothian wide emissions in 2009 were 1.163 million tonnes of CO_2, or 12.53 tonnes per capita. East Lothian has around 135MW of consented wind energy in its area. The Scottish Government estimates around 19GW of renewable energy is either constructed, consented or in planning (not all of this is certain to come forward) against a need to achieve decarbonised generation of up to 16GW.
Cultural Heritage	East Lothian has a rich cultural heritage with many Scheduled Monuments, Listed Buildings, Conservation Areas, areas on the Inventory of Historic Gardens and Designed Landscape, and archaeological finds recorded on the Historic Environment Record.
Landscape	There are no National Scenic Areas, however there are Areas of Great Landscape Value (AGLV's) which are designated for their scenic attraction in the uplands and coast, as well as across the boundary in Midlothian and Scottish Borders Council area; Aberlady Bay Local Nature Reserve and John Muir Country Park also have landscape elements to their designation. A Landscape Capacity Study has been undertaken (with a supplementary study) to analyse the capacity and sensitivity of East Lothian's landscape to wind development. A pattern of wind development relating the larger turbines to the uplands and smaller ones to the lowlands has become established. Cumulative issues are now coming to the fore as levels of development increase. Some parts of East Lothian are relatively wild, even in a Scottish context; wilder land is becoming increasingly rare.

1.7 SEA regulations require an analysis of the evolution of the baseline with and without the policy in question. This is difficult to do in this case as it is necessarily speculative. Projects are brought forward by private developers which are not under the control of the Council, so it can't easily be predicted what would happen. However, without the guidance it is more likely that applications will be made for windfarms in unsuitable locations, resulting in either poorly located windfarms, or wasted time and effort on the part of the developer. Poorly located windfarms could result in adverse impacts on biodiversity, in particular Black Grouse, soil, water, and landscape. However, there could be greater renewable energy generation.

1.8 The areas most likely to be significantly affected are the Monynut/Crystal Rig area, by receiving windfarm development, and the remainder of the Lammermuir Plateau, by protection from development that might otherwise have occurred. The main effects on the Monynut/Crystal Rig area are: on biodiversity, where development could potentially affect the water quality of the River Tweed Special Area of Conservation (though this could be avoided by good construction practice); on soil through potential effects on peat and rare soil; on water, again due to potential effects on the River Tweed SAC; and on landscape through impacts on the AGLV and landscape features such as the Lammermuir skyline, and indirectly on elements of the

cultural heritage including Conservation Areas, Listed Buildings and Scheduled Monuments. There may also be direct and indirect impacts on currently unknown remains.

1.9 The main effects on the Lammermuir Plateau area: on biodiversity, a positive effect through greater protection from any adverse impacts of windfarm development, likely to particularly benefit the Black Grouse; on soil, peat and rare soil within this area which is more likely to be protected; on water, as water quality is less likely to be impacted; on cultural heritage and landscape as the area would be more likely to remain as it is potential effects on these receptors are more likely to be avoided. On climatic factors the effect would be small but adverse as it is less likely that development would come forward in this area;

1.10 The ER identifies existing environmental issues, in particular those relating to areas of environmental importance, and how they will be affected by the GWOTM. This cannot be predicted entirely, as the effect of the GWOTM on planning applications, both in terms of their determination and which projects are brought forward, is necessarily speculative. The main environmental issues are as follows:

- Biodiversity: cumulative effects of wind development on biodiversity, in particular the Black Grouse
- Human Health: noise from windfarms
- Soil: loss of prime agricultural land and development on peatland
- Landscape: cumulative effects on visual amenity
- Landscape: cumulative effects on landscape
- Climatic factors: climate change from emission of greenhouse gases

1.11 Objectives for SEA were chosen by looking at these existing environmental problems and also the aims of other plans and strategies. SEA indicators were chosen to help judge the main possible alternative courses of action. The range of alternatives was limited to those which conform to SPP, as those outwith that framework were not thought to be reasonable. The GWOTM sets out many constraints which apply to large scale windfarm development, and most of these would be apply with or without the guidance. The method for defining the Areas of Significant Protection, Areas of Potential Constraint and Areas of Search are set out in SPP, with some limited room for alternative approaches at local level. The Guidance does make a choice however, in the deciding where the cumulative limits of development have been reached.

1.12 The chosen strategy was reached through applying SPP, applying professional judgement on where cumulative limits have been reached. This resulted in an Area of Significant Protection that contains most of East Lothian other than existing windfarms and a strip around them (see 'Extensions Approach – O2' in Figure 1 Alternative Options map A reasonable alternative is to consider that the cumulative limits have not been reached in all of these areas. The extreme case of this, which is chosen for the purposes of assessment, is that cumulative limits were not considered to be reached other than in the lowland character areas and Plateau Grassland. This would result in an Option 3, which would include the Lammermuir Plateau area outwith existing windfarms and SSSI's, being shown as Area of Potential Constraint (Lammermuir Plateau approach in Figure 1). It was also considered a reasonable alternative to consider that cumulative limits have been reached in all areas other than existing windfarms, Option 1.

1.13 The assessment considered the impact of each option compared with the current situation (the baseline) and compared with the predicted future (what would be likely to happen in the absence of the GWOTM). The indicators were:

- Will the approach conserve and enhance Natura 2000 sites? (These are a network of the best habitat at European level)
- Will the approach conserve Annex 1 bird species?
- Will the approach conserve European Protected Species?
- Will the approach preserve habitat suitable for Black Grouse? [Black grouse are one of only 4 birds on SNH's Species Action list, and a priority species for the UKBAP)
- Will the approach protect people in their homes from the effect of noise and shadow flicker?
- Will the approach protect peatland?
- Will the approach protect prime agricultural land?
- Will the approach allow protection of water environment?
- Will the approach help achieve Scotland's targets on producing energy from renewable sources?

- Does the approach preserve historic buildings and other culturally important features, including their settings?
- Does the approach protect the local landscape resource?
- Does the approach preserve some wilder land in East Lothian?

1.14 The GWOTM supports windfarm development in the Area of Search, and the Area of Potential Constraint provided the constraints can be overcome. It does not support development in the Area of Significant Protection. The different areas are shown in the Spatial Framework. The impact of the mapping of the Spatial Framework and and considered against each of the SEA topics. Policy guidance referred to in the GWOTM but not included in the East Lothian Local Plan 2008 is also considered. This policy guidance covers protection of battlefields; assessment of carbon emissions from peat and forestry removal and control of woodland removal. The impacts of the GWOTM on biodiversity, human health, water cultural heritage and landscape were positive or neutral, compared both with a baseline and with the what is predicted to happen in the future without the guidance. A negative impact on soil is expected from the mapping of the Area of Potential Constraint. There was also a negative impact on climatic factors from the mapping of the Area of Significant Protection.

1.15 Reasonable alternatives to the strategy were looked at. The impact of these alternatives were also considered. For the purposes of assessment, the alternatives were as set out below. The Options are shown in Figure 1 below. All Options include existing windfarms as Areas of Search, so the Options are

- Option 1: All other areas are included in the Area of Significant Protection ("Whole East Lothian Approach")
- Option 2: All other areas except the area around existing eastern East Lothian windfarms is included in the Area of Significant Protection, with the remainder as an Area of Potential Constraint ("Extensions Approach").
- Option 3: All other areas except the East Lothian Lammermuir Plateau are included in the Area of Significant Protection; the East Lothian Lammermuir Plateau and the Option 2 area are defined as Area of Potential Constraint ("Lammermuir Plateau Approach").

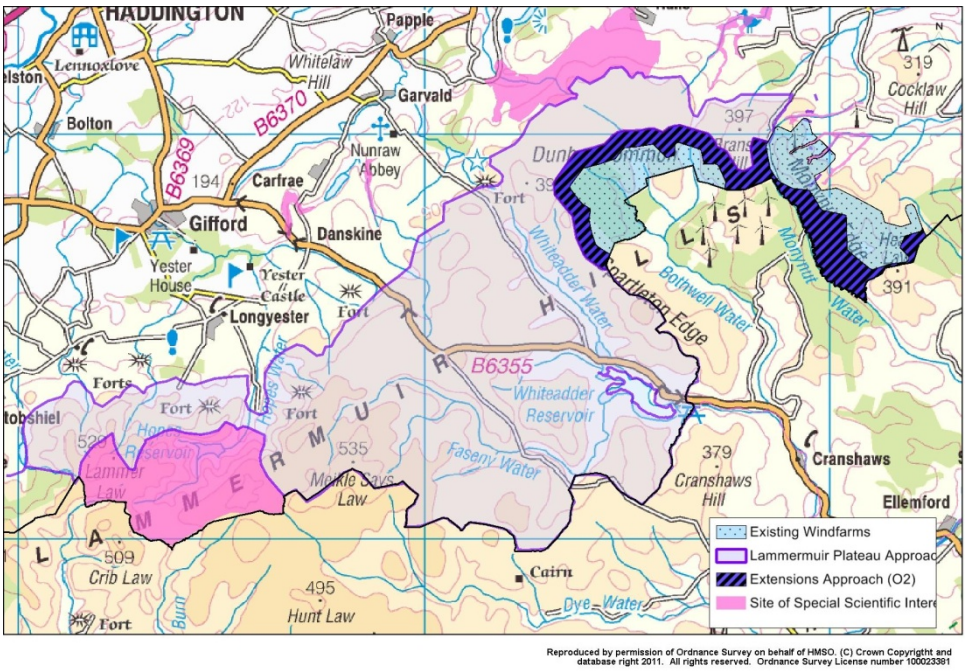

Figure 1 Alternative Options map

1.16 For most of the SEA indicators, there is little difference between Option 1 and Option 2. Option 2 would be likely to have a slightly greater adverse impact on biodiversity (though the impact could also be positive); soil; water (though this could be mitigated at project level); cultural heritage and landscape. Option 1 would have a greater adverse impact on climatic factors, through restricting development. There is more difference between the impacts of either Option 1 or 2 in comparison with Option 3. Option 3 is likely to have a greater adverse

impact on biodiversity, including on Black Grouse, though again it could also have positive impacts on other species due to landscape management that may come with development. There would be likely to be greater adverse impact on soil due to the presence of peat. There would be greater potential for adverse impact on water however again this is likely to be capable of mitigation at the project level. There is likely to be greater adverse impact on aspects of the cultural heritage, and a significant difference in adverse impact on the local landscape. Option 3 however would be likely to have the greatest positive impact on reducing climate change through generation of renewable energy.

1.17 There is clearly a tension between helping to meet the Scottish Government Climate Change and Renewable Energy targets, and meeting objectives for landscape and biodiversity, and to a lesser extent protection of the cultural heritage. Although the potential contribution to the reduction of climate change of the allocation of the Lammermuir Plateau area in both Scottish and global terms is small, it should not be ignored as insignificant. Many of the changes required to meet global targets are in themselves small. This means there are residual impacts (impacts which cannot be prevented) from the choice of this strategy on climatic factors. This impact comes from restricting development in the East Lothian Lammermuir area. There are also more minor residual impacts on local landscape and soil, and some aspects of biodiversity.

1.18 The monitoring strategy will included a short record of every planning application received for windfarms of over 12MW, as well as projects which have been submitted for 'Screening' or 'Scoping' under Environmental Impact Assessment (EIA) regulations (large windfarms often require EIA; 'Screening' is a process where developers ask the planning authority if EIA is needed, while 'scoping' is where they ask what has to go into the Environmental Statement submitted with the planning application – this can be the first indication that development in an area is being considered). Monitoring will also, where possible, consider the impact of windfarm development on the SEA objectives. Where there is an impact, action may be taken through the normal route of agencies responding to a consultation on a planning application – for example if an issue is emerging of damage to a SSSI, SNH would take that into account in their comments. Where a policy response is required, this will be considered through the emerging Local Development Plan.

2 INTRODUCTION

Purpose of this Environmental Report and key facts

2.1 East Lothian Council has prepared Guidance for Windfarms of or Over 12MW (GWOTM). Its purpose is to comply with Scottish Government guidance to set out a spatial framework for windfarms of over 20MW. As the same issues are considered to arise for windfarms of over 12MW in East Lothian, and to have a better fit with existing studies and guidance drawn up by the Council, windfarms from 12- 20MW were also included. The method for drawing up this guidance follows Scottish Planning Policy and the Scottish Governments web-based guidance[1]. The guidance gives a staged process for the determining the how different areas should be treated, with the aim of guiding large scale wind development to those areas best suited to it, and protecting those that have important interests that could be compromised by windfarm development. The guidance provides for the identification of Areas of Significant Protection (Stage 1), Areas of Potential Constraint (Stage 2) and Areas of Search (Stage 3). In the East Lothian context, most of the area was considered to require significant protection, due to the constraints described in the web-based guidance. The remainder of the area, and indeed areas underlying the Area of Significant Protection, were covered by 'Stage 2' constraints. Existing and consented windfarms were identified as Areas of Search, as this was thought the most appropriate treatment for these. The different areas are shown on Figure 2 below.

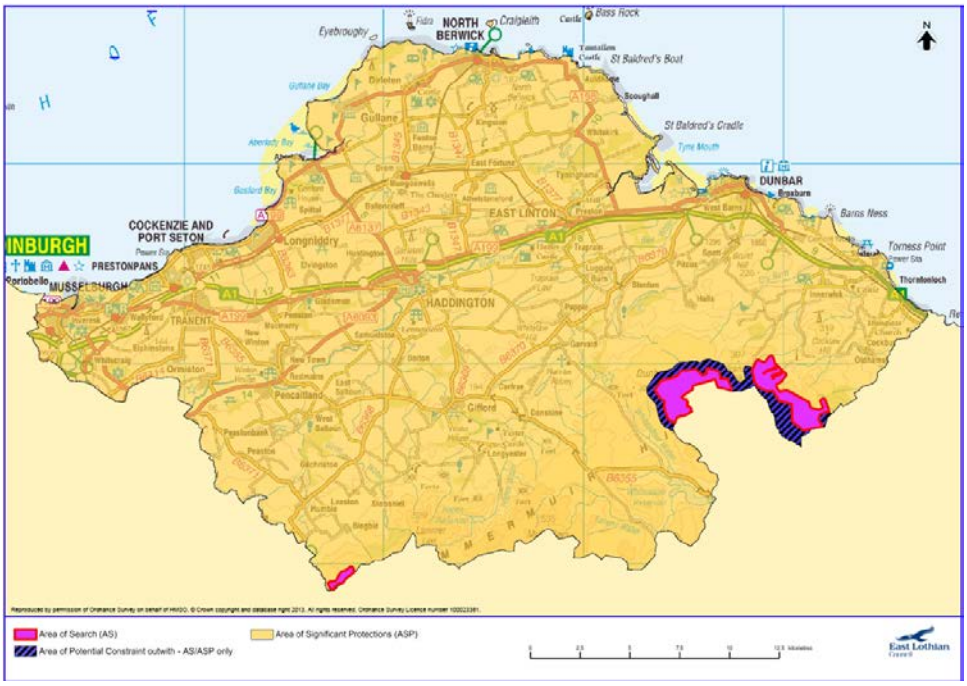

Figure 2 Spatial Framework areas

2.2 The purpose of the ER is to describe, identify, and evaluate the likely significant effects of the GWOTM, and its reasonable alternatives. The ER sets out the current baseline of aspects of the environment which may be significantly affected by large scale wind turbine development. Existing environmental problems which are relevant to the GWOTM are identified. The relationship with other PPS is shown. Environmental protection objectives which have been established by other programmes and strategies have been examined. The likely significant effects on the environment are identified. As the GWOTM was being prepared, web based guidance from the Scottish Government was applied. The main choice to be made while going through this process was the weight to be given to cumulative landscape and visual and biodiversity factors against support for renewable energy generation. This led to a decision on the extent of the Area of Significant Protection.

[1] http://www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Policy/themes/renewables/spatialframework

2.3 East Lothian Council is carrying out Strategic Environmental Assessment (SEA) as part of the preparation of the GWOTM. SEA is a systematic method for considering the likely environmental effects of certain Plans, Programmes and Strategies (PPS). SEA aims to:

- integrate environmental factors into PPS preparation and decision-making;
- improve PPS and enhance environmental protection;
- increase public participation in decision making; and
- facilitate openness and transparency of decision-making.

SEA is required by the Environmental Assessment (Scotland) Act 2005. The key SEA stages are:

Screening	determining whether the PPS is likely to have significant environmental effects and whether an SEA is required
Scoping	deciding on the scope and level of detail of the Environmental Report, and the consultation period for the report – this is done in consultation with Scottish Natural Heritage, The Scottish Ministers (Historic Scotland) and the Scottish Environment Protection Agency
Environmental Report	publishing an Environmental Report on the PPS and its environmental effects, and consulting on that report
Adoption	providing information on: the adopted PPS; how consultation comments have been taken into account; and methods for monitoring the significant environmental effects of the implementation of the PPS
Monitoring	monitoring, where within land-use planning legislation requirements, significant environmental effects in such a manner so as to also enable the Responsible Authority to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action.

KEY FACTS RELATING TO GWOTM HADDINGTON

Name of Responsible Authority	East Lothian Council
Title of PPS	Guidance for Windfarms of or over Twelve Megawatts (GWOTM)
What prompted the PPS	Scottish Planning Policy (SPP)and the following Web-based Guidance[2] required the preparation of spatial frameworks for windfarms of over 20MW where this is not already included in the Local Plan for the area. SPP allows for inclusion of smaller scale windfarms if appropriate and this guidance includes windfarms of 12 MW and over to accord with landscape capacity studies that have been carried out for the area.
Subject	Spatial framework for windfarms of over 12MW in East Lothian
Period covered by PPS	From current time to adoption of the Local Development Framework for East Lothian
Frequency of updates	None anticipated once approved
Area covered by PPS	East Lothian Council administrative area, some 270 square miles
Purpose and/or objectives	To provide land use planning guidance for the development of large windfarms in East Lothian balancing the need to protect the natural and built environment with the need to develop renewable energy sources.

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[2] Available at http://www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Policy/themes/renewables/spatialframework

SEA activities to date

2.3 Table 2 summarises the SEA activities to date in relation to the GWOTM.

Table 2 SEA Activities to date

SEA Action/Activity	When carried out	Notes (e.g. comment on data availability, particular issues or any advice from the Consultation Authorities that has now been taken into account)
Screening to determine whether the PPS is likely to have significant environmental effects	Aug – Oct 2009	Council submitted screening opinion 26 Aug 2009. Consultation Authority response received 22 September 2009. Council Determination that SEA required 4 May 2010. Advertised in local press.
Scoping the consultation periods and the level of detail to be included in the Environmental Report	June – July 2010	Advice received from Consultation Authorities
Outline and objectives of the PPS	Summer 2009	Established as part of early draft of PPS and set out in SEA screening / scoping documents.
Relationship with other PPS and environmental objectives	2009 - 2010	Established as part of the Scoping Opinion and amended as a result of Consultation Authority responses.
Environmental baseline established	2010 – 2011	Environmental Baseline established during preparation of the Environment Report
Environmental issues identified	2009 – 2011	Environmental issues established through Scoping and draft guidance
Assessment of future of area without the PPS	2009 -2012	This was done through professional judgement of possible future development and is necessarily speculative. Preparation of the GWOTM is a Scottish Government requirement.
Alternatives considered		Option 1. Cumulative landscape and visual effects are considered to have been reached in most areas of East Lothian as shown on Map 4 of the GWOTM (the chosen approach) Option 2. Cumulative effects are not considered to have been reached in the Central and East Lammermuir Plateau.
Identification of environmental issues that may persist after implementation and measures envisaged to prevent, reduce and offset any significant adverse effects	Post adoption	Identified in the Environmental Report
Monitoring methods proposed	Post adoption	Monitoring of any future large scale windfarm consents against environmental criteria
Consultation timescales • Timescale for Consultation Authorities • Timescale for public	Spring 2013	The consultation period for all stakeholders ran for 6 weeks from consultation period for the

		Environmental Report ran from 2 April 2013 until 17 May 2013
Notification / publicity action	Spring 2013	Advertisement in local press indicating availability of Environmental Report/Proposed Modification and consultation period published 18th March 2013. Community councils, local amenity groups and wind turbine industry representatives advised of publication and how reports can be viewed or obtained. Links/text on Council web site. Placed on the Council Consultation hub with a survey form for 6 weeks from 18 March 2013
Consultation responses received and considered	Spring – Autumn 2013	Consultation responses considered; changes made to GWOTM in response
Changes made to the GWOTM and Environment Report finalised	Autumn 2013	Changes made to accommodate consultation reponses both on the GWOTM and the ER. See APPENDIX A: Summary of changes to plan as a result of the EIA process.

3 CONTENT AND MAIN OBJECTIVES OF GWOTM AND RELATIONSHIPS WITH OTHER PPS

OUTLINE AND OBJECTIVES OF GWOTM

3.1 Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report include "*an outline of the contents and main objectives of the plan or programme*". The purpose of this section is to explain the nature, contents, objectives and timescale of the PPS.

3.2 Planning Authorities are required to produce Spatial Frameworks for development of windfarms over 20MW. Windfarms of different sizes can be included where appropriate. The GTWOM includes windfarms from 12MW upwards, as this is a good fit for East Lothian topography and existing guidance. The proposed PPS sets out the Spatial Framework. It also gives guidance on how the East Lothian Plan 2008 and other material considerations are likely to apply to further large scale windfarm development. It will inform the application of the East Lothian Local Plan 2008 (ELLP). Although it is non-statutory policy it is given weight by being up to date and reflecting national policy as contained in Scottish Planning Policy (SPP) and web based guidance.

3.3 SPP asks that for Spatial Frameworks, a staged approach is taken. The first stage identifies Areas requiring Significant Protection, the second Areas of Potential Constraint and the third, Areas of Search. How this is done is set out in SPP and online guidance. The approach is largely designation driven, however there is a need for local judgement in Stage 1 in deciding where the cumulative limits of development have been reached. The GWOTM sets out this Spatial Framework in Part 2. In Part 3, it gives general guidance on the application of existing development plan policy, and notes material considerations that have appeared since the East Lothian Local Plan 2008 was approved, in particular the designation of battlefields and the Scottish Government policy on Control of Woodland Removal.

3.4 The key aims of the GWOTM are to apply Scottish Government policy to produce a Spatial Framework and so help ensure:

- The interests of Areas of Significant Protection are protected
- The interests of Areas of Potential Constraint are not be significantly affected
- The GWOTM will not result in the failure of Scottish targets for renewable energy generation to be met

3.5 The draft GWOTM included an Area of Search around Monynut, which at the time was partly the subject of an application at Wester Dod which was awaiting the Reporters decision. The Council had previously accepted, through its decisions on the Crystal Rig development (Phases 1, 2 and 2a), and at Aikengall, that windfarm development was potentially compatible with AGLV designation in the East Lammermuir Plateau landscape character area, and had not objected to Wester Dod though had suggested changes. In the final GWOTM, the Area of Search has been restricted to the consented Wester Dod application. The eastern part of the remainder of this area was defined as Area of Significant Protection. This was because the decision at Wester Dod removed of 3 turbines in that area showing that this part of the area was not suitable for large scale wind development so should not be included in the Area of Search. Consent at Hoprigshiel in Scottish Borders Council area (to which this Council had objected) meant further consideration had to be given to cumulative impact in this area. The western part was included in the Area of Potential Constraint. This was following representations from the Scottish Government that the Spatial Framework should be driven by existing designations: as this area is within an AGLV it should therefore be included in the Area of Potential Constraint. A further area has been included in the Area of Potential Constraint in the final version, following representations from SNH and others that cumulative limits had not been reached in all parts of the East Lothian Lammermuirs.

3.6 The timescale of the GWOTM will be from the date of its approval by Council until the incorporation of a spatial framework on large windfarms into the East Lothian Local Development Plan. It is not anticipated that there will be any updates of the PPS as a standalone PPS. The effectiveness of the PPS will be monitored through checking consents for large windfarm development against environmental criteria. This will in turn feed into background work for the preparation of the East Lothian Local Development Framework.

Scoping In/Out of SEA Issues

3.7 The scoping stage identified those issues that were considered likely to have significant environmental effects and those issues to be excluded as they were either not considered relevant to the Guidance or there was no significant environmental effect as a result of the Guidance. This has been agreed with Consultation Authorities (Scottish Natural Heritage, Scottish Environment Protection Agency, Historic Scotland and others). Table 3 below illustrates those factors that have been 'scoped in' and 'scoped out' of this Environmental Report.

Table 3 Scoping In/Out

SEA Issue	Scoped In/Out	If Scoped Out, why?
Biodiversity, flora and fauna	✓	Biodiversity is scoped in because of the potential effects on Annex 1 birds, and birds that form the qualifying interest of Special Protection Areas (SPA), as well as water voles and bats which are European Protected Species. There are also potential effects on the qualifying interest of the River Tweed Special Area of Conservation (SAC).
Population	X	The development of wind turbines will not affect the distribution or structure of population.
Human Health	✓	The main pathway to health effects from wind turbine development is via noise. Any individual development would have to meet noise guidelines, so the impact is not likely to be significant. Reduction in recreational space might also affect health however it is not certain that the presence of wind turbines would cause this and may act in the opposite direction.
Soil	✓	Wind turbine developments have the potential to have significant adverse effects on carbon rich soils
Water (including Water Courses)	✓	Wind turbine developments have the potential to have significant adverse effects on the water environment
Air	X	There may be very local, short term effects on air quality during construction from windfarm development however this would not impact on any Air Quality Management areas in or near East Lothian and would therefore not result in critical thresholds being exceeded. Recognising constraints on windfarm development may result in energy production from more polluting sources however this effect would be examined when consenting those developments.
Climatic Factors	✓	The area covered by the Framework and scale of the development proposed/constrained will not make a significant impact on the local or global climate by itself. However, combating climate change will require many small actions, none of which might be significant themselves but may be cumulatively. As combating climate change is an important reason for Scottish Ministers support of renewable energy development the potential contribution of development in East Lothian to Scottish Government targets is considered.
Material Assets	X	Wind turbine development is not likely to have any significant effects on existing material assets.

Cultural Heritage (including Listed Buildings, Scheduled Ancient Monuments and sites on the Sites and Monuments Record)	✓	Both direct and indirect (setting) effects on cultural heritage are possible.
Landscape (including Landscape and Visual Impact)	✓	There are potential effects on Historic Gardens and Designed Landscape, a recognised national interest. The effect on local landscapes including AGLV's is also considered.

3.8 As a result of the Scoping exercise effects on soil, water and Scottish Government Climate Change targets were added on the advice of SEPA. SNH requested that biodiversity, flora and fauna be considered as one topic rather than separately and this has been done.

RELATIONSHIP WITH OTHER PPS AND ENVIRONMENTAL PROTECTION OBJECTIVES

3.9 Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report includes an outline of the PPS relationships with other relevant PPS, and how environmental protection objectives have been taken into account in the PPS preparation. This section covers these issues and describes the policy context within which the PPS operates, and the constraints and targets that this context imposes on it.

3.10 Table 4 (below) summarises how the GWOTM in East Lothian is affected by other relevant PPS and environmental objectives. The PPS identified below reflects those identified in the Council's Scoping Report and those additional PPS identified by the Consultation Authorities. These PPS have also been reviewed and updated to reflect the publication of new and updated PPS since the submission of the original Scoping Report in 2010.

3.11 The GWOTM follows the methodology set out in Scottish Planning Policy to develop the spatial framework. This promotes development principles that take into account relevant environmental considerations. The GWOTM takes into account national and local policy seeking to promote environmental aims.

Table 4 Relevant plans, programmes and strategies (PPS) and environmental protection objectives, and their relationship with the GWOTM

Plan Programme Strategy (PPS)	PSS Objectives	Impact of PSS/ Implications for GWOTM	How has this been taken into account in the GWOTM?
International			
Directive 79/409/EC; The Conservation of Wild Birds 1979	Requires Member States to sustain populations of naturally occurring wild birds by sustaining areas of habitats to maintain ecologically and scientifically sound levels.	Wind turbine development within East Lothian would have the potential to impact on the conservation interest of the qualifying interest of the Firth of Forth SPA, Gladhouse Reservoir SPA, Greenlaw Moor SPA and Fala Flow SPA due to a potential effect	A reference has been included in the Guidance stating that development which harms European sites will not be supported. The Appropriate Assessment had found no likely significant effect on a European Site. SPA's are included in the Area of Significant Protection while the goose feeding area is also shown for information.

		on the pink footed goose.	
Directive 92/42EC; The Conservation of Natural Habitats of Wild Fauna and Flora 1992	Requires Member States to sustain populations of naturally occurring flora and fauna by sustaining areas of habitats to maintain ecologically and scientifically sound levels.	Wind Turbine development in some areas of East Lothian would have the potential to impact the River Tweed SAC resulting from discharges to watercourses during construction. The GWOTM should ensure as far as possible that any such impacts would be addressed noting its status as non-statutory guidance.	The area of search drains into the River Tweed SAC. Potential effects on the SAC are noted. See Appropriate Assessment.
Directive 2000/60/EC; The Water Framework Directive	Directive 2000/60/EC *establishing a framework for the Community action in the field of water policy* - the 'Water Framework Directive' (WFD) - came into force in December 2000 and EU Member States were required to transpose the Directive into domestic law by December 2003. The WFD provides a framework for the protection, improvement and sustainable use of water across Europe. The main objectives of the WFD are to: • enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands – there is a requirement for nearly all inland and coastal waters to achieve 'good status' by 2015; • promote the sustainable use of water; • reduce pollution of water, especially by 'priority' and 'priority hazardous' substances; • lessen the effects of floods and droughts; and • rationalise and update existing legislation and introduce a co-ordinated approach to water management based on the concept of river basin planning.	Wind Turbine development could have the potential to impact upon local water features during construction and decommissioning. The GWOTM should encourage addressing of any such impacts.	The main risks to the water environment from wind turbine development during construction, from dust and the accidental spillage of pollutants such as oil. With good practice in construction methods, imposed at project specific level, this should be avoided. The GWOTM notes the need to enhance the status and prevent further deterioration of aquatic ecosystems and reduce the effects of flooding as constraints. ELLP Policy NRG3, which is referred to, provides that there should be no adverse effects on hydrology.

Directive 2001/77/EC Promotion of Energy from Renewable Sources	Requires member states to set targets for the production of renewable energy	The GWOTM should recognise the need to achieve targets in production of energy from renewable sources.	The GWOTM does restrict wind turbine development due to cumulative impact on landscape. This is likely to result in less renewable energy being generated from wind.
National			
Enjoy the Outdoors – An SNH Policy Framework	Sets out the policy for Scotland with regard to the enjoyment of natural heritage and outdoor recreation. SNH's remit means that it has a keen interest in all recreational and educational activities that are closely dependent on, or draw inspiration from, the natural environment, are practiced informally and mainly on a non-competitive basis and which are freely available to and undertaken by the public. SNH also has an interest in activities that make use of the natural environment.	The Development Framework will consider the opportunity to provide new natural heritage and outdoor recreational facilities. There is potential to improve access for the local population to open spaces.	The GWOTM notes the recreational interest of the John Muir Way as a constraint as well as golf courses and the coast. The need to avoid creating a windfarm landscape in the East Lothian Lammermuirs is also recognised which supports enjoyment of the outdoors there.
Scottish Outdoor Access Code – Approved Code 2004	Paper analyses issues of access. The local authorities can formally exempt land from access rights for short periods. Local authorities and some other public bodies can introduce bylaws.	Core Paths may be identified through proposed areas of search. The GWOTM should take this into account.	Adverse impacts on core paths are noted as a constraint.
Land Reform (Scotland) Act 2003	Establishes right of responsible access to land and water.	GWOTM will have to take right to roam over land into account.	The GWOTM will not affect the rights of responsible access which will need to be taken into account in windfarm applications as a material consideration.
Wildlife and Countryside Act 1981	The Wildlife and Countryside Act 1981(WCA 1981) consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.	GWOTM should take into account provisions on protection of wildlife.	The GWOTM advises developers to seek information on protected species and notes that developers should have regard to this legislation. It remains the responsibility of developers also to ensure that they comply.
SNH Wildness in Scotland's Countryside Policy and wildness maps	Considers the value of wild places to society, and starts the process of mapping wildness	Draft wildness maps do not consider East Lothian to be 'wild'.	The GWTOM notes 'wilder' areas as background information. Wildness is also recognised as a component of cumulative

			landscape impact.
Nature Conservation Act (Scotland) 2004	The Act brings forward measures to: • Conserve and enhance Scotland's unique natural heritage • Create strong action to reduce environmental crime and conserve biodiversity • Reflect the Executive's wider commitments to environmental justice, to rural Scotland and to local communities • Reform the SSSI (Site of Special Scientific Interest) system for Scotland's most special places and natural habitats for vulnerable species • Provide incentives to landowners to protect SSSIs rather than paying compensation for not damaging them with speculative developments • Build upon the delivery of custodial sentences and other measures for wildlife criminals in the Criminal Justice (Scotland) Act 2003	The GWOTM needs to meet the requirements of the legislation.	The GWOTM recognises the need to maintain the interest of SSSI's as a restraint on large windfarm development.
Climate Change; the UK Programme	Aims to cut the UK's carbon emissions by 60% by 2050. The UK Government have set a number of strategies and measures to achieve these objectives in six different sectors; energy supply, business, transport, domestic, agriculture, forestry and land management, and public and local government.	GWOTM needs to take this into account in planning positively for wind energy.	The GWOTM recognises the existence of targets for the production of renewable energy. The GWOTM does not include all areas of East Lothian within an Area of Significant Protection.
UK Biodiversity Action Plan	Identifies UK priority species and habitats where action to conserve is required. There are 1149 priority species and 65 priority habitats.	GWOTM should consider the provisions of this strategy.	The GWOTM recognises the need to take account of local priority species and habitats as well as biodiversity protected under European and national designation and legislation.
It's in Your Hands - Scottish Biodiversity Strategy	Objectives of the Strategy are: • Species & Habitats: To halt the loss of biodiversity and continue to reverse previous losses through targeted action for species and habitats • People: To increase awareness, understanding and enjoyment	GWOTM should consider the provisions of this strategy.	The GWOTM refers to policy in the ELLP and recognises the need to take account of local priority species and habitats as well as biodiversity protected under European and national designation and

	of biodiversity, and engage many more people in conservation and enhancement • Landscapes & Ecosystems: To restore and enhance biodiversity in all our urban, rural and marine environments through better planning, design and practice • Integration & Co-ordination: To develop an effective management framework that ensures biodiversity is taken into account in all decision making • Knowledge: To ensure that the best new and existing knowledge on biodiversity is available to all policy makers and practitioners.		legislation.
Flood Risk Management (Scotland) Act 2009	Aims to reduce overall flood risk by requiring Scottish Ministers, SEPA and responsible authorities to exercise their flood risk related functions with this in mind.	GWOTM should not increase flood risk	The GWOTM refers to policy contained in the ELLP and notes that development should not increase flood risk.
Securing the Future – Delivering UK Sustainable Development Strategy	The previous UK sustainable development strategy - *A better quality of life: a strategy for sustainable development for the UK* – was published in 1999 and defined sustainable development as the *simultaneous* achievement of four objectives: • social progress which recognises the needs of everyone; • effective protection of the environment; • prudent use of natural resources; and • maintenance of high and stable levels of economic growth and employment. The new UK strategy contains: • a new integrated vision building on the 1999 strategy – with stronger international and societal dimensions; • five principles – with a more explicit focus on environmental limits; • four agreed priorities – sustainable consumption and production, climate change, natural resource protection and sustainable communities; and	GWOTM needs to take this into account in planning positively for wind energy and recognising the interests of groups or individuals affected by wind energy development.	The GWOTM attempts to balance the need to produce energy from renewable sources with other sustainable development objectives such as protecting the built and natural heritage and recreational interests.

	• a new indicator set, which is more outcome focused, with commitments to look at new indicators such as on wellbeing.		
Choosing Our Future – Scotland's Sustainable Development Strategy (2005)	Sets the four overriding objectives as the UK Strategy with priorities for Scotland: • **Sustainable consumption and production**: achieving more with less. This includes reducing the inefficient use of resources, looking at the impact of products and materials across their whole lifecycle and encouraging people to think about the social and environmental consequences of their purchasing choices. • **Climate change and energy**: securing a profound change in the way we generate and use energy, and reducing greenhouse gas emissions. • **Natural resource protection and environmental enhancement**: protecting our natural resources, building a better understanding of environmental limits, and improving the quality of the environment. • **Sustainable communities**: creating communities that embody the principles of sustainable development locally.	GWOTM needs to take this into account in planning positively for wind energy while protecting natural resources and community interest.	The GWOTM attempts to balance the production of renewable energy with other aspects of sustainable development.
National Outcomes	15 national outcomes describing what the Government wants to achieve, articulating the Purpose. The most relevant ones are: • we live in a Scotland that is the most attractive place for doing business in Europe • We live in well-designed, sustainable places where we are able to access the amenities and services we need • We value and enjoy our built and natural environment and protect and enhance it for future generations. • We reduce the local and global environmental impact of our consumption and production.	The GWOTM should recognise the need to protect the landscape resource, and for wind turbine development to be guided to the best places. The built and natural environment should be protected.	The GWOTM attempts to balance the need to produce energy from renewable sources with other sustainable development objectives such as protecting the built and natural heritage and recreational interests.
National Planning Framework 2	The National Planning Framework (NPF) sets out the spatial development strategy for	Many of the aims of the NPF will be implemented at a	The GWOTM identifies the elements of the natural and built environment

	Scotland till 2025. The NPF sets out a vision of Scotland in which other plans and programmes can share and to which they can contribute. The NPF complements the Scottish Government's Framework for Economic Development in Scotland, highlighting the importance of place and identifying priorities for investment in strategic infrastructure to enable each part of the country to play to its strengths in building a Scotland that is competitive, fair and sustainable. The main relevant elements of the spatial strategy to 2030 are: • To permit development which helps reduce Scotland's carbon footprint • Support sustainable growth in the rural economy • conserve and enhance Scotland's distinctive natural and cultural heritage, and continue to safeguard internationally protected sites, habitats and species; • realise the potential of Scotland's renewable energy resources and facilitate • the generation of power and heat from all clean, low carbon sources;	more local level through development plans.	which should be conserved and enhanced by taking their interests into account in large windfarm development. It aims to balance the exploitation of renewable energy resources with protection of those interests.
Scottish Planning Policy (2008)	Part one of the SPP outlines the Scottish Government's view of the purpose of planning and the core principles for the system's operation. Part two addresses objectives for key parts of the system (development planning, development management and enforcement). Objectives include • protection of environmental quality to support economic investment • enable development in all rural areas which supports prosperous and sustainable communities whilst protecting environmental quality • planning authorities would also support and promote opportunities for environmental	GWOTM should contribute to these objectives	The GWOTM follows the advice given in SPP for developing spatial frameworks for large wind turbine development. It recognises the natural and built heritage interests listed and aims to give due consideration to the protection of the interests of both designated sites and the built and natural heritage in the wider environment. Through identifying these interests and others (including communities and material assets) the GWOTM supports the aim of protecting environmental quality and supporting sustainable communities. It aims for development that responds to the specific local character of the location that fits into the landscape and achieves high design and environmental standards. The different character of sections of the coast is mentioned as a consideration. The interests of the historic and

	enhancement and regeneration • all new rural development should respond to the specific local character of the location, fit in the landscape and seek to achieve high design and environmental standards. • prime agricultural land is recognised as a finite resource • coastal areas subject to significant constraints on new development may include areas at risk from coastal erosion, areas where conservation or enhancement of the natural and historic environment requires development to be limited and locations of value for recreational uses. • The historic environment including ancient monuments, archaeological sites, historic buildings, townscapes, parks and other features, including their settings, should b taken into account by planning authorities • Planning authorities should take a broader approach to landscape and natural heritage than just conserving designated or protected sites and species, taking into account the ecosystems and natural processes in their area. • Planning authorities should seek to prevent further fragmentation or isolation of habitats and identify opportunities to restore links that have been broken. • Facilitate positive change in landscapes while maintaining and enhancing distinctive character • In addition to national and international designations for natural heritage, local designations should be protected • Ancient and semi-natural woodland should b protected • Woodland removal should only be allowed where it would achieve significant and clearly defined benefits • Aims to protect Core paths and access routes		natural environment are shown as potential constraints. Analysis of landscape specifically drawn up for consideration of windfarms, the LCS, has been taken into account in mapping Spatial Framwork areas . Designated sites have been considered, including ancient and semi-natural woodland. It has been noted that woodland removal may be acceptable for the development of renewable energy schemes. Core paths have been noted as a consideration. Targets for renewable energy generation have been noted. The aim of reducing flood risk has been noted.

	• Supports the increase in the amount of electricity generated from renewable sources • Windfarm development should consider a list of other interests • Supports reduction of flood risk • Supports zero waste goal • Supports an adequate supply of minerals		
Climate Change Act (Scotland) 2009	Requires all public bodies to act: • in the way best calculated to contribute to the delivery of the emissions targets in the Act, • in the way best calculated to help deliver the Government's climate change adaptation programme, and • in a way that it considers is most sustainable.	GWOTM is required to recognise the provisions of the Climate Change Act	The GWOTM recognises the Climate Change Act requires public bodies to act in the way best calculated to contribute to the delivery of the emissions targets in the Act. This requires a 42% reduction in emissions by 2020 and an 80% reduction of CO2 emissions by 2050. The development of renewable energy sources is a major way of meeting these targets and accordingly the Scottish Government gives targets for their development, which is now 80% of Scottish electricity consumption by 2020. The meeting of targets for renewable energy is discussed in Appendix B below.
Scottish Historic Environmental Policy (2008)	Sets out Scottish Ministers policies for historic environment, provides greater policy direction for Historic Scotland and provides a framework which informs the work of a range of organisations that have a role and interest in managing the historic environment	The impact upon setting of cultural heritage features should be considered.	The GWOTM accords with the protection of the historic environment as required by other legislation and policy including the East Lothian Local Plan 2008. Issues arising will have to be resolved on a case by case basis however the GWOTM notes the constraints of the historic environment.
Getting the Best from our Land – Scotland's Land-use strategy (2011)	Sets out Scottish Ministers landuse strategy. Objectives are that land-based business working with nature contribute more to Scotland's prosperity; responsible stewardship of natural resources, and people making better connections to the land. Principles include:	The GWOTM should recognise where land is highly suitable to a particular use. Landscape change should be positively managed and the	The GWOTM indentifies significant and potential constraints which come in part from land being highly suitable for a particular purpose. It also recognises the best potential areas for windfarm development for in terms of wind speeds.

	• where land is highly suitable for a primary use, this value should be recognised in decision making • landscape change should be managed positively and sympathetically, considering change at a scale appropriate to the landscape in question, given that all Scotland's landscapes are important to our sense of identity and individual and social well being • land should contribute to delivering climate change mitigation objectives	climate change mitigation potential of land realised.	The GWOTM attempts to balance the need to manage landscape change sympathetically with climate change mitigation goals.
Online Renewables Guidance; Process for preparing Spatial frameworks for windfarms (replaces PAN45 Annex 2)	Provides advice on good practice in preparing SPG in relation to spatial strategies for wind energy developments	The GWOTM must take account of this key advice as it sets out the priority to be given to different environmental interests	The GWOTM follows this guidance applying it in a local context
Scottish Soil Framework	Promote the sustainable management and protection of soils consistent with the economic, social and environmental needs of Scotland; protection of soil organic matter stock; soil structure; soil biodiversity; soils contributing to flood protection; soils with significant historic/cultural value, soils important for food production; and reduce greenhouse gas emissions from soil; improve water quality through soil management, reduce soil contamination; improve awareness	The GWOTM should consider rare and carbon rich soils.	The GWOTM notes that impacts on peat should be minimised and draws attention to the Scottish Governments calculator for development on peat land, which aims to reduce greenhouse gas emissions from soil. Development on prime agricultural land is avoided (though not for that reason).
Zero Waste Plan	Aims to help Scotland become a 'zero waste society' reducing the amount of waste produced re-using valuable resources and increasing the level of recycling	The GWOTM should support the reduction of amount of waste produced in construction	The GWOTM notes that waste management exemptions may not apply to landscaping with peat and notes that impacts on peat (which would include extraction) should be minimised.
Local			
East Lothian Single Outcome Agreement 2013 - 23	The overarching priority is to reduce inequalities both within and between our communities. Outcomes for East Lothian including • East Lothian has a growing sustainable economy • East Lothian has high quality natural environments	The GWTOM should support sustainable economic growth and protect its high quality natural environments.	The GWOTM recognises the importance of tourism to the economy and protects designated natural environments.

Lothian Landscape Character Assessment (1998)	Landscape character assessment aims provide a body of baseline knowledge on the landscapes of Scotland; facilitate the monitoring of landscape changes and advice on such change; and assist both in strategic development plan review and detailed planning and landscape casework.	This assessment has been refined by the Landscape Capacity Study for Wind Turbine Development in East Lothian to which the GWOTM will refer.	This assessment has been refined by the Landscape Capacity Study for Wind Turbine Development in East Lothian to which the GWOTM refers.
LCS including Supplement	Landscape character assessment specifically addressing the sensitivity and capacity of different character areas of East Lothian to large scale wind development	The GWOTM refers to the LCS though recognising the place of local landscape issues as set out by web based guidance	The GWOTM has taken account of the findings of the LCS
SESPLAN	Objectives include: • Enable economic growth • Conserve and enhance the natural and built environment • Promote green networks including through increasing woodland • Contribute to mitigation of climate change SESPlan also directs Local Plans to define and maintain Green Belt.	The GWOTM will have to conform to SESPLAN.	The GWOTM identifies tourist resources and the Forest Habitat Network. It recognises the Green Belt as a significant restraint.
East Lothian Council Local Plan 2008	The purposes of the ELLP are • to apply national and regional planning policies; • to stimulate and encourage appropriate development; • to protect the environment from inappropriate development; • to provide a detailed basis for the determination of planning applications; • to show how those who have an interest in the area are affected by, or can contribute to, the implementation of the plan.	The GWOTM will conform and comply with various policies contained within the adopted and emerging plan, other than where they conflict with policy provided in SPP Part 2.	The GWOTM conforms and complies with various policies protecting the built and natural environment contained in the ELLP. It complies with ELLP policy for wind development other than where that conflicts with policy of SPP and web based guidance.
East Lothian Core Paths Plan (2010)	Provide details of existing and proposed core path networks for the general public's usage in East Lothian response to the Land Reform (Scotland) Act 2003.	The GWOTM should take Core Paths into consideration.	The GWOTM notes the recreational interest of Core Paths as a consideration.
East Lothian Economic Development Strategy (2012 - 22)	It's ambition is to • be the best place in Scotland to set up and grow a business • be Scotland's leading coastal, leisure and food and drink	GWOTM should consider the impact of wind turbine development on	The GWOTM notes the effect on the main reasons for East Lothian being an attractive tourist destination as a constraint.

	destination • build on our proximity to Edinburgh to encourage study, work and spend in East Lothian • provide high quality pathways to employment for East Lothians workforce • become Scotland's most sustainable economy	the attractiveness of the coast and on business	It considers the coast, well visited attractions, caravan sites and the golf courses.
East Lothian Heritage Strategy 2007-2010 (2007)	Three main strategic priorities for the East Lothian Heritage Strategy 2007 – 2010 have been identified as: • Identity • Community Involvement • Infrastructure	The impact on the cultural features and their settings should be considered by GWOTM.	The GWOTM notes that some of the elements of the heritage that contribute to identity are potential constraints and seeks to avoid change in the landscape which could alter perceptions of the sense of place of East Lothian including protection of landscape features.
East Lothian BAP (2008)	The aims of the East Lothian Biodiversity Partnership are to: • ensure that no locally native species or habitat becomes extinct in East Lothian. • reverse the loss of Priority Species. • reverse the decline in extent and quality of Priority Habitats. • involve local communities in the biodiversity process.	Development may have an impact on locally important flora and fauna. Development also allows opportunity to provide new habitats.	The GWOTM notes that areas designated for biodiversity interest are constrained. Biodiversity issues which exist throughout the area are also noted. The priority habitats of the ELBAP are noted.
Central Scotland Green Network: Edinburgh & Lothian's Framework	Aims to readdress the fragmentation of Edinburgh and the Lothians woodland through identifying woodland management priorities and areas to target for new planting.	The GWOTM should recognise the objectives of the Forestry habitats in East Lothian.	The GWOTM notes woodland removal and ancient and semi-natural woodland as a consideration. The requirement of the local plan referred to in the GWOTM for replacement planting and mitigation of damage to biodiversity could encourage new planting.
Forth Area River Basin Management Plan (2010)	Purpose is to maintain and improve the ecological status of river, lochs, estuaries, coastal waters and ground waters in the Forth area advisory group.		Water bodies can be affected by dust from construction of windfarms and there may also be alterations to the drainage of an area. The GWOTM notes that SEPA will be consulted on applications and their comments taken into account.

4 RELEVANT ASPECTS OF THE CURRENT STATE OF THE ENVIRONMENT

4.1 Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report include a description of "the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme", and "the environmental characteristics of areas likely to be significantly affected". Environmental assets which may be affected by large wind turbine development are detailed in the GWOTM where they are given as constraints of varying significance.

4.2 The evolution of the baseline with and without the PPS is not clear cut as what proposals do in practice come forward depends on private developers. The PPS will not in itself result in any changes. The decision on any scheme that does come forward depends on the view of the decision-maker at the time it comes forward as to how it conforms to the development plan taking into account other material considerations, including the weight to be given to the need for renewable energy. These decisions may be fairly finely balanced.

4.3 Without the GWOTM, there would not be a Spatial Framework which complies with current government guidance. This could result either in decisions being taken to consent windfarms which would not have complied with this (with resultant harm to environmental interests that would otherwise have been protected); or alternatively, to refuse windfarms which would have been acceptable. Without a clear view on cumulative limits, which the GWOTM provides, even where the decision-making outcome would have been the same, developer time and money could be wasted. This might take resources from other projects.

4.4 The main future changes that would be more likely to occur in the absence of the GWOTM would be those resulting from greater levels of windfarm development in the Lammermuirs but also perhaps other areas in the East Lothian lowlands:

- *Biodiversity:* impacts on biodiversity (priority habitat, some birds, possibly some mammals including otter), Black grouse habitat which is vulnerable to cumulative impact could be developed potentially leading to the extinction of Black grouse in East Lothian. Conversely, there might have been improvement for some species through management plans
- *Soil:* Impacts on soil in particular peat
- *Water:* impacts on hydrology, potential construction impacts on the water environment;
- *Climatic factors* greater renewable energy generation helping Scotland, the UK and Europe meet its targets for renewable energy generation and climate change mitigation
- *Landscape:* Landscapes which are vulnerable to cumulative impact would be developed, leading to a loss of landscape resource in particular in the East Lothian Lammermuirs but also potentially in other areas

4.5 Existing windfarm development and wind turbine development projects are shown in Figure 3 and Figure 4. The main elements of the current baseline are outlined below.

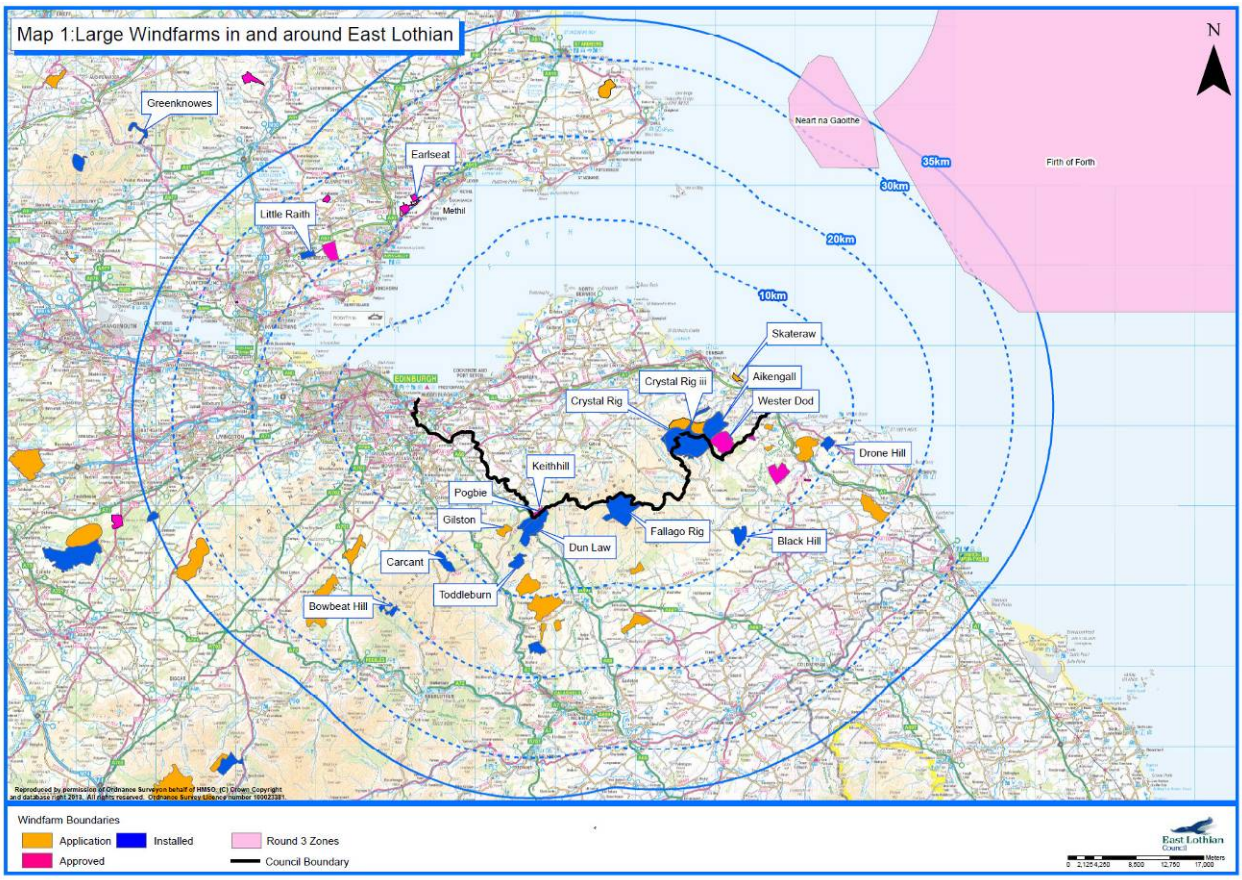

Figure 3 Large scale wind development in and around East Lothian

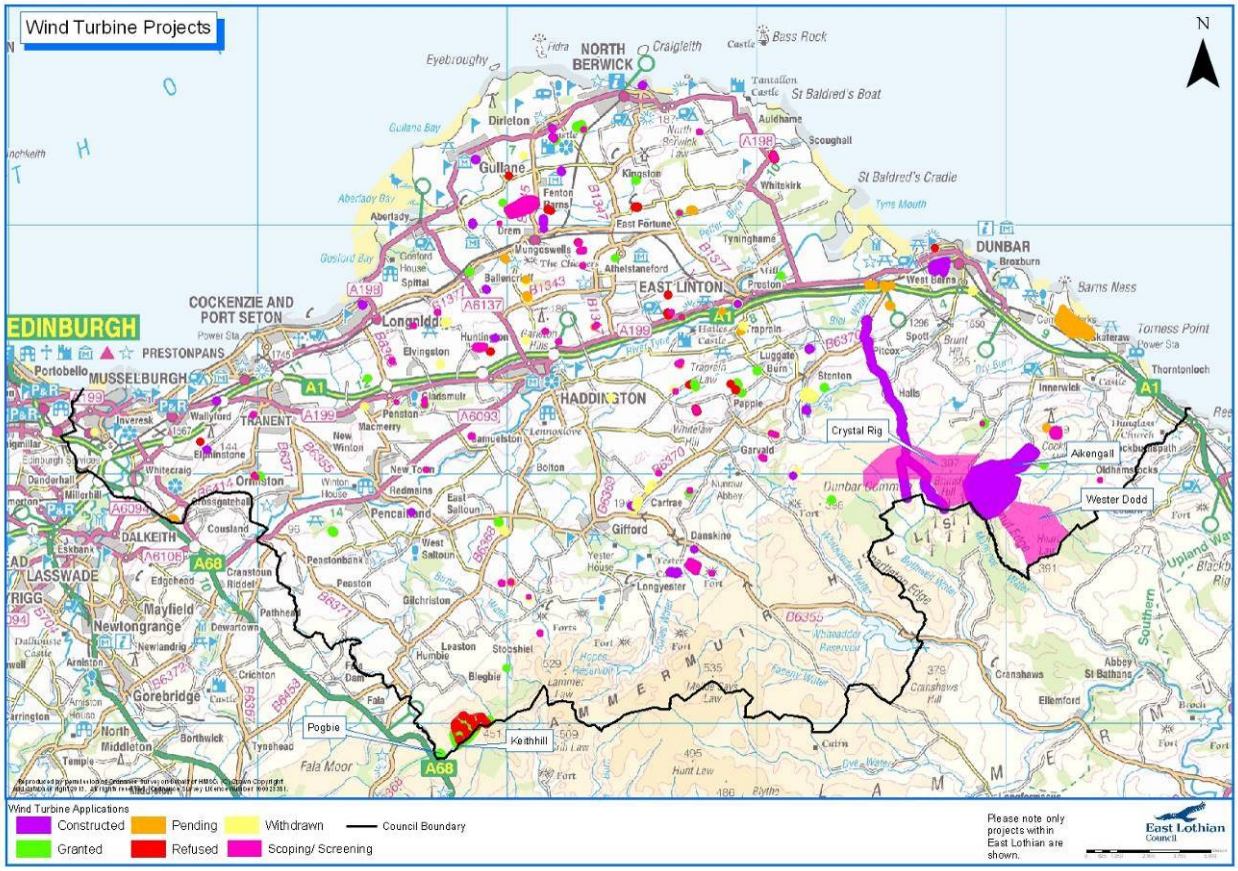

Figure 4 Wind Projects in East Lothian

BIODIVERSITY, FLORA AND FAUNA

4.6 Biodiversity describes the entire range of species and habitats that occur in a particular area. Globally, biodiversity covers wildlife in habitats as diverse as rainforests and deserts, mountains and oceans. East Lothian's Biodiversity Action Plan 2008-2013[3] describes the status of biodiversity in East Lothian. The action plan provides a list of habitats and species that are of particular importance or at risk locally. These are known as Priority Habitats and Species. Most of these are also on the Scottish Biodiversity List and may be at risk nationally. Other priorities have been added because they occur in very few places in the Lothians, or because they have a particular relevance to the East Lothian. Many priorities have suffered substantial declines in recent years.

4.7 Areas designated for, or partly for, their biodiversity interest are shown in Table 5, and are shown on the maps at Figure 5.

Table 5 Areas designated for Biodiversity interest.

Designation of site/Importance	Number
Ramsar Sites (International)	1
Special Protection Areas (International)	2
Sites of Special Scientific Interest (National)	15
Scottish Wildlife Trust sites (Local)	Under review
Local Nature Reserves (Local)	1 (1 under consultation)
Country Parks	1

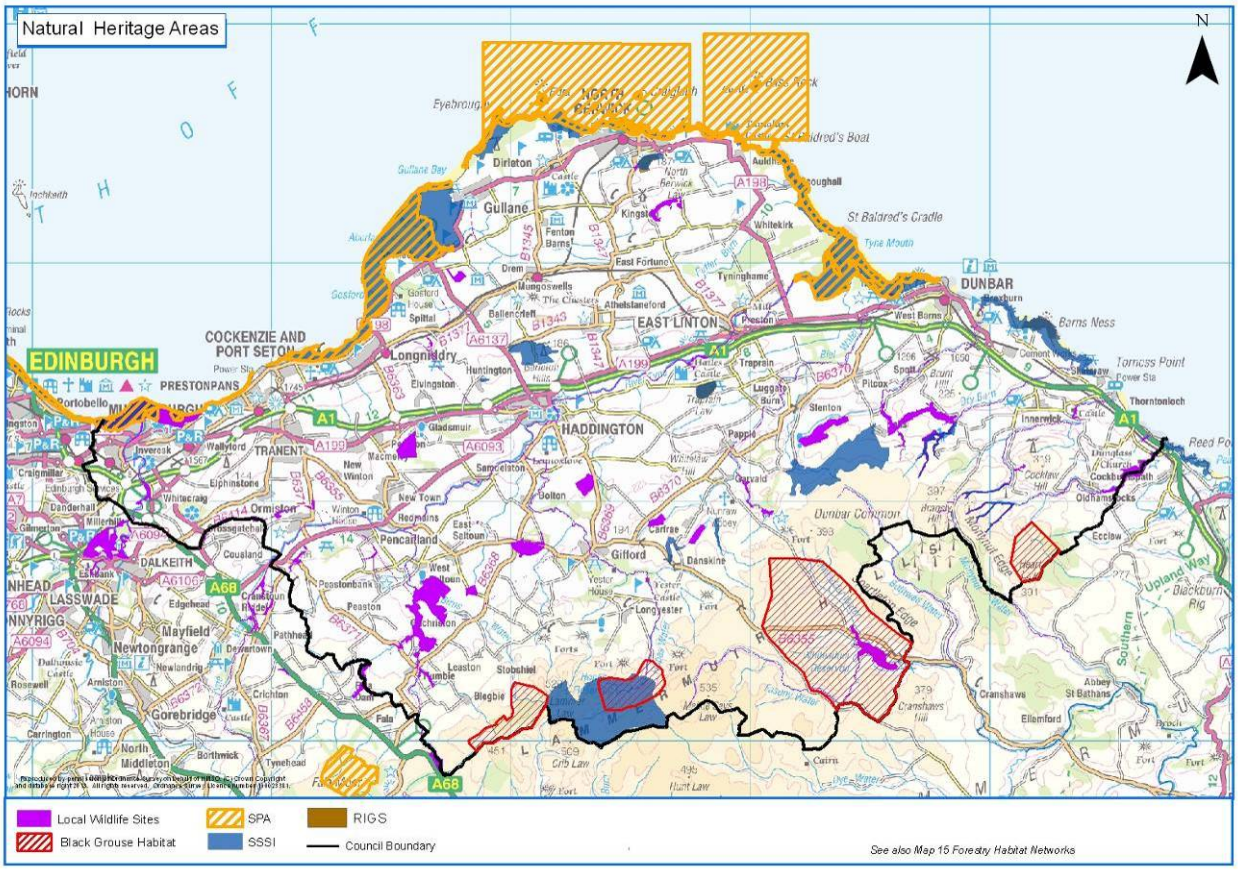

Figure 5 Natural Heritage Areas

[3] http://www.eastlothian.gov.uk/site/scripts/download_info.php?fileID=1321

Ramsar and Natura 2000 Sites

4.8 Ramsar sites are wetlands of international importance designated under the Ramsar Convention. The original emphasis was on selecting sites of importance to water birds, and consequently many of the Ramsar Sites in the UK are also Special Protection Areas (SPA). The Firth of Forth, also an SPA, covers much of the shoreline of the Forth Estuary and is the only Ramsar site in East Lothian. Fala Flow, Gladhouse Reservoir, Greenlaw Moor and Westwater are also Ramsar Sites (outwith East Lothian), with pink footed geese being the interest. Westwater is designated for pink footed geese and its waterfowl assemblage.

4.9 Special Protection Areas and Special Areas of Conservation together make up the Natura 2000 series, which is intended to protect the best of European biodiversity. SPA's are designated under Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive'), while SAC's are designated under Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive'). These sites are shown on Figure 6.

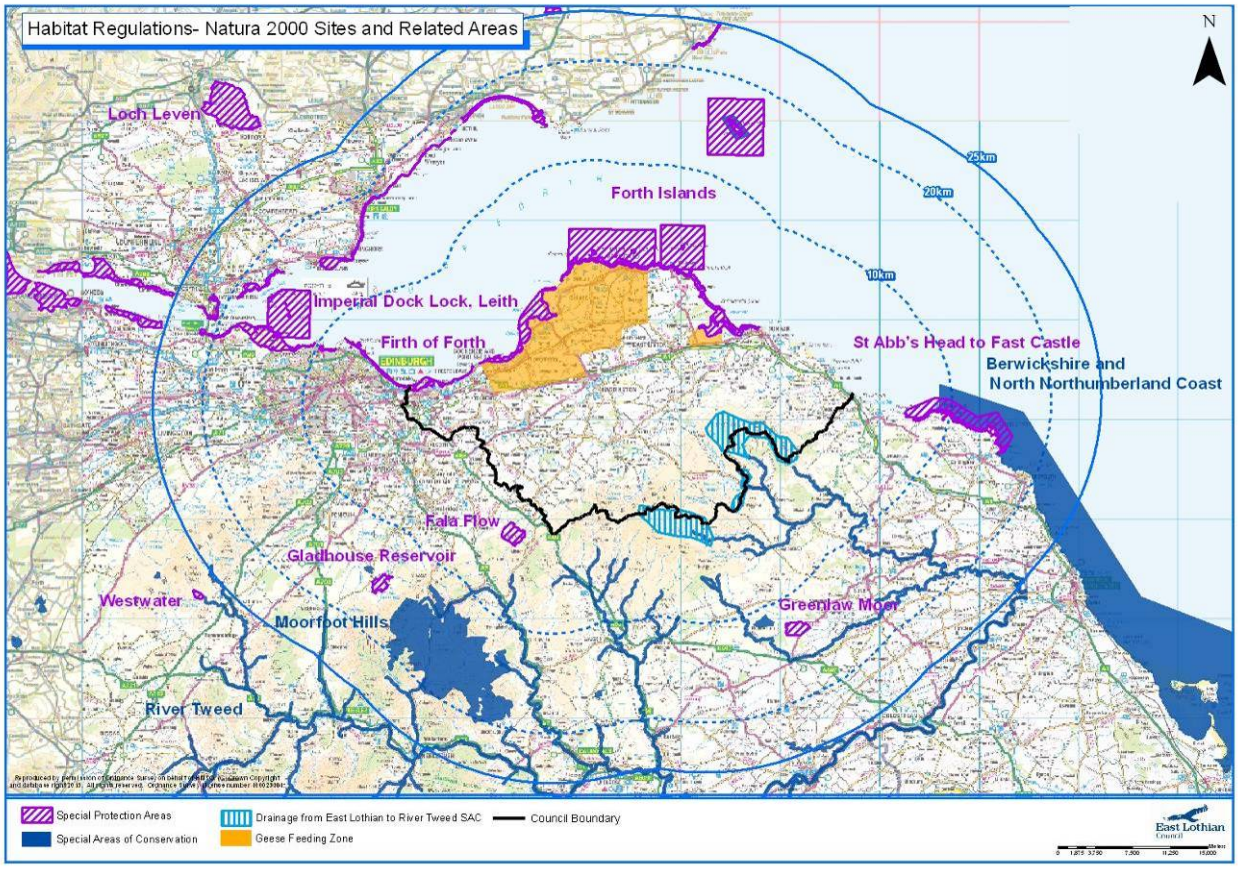

Figure 6: Natura 2000 sites and related areas.

4.10 There are two SPA's which fall partly within East Lothian namely Firth of Forth and Forth Islands. Large scale wind development in these areas (shown as protected by the GWOTM and protected by legislation) would be likely to directly harm the features of the SPA. In addition, pink footed geese which are features of other SPA's also forage in parts of East Lothian. The most commonly used area is shown on Figure 3. The GWOTM does not include this area as protected or constrained in line with web-based guidance not to buffer natural heritage sites. However, the GWOTM draws attention to the requirements of the Habitat Regulations that consent should not be given unless it is certain that there is no harm to the integrity of the Natura 2000 site. The sites which could potentially be harmed by large scale wind turbine development are those which include the pink footed goose as a qualifying interest, as these birds can fly some distance for daily foraging. The sites within

daily foraging distance are Firth of Forth, Fala Flow, Gladhouse Reservoir, Greenlaw Moor and Westwater. Apart from geese, there is also potential for effects on the seabirds which make up the qualifying interest of the St Abbs Head to Fast Castle SPA as seabirds from there are found in East Lothian.

4.11 There are no SAC's in East Lothian, however some parts of the south-eastern Lammermuirs (mainly the Monynut Water) drain into the River Tweed SAC. There is potential for development in this area to affect the SAC through the release of pollutants, including silt, into the catchment of this watercourse.

4.12 Table 6 below shows Natura 2000/Ramsar sites along with their features and conservation status.

Table 6 Natura 2000/Ramsar sites and Conservation Status of features

Site	Feature Category	SPA Feature (* also Ramsar feature)	Status
Forth (Ramsar and SPA)	Birds - aggregations of non-breeding birds	Cormorant (Phalacrocorax carbo), non-breeding; Curlew (Numenius arquata), non-breeding; Golden plover (Pluvialis apricaria), non-breeding; Lapwing (Vanellus vanellus), non-breeding; Oystercatcher (Haematopus ostralegus), non-breeding; Pink-footed goose (Anser brachyrhynchus), non-breeding *; Red-throated diver (Gavia stellata), non-breeding; Redshank (Tringa totanus), non-breeding *; Ringed plover (Charadrius hiaticula), non-breeding; Turnstone (Arenaria interpres), non-breeding *; Velvet scoter (Melanitta fusca), non-breeding.	Favourable Maintained
		Wigeon (Anas penelope), non-breeding	Favourable Recovered
		Bar-tailed Godwit (Limosa Lapponica), non-breeding; Dunlin (Calidris alpina alpina), non-breeding; Eider (Somateria mollissima), non-breeding; Grey plover (Pluvialis squatarola), non-breeding; Red-breasted merganser (Mergus serrator), non-breeding; Shelduck (Tadorna tadorna), non-breeding *; Slavonian grebe (Podiceps auritus), non-breeding *; Waterfowl assemblage, non-breeding *	Favourable Declining
		Common scoter (Melanitta nigra), non-breeding; Goldeneye (Bucephala clangula), non-breeding *; Great crested grebe (Podiceps cristatus), non-breeding; Knot (Calidris canutus), non-breeding *; Long-tailed duck (Clangula hyemalis), non-breeding; Mallard (Anas platyrhynchos), non-breeding; Scaup (Aythya marila), non-breeding	Unfavourable Declining
Forth Islands (SPA)	Birds - aggregations of breeding birds	Fulmar (Fulmarus glacialis), breeding; Gannet (Morus bassanus), breeding; Guillemot (Uria aalge), breeding; Lesser black-backed gull (Larus fuscus), breeding; Razorbill (Alca torda), breeding	Favourable Maintained
		Arctic tern (Sterna paradisaea), breeding; Cormorant (Phalacrocorax carbo), breeding; Sandwich tern (Sterna sandvicensis), passage *;	Favourable Declining
		Kittiwake (Rissa tridactyla), breeding; Roseate tern (Sterna dougallii), breeding; Seabird assemblage, breeding	Unfavourable Declining
Fala Flow (Ramsar and SPA)	Birds - aggregations of non-breeding birds	Pink-footed goose (Anser brachyrhynchus), non-breeding *	Favourable Maintained
Gladhouse	Birds -	Pink-footed goose (Anser brachyrhynchus), non-breeding *	Unfavourable

Site	Feature Category	SPA Feature (* also Ramsar feature)	Status
Reservoir (Ramsar and SPA)	aggregations of non-breeding birds		Declining
Westwater (Ramsar and SPA)	Birds - aggregations of non-breeding birds	Pink-footed goose (Anser brachyrhynchus), non-breeding *	Favourable Maintained
		Waterfowl assemblage, non-breeding *	Favourable Maintained
Greenlaw Moor (Ramsar and SPA)	Birds - aggregations of non-breeding birds	Pink-footed goose (Anser brachyrhynchus), non-breeding *	Favourable Maintained
St Abbs Head to Fastcastle (SPA)	Birds – aggregations of breeding birds	Shag (Phalacrocorax aristotelis), breeding; Kittiwake (Rissa tridactyla), breeding; Herring gull (Larus argentatus), breeding	Unfavourable Declining
		Seabird assemblage, breeding; Guillemot (Uria aalge), breeding; Razorbill (Alca torda), breeding	Favourable Maintained
River Tweed (SAC)	Fish	Atlantic salmon (Salmo salar)	Unfavourable Recovering
	Fish/Rivers and Streams	Sea lamprey (Petromyzon marinus); Brook lamprey (Lampetra planeri); River lamprey (Lampetra fluviatilis)/ Rivers with floating vegetation often dominated by water-crowfoot	Unfavourable No change
	Mammals	Otter (Lutra lutra)	Favourable Maintained

Sites of Special Scientific Interest (SSSI)

4.13 Within the UK sites that are nationally important for plants, animals or geological or physiographical features are protected by law as SSSI's. There are 15 SSSI's in East Lothian covering the Forth Estuary and Islands, parts of the Lammermuir Hills, quarries and coastal areas where geological features are visible, and areas of woodland and unimproved grassland of significant botanical interest. Table 7 below shows the site condition of features of East Lothian's SSSI's.

Table 7 SSSI sites condition (source; SNH Sitelink accessed November 2013) [4]

Site	Area	Site Condition	
		Feature	Last Assessed condition
Bangley Quarry	3.92	Mineralogy of Scotland	Favourable Maintained
Barns Ness Coast	258.68	Shingle; sand dunes; Lower Carboniferous [Dinantian - Namurian (part)]	Unfavourable No change
		Lower Carboniferous (Dinantian; Namurian [part]); Saltmarsh	Favourable Maintained
Bass Rock	7.61	Seabird colony, breeding; Gannet (Morus bassanus), breeding	Favourable Maintained
Danskine Loch	29.79	Fen Woodland	Unfavourable Declining
Firth of Forth	7423.19 (whole area)	Cormorant (Phalacrocorax carbo), non-breeding; Curlew (Numenius arquata), non-breeding; Redshank (Tringa totanus), non-breeding; Goldeneye (Bucephala clangula), non-breeding; Redshank (Tringa totanus), non-breeding; Oystercatcher (Haematopus ostralegus), non-breeding; Ringed plover (Charadrius hiaticula), non-breeding; Pink-footed goose (Anser brachyrhynchus), non-breeding; Velvet scoter (Melanitta fusca), non-breeding; Arthropoda (excluding insects and trilobites); Golden plover (Pluvialis apricaria), non-breeding; Slavonian grebe (Podiceps auritus), non-breeding; Red-throated diver (Gavia stellata), non-breeding; Permian - Carboniferous Fish/Amphibia; Palaeozoic Palaeobotany; Northern brown argus (Aricia artaxerxes); Transition grassland; Shelduck (Tadorna tadorna), breeding; Coastal Geomorphology of Scotland; Upper Carboniferous [Namurian (part) - Westphalian]; Quaternary of Scotland	Favourable Maintained
		Bar-tailed godwit (Limosa lapponica), non-breeding; Eider (Somateria mollissima), non-breeding; Dunlin (Calidris alpina alpina), non-breeding; Red-breasted merganser (Mergus serrator), non-breeding; Grey plover (Pluvialis squatarola), non-breeding; Shelduck (Tadorna tadorna), non-breeding; Shelduck (Tadorna tadorna), non-breeding	Favourable Declining
		Common scoter (Melanitta nigra), non-breeding; Great crested grebe (Podiceps cristatus), non-breeding; Long-tailed duck (Clangula hyemalis), non-breeding; Knot (Calidris canutus), non-breeding; Scaup (Aythya marila), non-breeding; Lowland neutral grassland; Ringed plover (Charadrius hiaticula), breeding; Vascular plant assemblage; Saltmarsh; Maritime cliff	Unfavourable Declining
		Lower Carboniferous [Dinantian - Namurian (part)]; Carboniferous - Permian Igneous; Eider (Somateria mollissima), breeding	Unfavourable No change
Forth Islands	20.85	Cormorant (Phalacrocorax carbo), breeding	Favourable Declining
		Seabird colony, breeding	Unfavourable Declining

[4] SNHi Sitelink at http://gateway.snh.gov.uk/sitelink/

Site	Area	Site Condition	
		Feature	Last Assessed condition
		Carboniferous - Permian Igneous	Favourable Maintained
Garleton Hills	132.68	Quaternary of Scotland	Favourable Maintained
Keith Water	2.01	Juniper scrub	Favourable Maintained
Lammer Law	952.87	Upland assemblage	Favourable Maintained
		Subalpine dry heath; Blanket bog; Upland mixed ash woodland	Unfavourable Declining
Lammermuir Deans	49.89	Valley fen; Subalpine calcareous grassland	Favourable Maintained
		Upland mixed ash woodland	Unfavourable Declining
North Berwick Law	38.44	Lowland calcareous grassland	Unfavourable Declining
Papana Water	18.14	Upland mixed ash woodland	Unfavourable No change
Rammer Cleugh	481.99	Quaternary of Scotland	Favourable Maintained
		Upland oak woodland	Unfavourable Recovering
Traprain Law	41.51	Lichen Assemblage; Carboniferous - Permian Igneous	Favourable Maintained
		Lowland calcareous grassland; Lowland acid grassland	Unfavourable Declining
Woodhall Dean	57.2	Upland oak woodland	Unfavourable declining

4.14 Marine Protected Areas are in the process of being designated to give similar protection to biodiversity offshore.

Local Wildlife Sites

4.15 Wildlife Sites are designated by local authorities to protect biodiversity locally. Previously, Local Wildlife Sites were assessed by the Scottish Wildlife Trust, and were adopted in the ELLP. More recently, local authorities have taken over the role of designating what will become Local Biodiversity Sites. A review of the sites is ongoing at present. A list of the Scottish Wildlife Trust sites, on which the Local Biodiversity Sites will be based, is annexed at APPENDIX B: Local Wildlife Sites and shown on Figure 5. There is likely to be some amendment to this list once the Local Biodiversity Site selection process is complete.

Local Nature Reserve

4.16 Aberlady Bay (see Figure 7) was the first Local Nature Reserve to be designated in Scotland, in 1952. It covers an area of 575.23 hectares, about 2/3 of which is below the high tide mark, consisting of tidal sand, salt marsh and mud flats. The reserve is within the Firth of Forth SSSI, and is managed to improve the area for wildfowl, waders and the wide variety of plants found there.

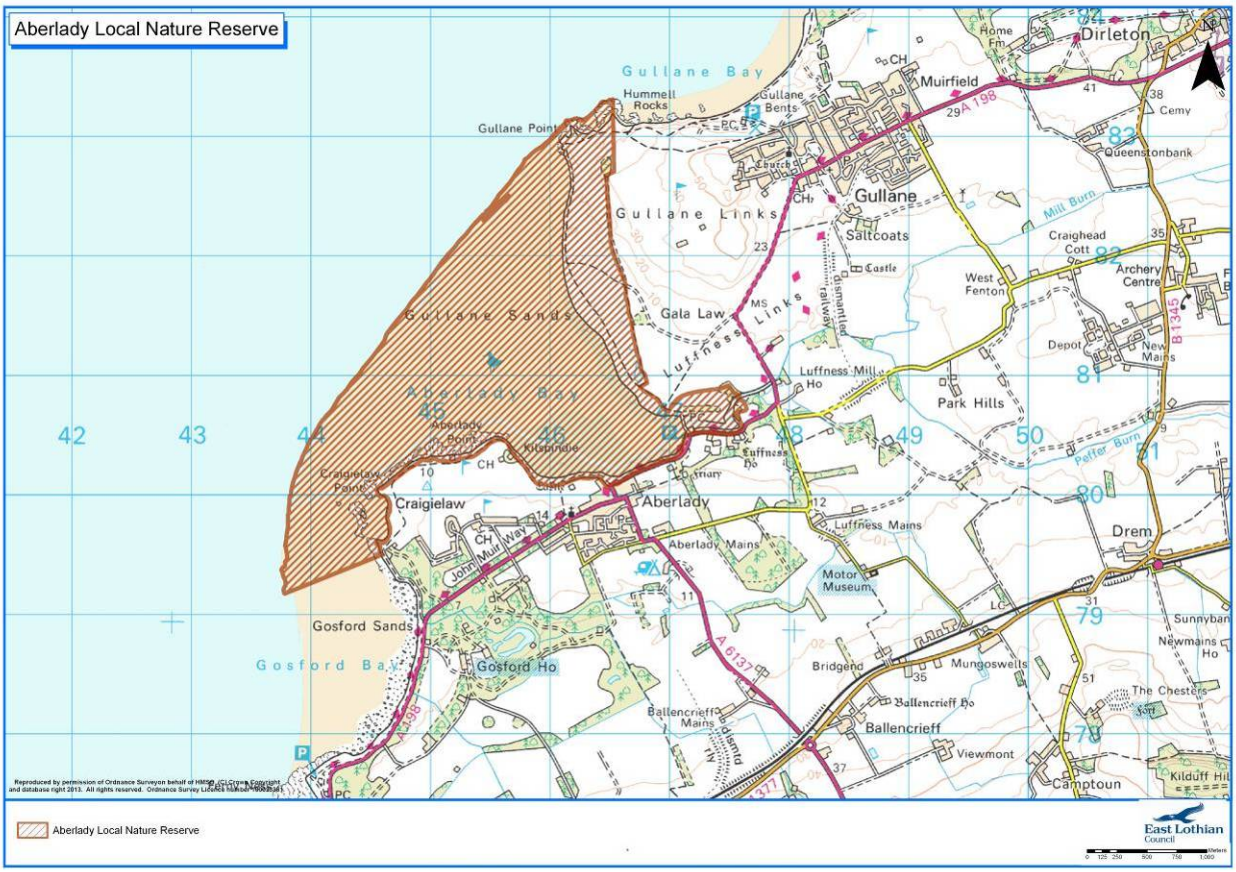

Figure 7 Aberlady Bay Nature Reserve

John Muir Country Park

4.17 John Muir Country Park (see Figure 8) was designated for its landscape, recreational and biodiversity interest. It is named after John Muir, the explorer, naturalist and conservationist born in nearby Dunbar. John Muir Country park covers some of the most spectacular East Lothian scenery, and is a haven for wildlife and people too.

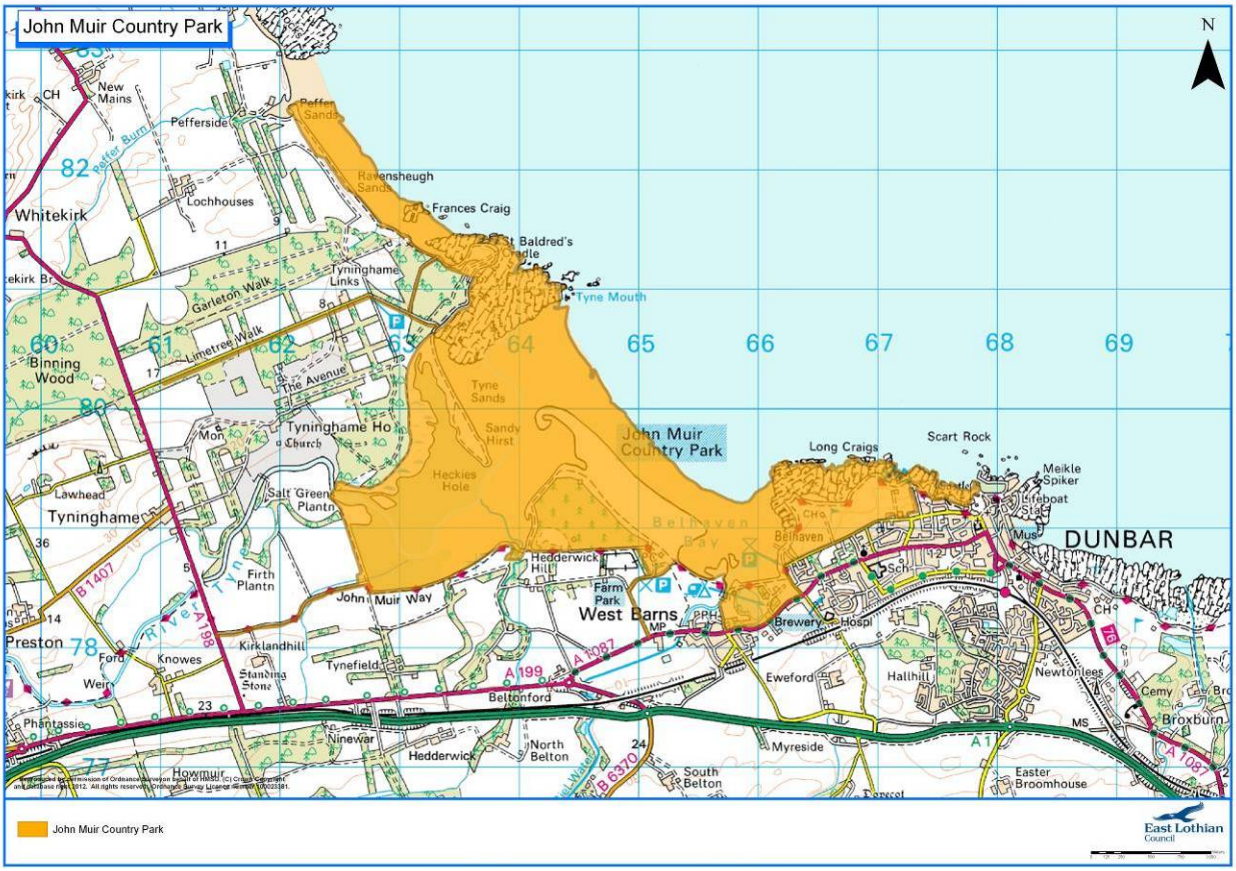

Figure 8 John Muir Country Park

Priority Habitat

4.18 The East Lothian Biodiversity Action Plan identifies priority habitats. These are habitats that are the most important for the conservation of biodiversity in East Lothian. The Priority Habitats are based on a Phase 1 survey carried out in 1997, which is the most up to date data available

4.19 The full list of Priority Habitats from the ELBAP is shown in Table 8:

Coastal	Coastal habitats are under pressure from development and from increased sea levels. This coastal squeeze reduces the area of a habitat and can prevent habitats functioning effectively, e.g. sand dune movement. The coastal habitats are: • Maritime cliffs • Sand dunes • Estuarine habitats, saltmarsh, mudflats habitats Sub tidal habitats are just as important as seashore habitats, but are far less well understood. These comprise: • Tidal rocks • Marine caves, muds and sediments • Seaweed beds • Seabed rich in invertebrates
Woodland	*Woodland habitats* Different types of wood, depending on soil conditions, management and dominant species. The woodland habitats are: • Upland oak / ash woodland • Wet woodland • Scrub Parkland is characteristic of 19th century grazed estates. Veteran trees and dead wood are habitats in themselves. Parkland comprises: • Lowland wood pasture and parklands • Veteran trees • Dead wood
Farmland	*Farmland* • Hedgerows – have significant associated wildlife • Cereal field margins - key habitat of arable farms, especially when associated with hedgerows and burns The following are all traditional or historic pastures which are very rare now. Calcareous grasslands are generally are too poor to farm. Grazing can be beneficial. • Calcareous grasslands • Neutral grasslands • Acid grasslands • Heathland mosaics - maintained by appropriate burning or grazing
Rivers and Wetland	*Rivers and Wetlands* • Burns and River - s flowing water, from ditches to estuaries • Springs, swamps, mires, flushes and bogs - all different types of wetland
Rocky	*Rocky Habitats* • Natural rock faces • Specific buildings The East Lothian BAP details the specific locations of important rocky habitats

Urban	*Urban Habitats* • Urban woodland - of great value to people close to towns • Greenspace Networks - areas of towns where people and wildlife can flourish • Orchard - once very common, with a lot of associated wildlife

Table 8 East Lothian Local Biodiversity Action Plan Habitats

4.20 The Priority Habitats shown in Figure 9 are derived from the Priority Habitat in the ELBAP taking into account sensitivity to development and rarity, namely: Acid Grassland, semi improved; acid grassland, unimproved; Bog, dry, modified; Bog, wet, modified; Calcareous grassland, unimproved; Calcareous grassland, semi-improved; Coastal grassland; Coastal intertidal mud/sand; Dense scrub; Dry dwarf heath, acid; Dry heath/acid grassland mosaic; Dune grassland; Dune heath; Dune scrub; Dune slack; Flush/spring acid/neutral; Flush/spring, basic; Inundation vegetation; Maritime hard cliff; Marshy grassland; Mixed woodland, semi-natural; Neutral grassland, semi-improved; Neutral Grassland, unimproved; Open dune; Saltmarsh, continuous; Spaghnum bog, blanket bog; Swamp; Wet dwarf heath; Wet heath/acid grassland mosaic; Woodland, broadleaved, semi-natural.

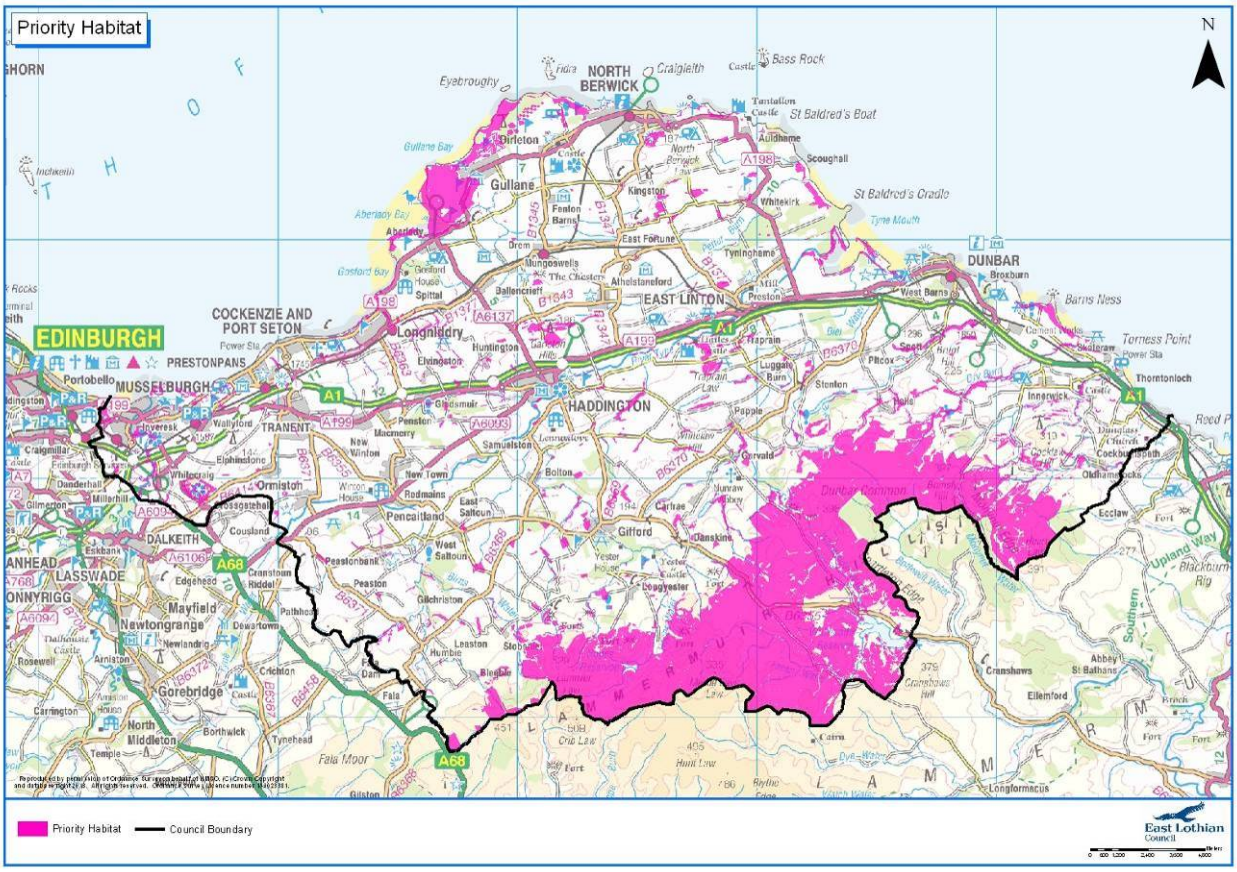

Figure 9 Priority Habitat in East Lothian

4.21 The RSPB and SNH have produced sensitivity mapping to aid strategic windfarm planning which shows which areas are particularly sensitive to large-scale wind development for their bird interest see Figure 10. This mapping has been developed taking into account how different species of bird are affected by windfarms, as well as their known distribution.

4.22 Black Grouse, a species which is the focus of an SNH Action Plan, are present in East Lothian. Habitat found in the Lammermuirs is suitable for Black Grouse, however they can be affected by windfarm development. The best areas for Black Grouse is shown on Figure 5. A national survey in 2005 found fewer than 3500 displaying males in Scotland, down from 29% from a survey 10 years earlier. They have been in decline since the 1900's however. In Lothian and Borders, numbers were down by nearly 70%. Black Grouse have declined

in the upland plateaux of East Lothian which has historically been suitable for them; they depend on a pattern of habitat including woodland and scrub, as well as heather and bilberry. Woodland edges are important for them; they can use young conifer plantations or mature plantations with widely spaced trees. Their decline is due to many factors, including habitat fragmentation, drainage of bogs, and flying into fences. [5]

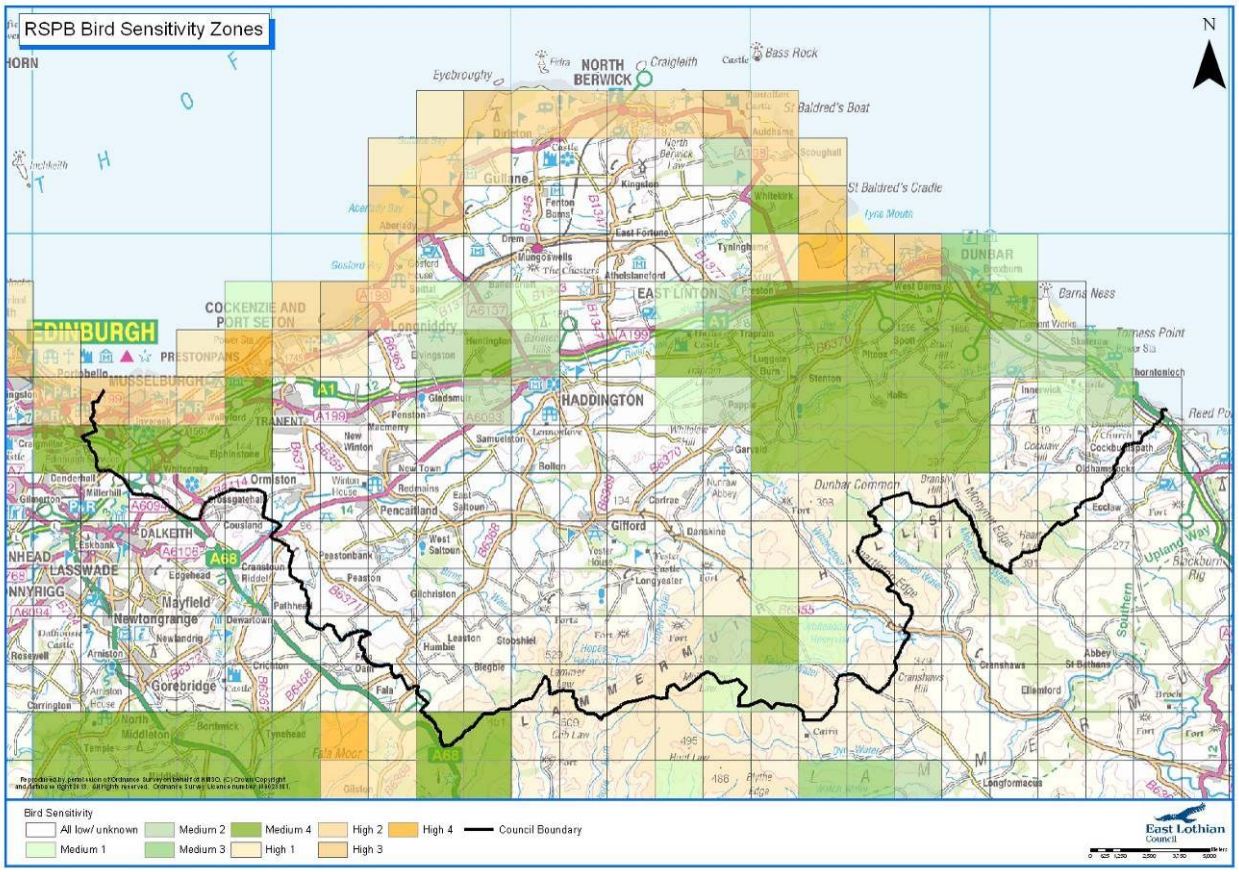

Figure 10 RSPB/SNH Bird Sensitivity Zones

Woodland

4.23 Woodland cover in Scotland was declining until relatively recently, however in recent years more area has been planted. Woodland cover in East Lothian is low compared to Scotland as a whole. The area of native woodland in East Lothian is 1,405ha, which is 20.3% of the total woodland area of East Lothian, or 2.1% of the total land area of East Lothian[6]. There are 895ha of woodland on ancient woodland sites, of which 34% is native woodland. Another 8% is nearly-native in composition (i.e. 40-50% native species in canopy). For more information see http://www.forestry.gov.uk/forestry/infd-7ybbtu . Figure 11 shows the distribution of native and other woodland in East Lothian.

[5] See SNH website http://www.snh.gov.uk/protecting-scotlands-nature/species-action-framework/species-action-list/black-grouse/

[6] Forestry Commission Scotland Native Woodland Survey of Scotland

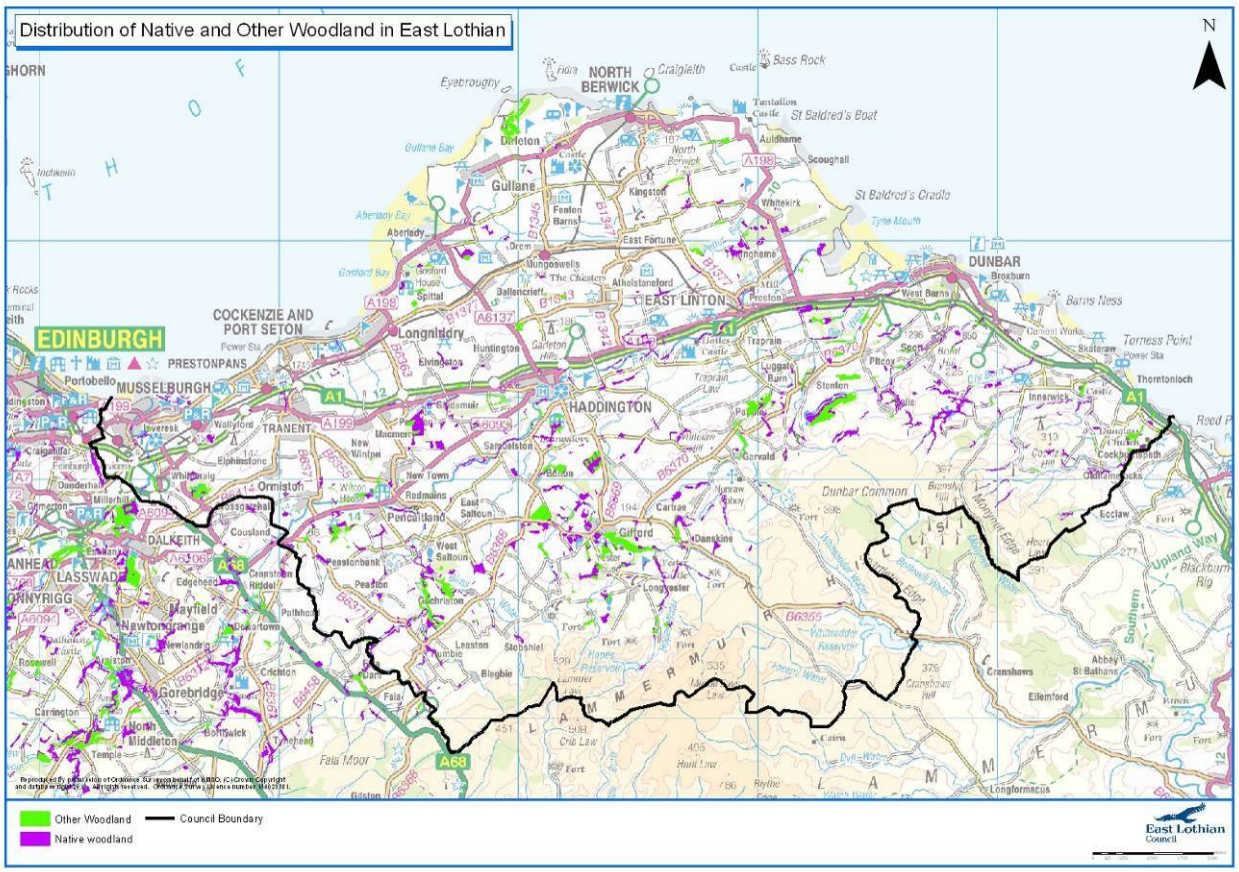

Figure 11 Distribution of Native and other woodland in East Lothian (From Forestry Commission Scotland Native Woodland Survey of Scotland)

POPULATION AND HUMAN HEALTH

4.24 Population has been scoped out as an SEA topic however as its distribution is a factor in planning for windfarms baseline information is given here. The recent census showed the population of East Lothian has reached 100,000. The General Registry Office for Scotland published population projections in February 2012, based on 2010 estimates, and these project a population increase of around a third to 129, 729 by 2035. This is a greater increase than expected for Scotland as a whole.

4.25 There are six major towns in East Lothian; Haddington, Musselburgh, Dunbar, North Berwick, Tranent and Cockenzie/Port Seton, which together account for roughly two thirds of the population. The remaining third of the population live either in smaller towns or villages, or in single houses or small clusters of houses in the countryside. There are several small towns in the foothills of the Lammermuirs, some on the coast, and some on the agricultural plain, historically built up mainly in connection with fishing, agriculture or mining. Housing in the Lammermuir uplands is very sparse, being limited to a few isolated dwellings. Figure 12 shows the areas with 2km of communities, as well as, indicatively, individual houses. The location of houses has been taken from information held by the council on addressable properties; it is possible not all of the points shown are inhabited dwellings or habitable houses; in addition some more recent properties are not shown (notably at Archerfield north of Dirleton).

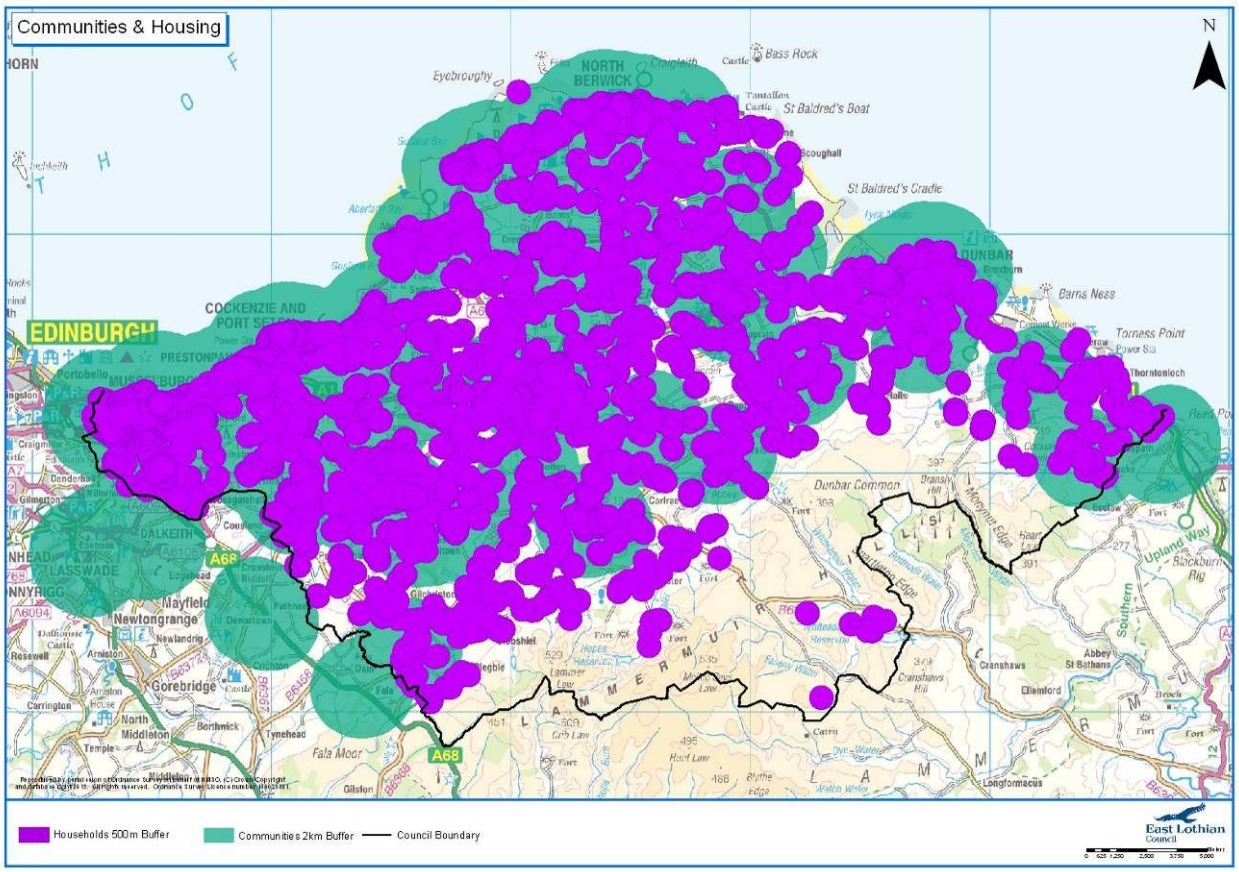

Figure 12 Areas within 2km of a community or 500m of an individual house

4.26 The main impact on human health from windfarms is from noise. Noise can have a range of health effects including sleep disturbance, cardiovascular effects, damage to school and work performance, and hearing impairment such as tinnitus[7]. For windfarm development, noise is usually measured in relation to background noise, and conditions set to limit noise at noise sensitive properties (including residences). There are some windfarms in the Lammermuirs which have noise conditions based on noise limits to protect people in their homes from windfarm noise. Exercising in the outdoors can also improve health. Windfarm noise and visual impact may affect recreational users of the immediate area. The impact on health through changes to active recreational use due to the presence of a windfarm is uncertain. The presence of windfarms may deter some active users such as recreational walkers, but the construction of tracks may open up a previously hard to access area which could encourage others and so have benefits for some recreational users.

SOIL

4.27 Maintaining soil quality is important for a wide variety of reasons; food production, biodiversity, and controlling the quality and quantity of water flow. In addition, soil functions as a carbon store, with some soils, such as peat, being particularly high in organic matter. The Natural Scotland/Scottish Government report The State of Scotland's Soils notes "In 2007,the total emission of greenhouse gases from Scotland was 14.9 Mt carbon, equivalent to just 0.5% of the carbon stored in its soils. In other words, if just 1% of the carbon contained in soil was lost in a year it would be enough to triple Scotland's annual greenhouse gas emissions."[8]

[7] See http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/noise/facts-and-figures/health-effects-of-noise

[8] Dobbie, K.E., Bruneau, P.M.C and Towers, W. (eds) 2011. The State of Scotland's Soil. Natural Scotland, www.sepa.org.uk/land/land_publications.aspx

4.28 There are gaps in knowledge of the effect of land use change on soils; generally a change from grassland or woodland to arable use will lead to a loss of soil organic matter (and so release carbon) and vice versa. Infrastructure for windfarms can permanently seal soil, and although the area directly affected is small, the functionality of soil can be disturbed during and after construction, affecting a wider area. Windfarms are known to cause an increase in loss of soil organic matter into drainage water, which in turn can lead to degradation of water habitat.

4.29 Peat is often of particular concern with regard to windfarms as higher ground which has the best wind may also contain peat. The distribution of peat (from Hutton Institute, British Geological Survey and Phase 1 habitat data) in East Lothian is shown below in Figure 13.

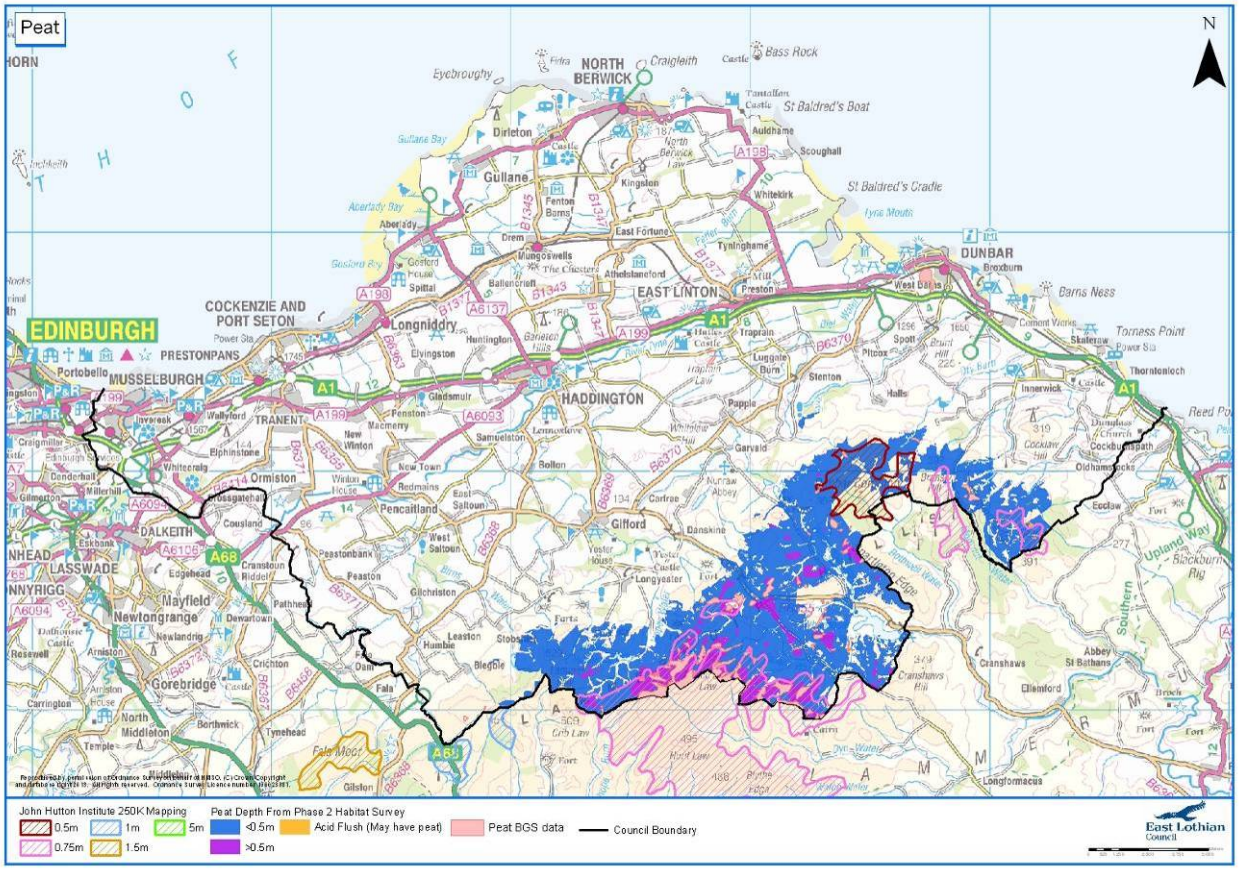

Figure 13 Peat

4.30 Windfarm development does not normally prevent the continuing use of land for agriculture, however prime quality land is important for food production, both now and in the future. With large scale development there will be some loss of land directly to paths, crane pads and so on, and there may also be changes to hydrology which could affect soil structure. This may also impact on rare soils. These soils are shown in Figure 14. The types of soil which are considered rare are taken to be alluvial soils, brown calcareous soils, humus-iron podzols and peat.

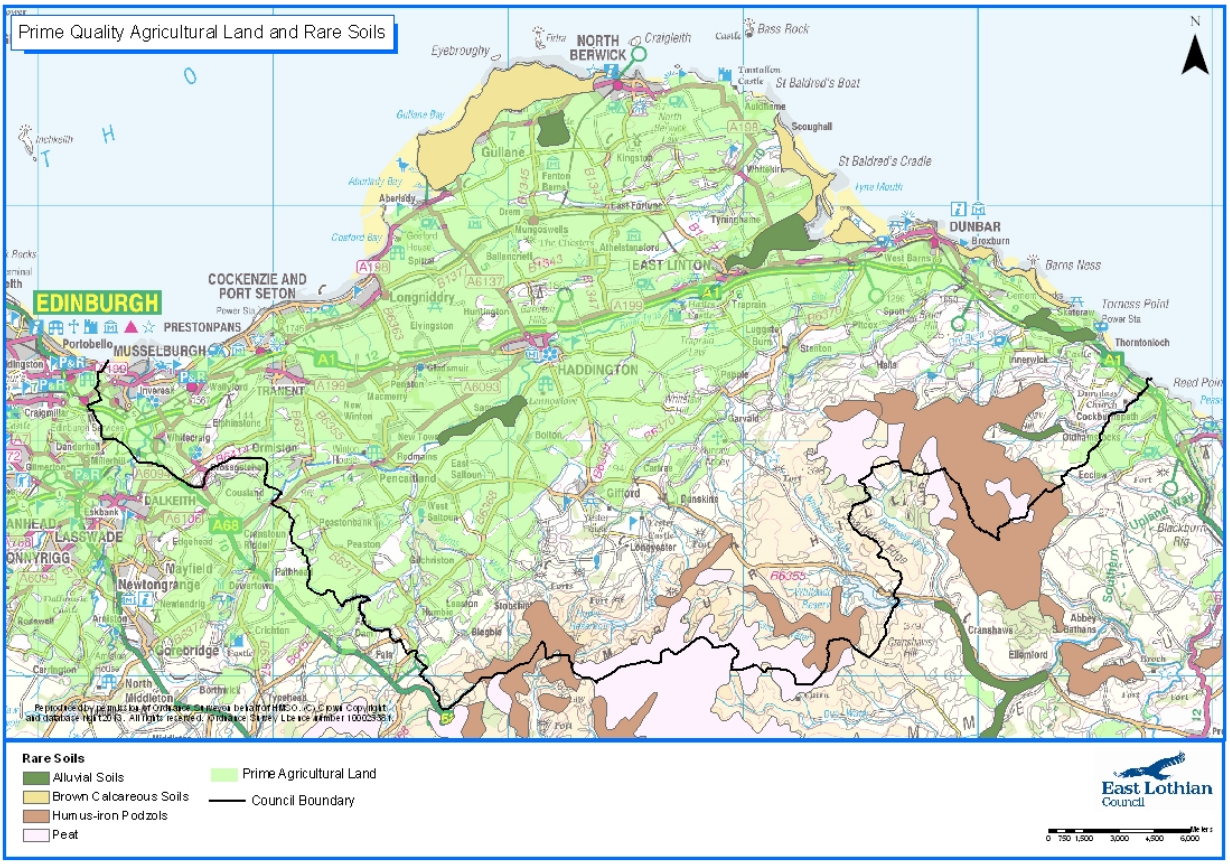

Figure 14 Prime Quality Agricultural Land and Rare Soils based on John Hutton Institute maps. Rare soils are taken as being alluvial soils, brown calcareous soils, humus-iron podzols and peat.

WATER

4.31 Two major rivers, the Tyne and the Esk, pass through East Lothian to discharge into the Firth of Forth. These rivers have several tributaries and steams which in addition to the Biel, form a drainage network that drains most of East Lothian. In additional several streams flow directly to the sea. In the Monynut/Mayshiel area of the Lammermuirs there are streams which flow south to join the River Tweed with most of the flow accumulating in the Whiteadder Reservoir before passing into the River Tweed Special Area of Conservation.

4.32 Drinking water protected areas in East Lothian include Gifford Water, Thorters Reservoir and all ground waters. In 2009 all the DWPA status was recorded as a pass for all drinking water protected areas in East Lothian. Figure 15 shows the Drinking Water Protected Areas for surface water in the Scotland river basin in East Lothian.

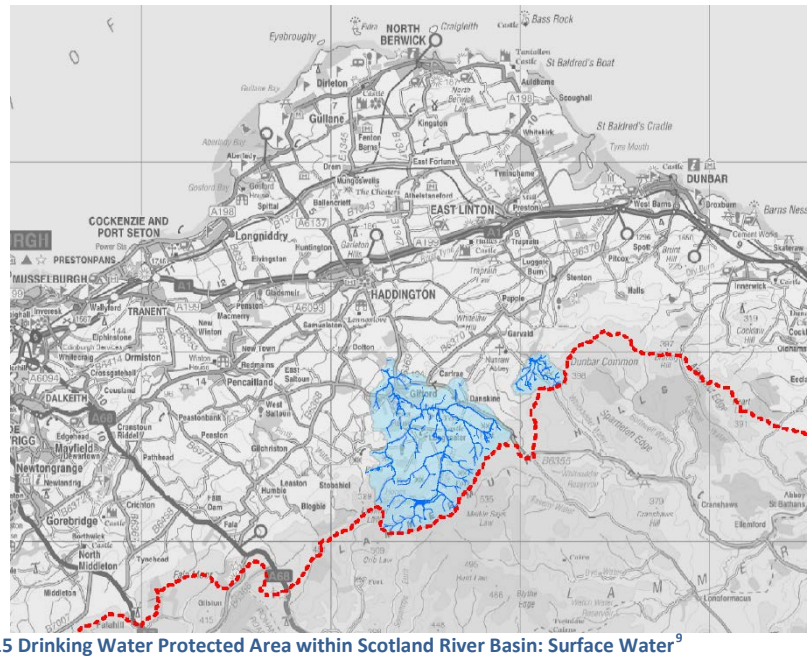

Figure 15 Drinking Water Protected Area within Scotland River Basin: Surface Water[9]

4.33 There are three protected areas for economically important freshwater fish, all are for salmonids[10], namely the River Esk, River Tyne and Biel Water. In 2009 all were achieving the mandatory standards required by the Fresh Water Fish Directive.

4.34 SEPA annually classifies the condition of 53 'baseline' water bodies[11] within or partially within in East Lothian. The majority of these are rivers, but there are also several transitional, coastal and ground water bodies and a single loch. Of these most are natural water bodies but three are classified as heavily modified water bodies. There are a number of other 'non-baseline' water bodies in East Lothian that are not currently classified by SEPA. Figure 16 shows East Lothian's classified water bodies.

4.35 SEPA reported in 2009[12] that only 18 (34%) of water bodies within or partially within East Lothian were at good status. The remaining 35 (66%) were classified as being at moderate, poor or bad ecological status. Water bodies at good status are generally situated in the south eastern areas of East Lothian, whilst those of moderate, poor or bad quality are in northern, central and western parts.

Table 9 Status of Waterbodies in East Lothian

2008 Status	Number of Water bodies			
	All Water Bodies	Surface waters		Groundwater[13]
		Natural	Heavily Modified	
High/Maximum	0	0	0	0
Good	18	11	0	7
Moderate	7	6	1	0
Poor	22	18	1	3
Bad	6	5	1	0
Totals	53	40	3	10
Number good or better	**18**	**11**	**0**	**7**
Proportion good or better	**34%**	**28%**	**0%**	**70%**

[9] see http://www.scotland.gov.uk/Topics/Environment/Water/17670/ProtectedAreasMaps2013

[10] Salmonid waters are waters that support or become capable of supporting fish belonging to species such as salmon, trout, grayling and whitefish.

[11] Baseline water bodies are those classified under the Water Framework Directive. These are waterbodies over the following size threshold – rivers with a catchment area of more than 10km2 and lochs which have a surface area greater than 0.5km2, and all estuaries and coastal water bodies regardless of size.

12 End of 2008 SEPA classification, reported to Europe in 2009

[13] Bodies of groundwater are classed as either good status or poor status

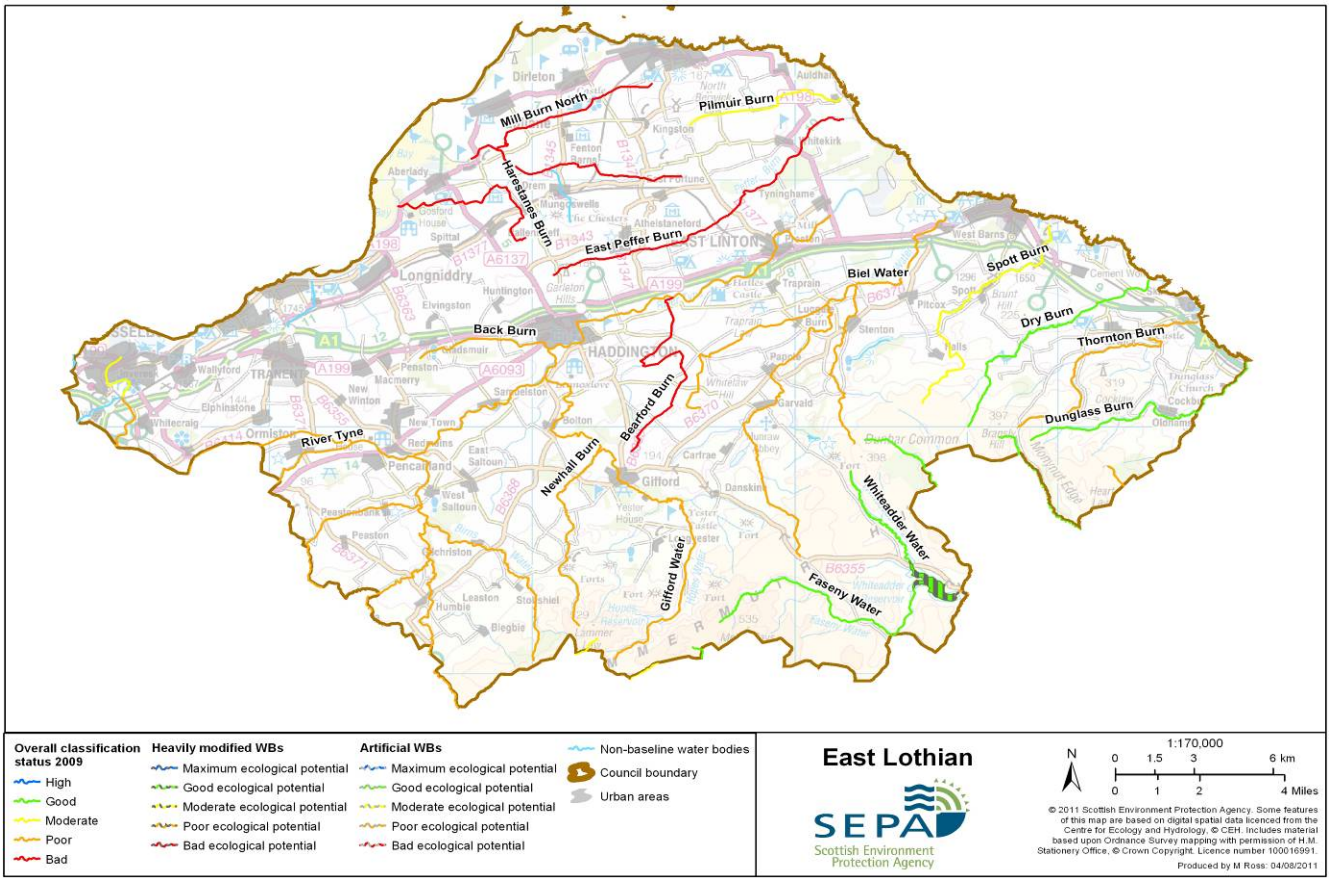

Figure 16 Waterbodies in East Lothian by status

4.36 Several towns and communities in East Lothian, including Musselburgh, Haddington and West Barns have a history of and continue to be at risk from flooding. The River Tyne in particular is prone to flooding with floods in 1931, 1948, 1956 and 1984 causing considerable damage to land and properties in Haddington. The flood of 1948 was particularly serious. Property alongside water courses elsewhere is also liable to flooding during periods of high rainfall and properties at East Linton, Pencaitland and Ormiston have all suffered flood damage in the past.

4.37 It is estimated that the Council's Transportation Department attended to approximately 290 flooding related incidents in the years from 1998 to 2007. These were as diverse as dealing with localised flooding events in Haddington and West Barns to unblocking culverts and gullies during periods of heavy rain.

4.38 Figure 17 shows the areas in East Lothian identified by SEPA as being at medium to high risk (>0.5% or 1 in 200 years) of fluvial and coastal flooding. It should be noted that the following has not been taken account of by SEPA when producing the map: flood prevention schemes and coastal defences; predicted climate change or the effect that bridges and other structures such as culverts may have on a flood. Additionally, the map has not yet been updated to reflect the findings of the Haddington Flood Study 2009.

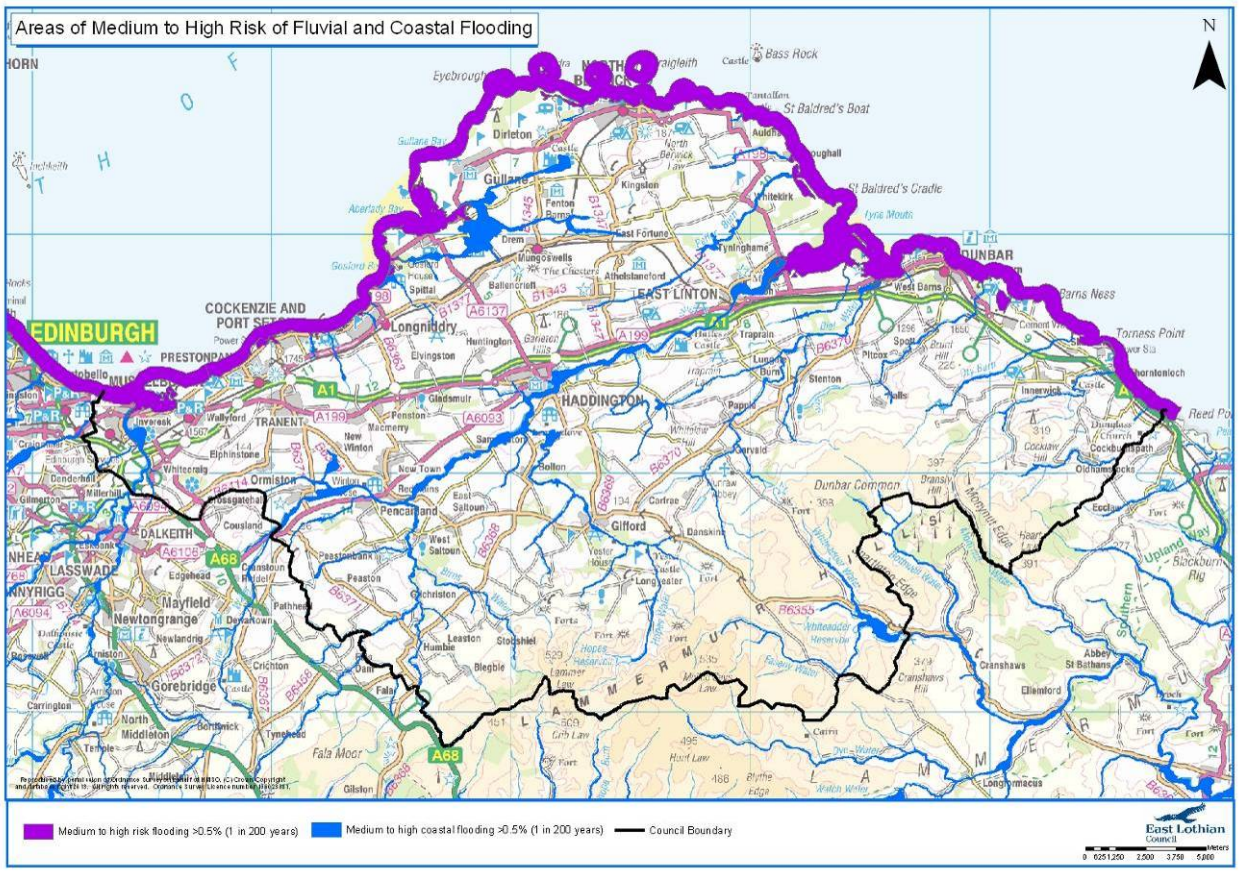

Figure 17 Areas at Medium to High Risk of Flooding in East Lothian

CLIMATIC FACTORS

4.39 Annual CO_2 emissions from fossil fuel combustion and cement production were 8.3GtC [12] yr^{-1} averaged over 2002-2011, and by 2011 were 54% above the 1990 level. Atmospheric concentrations of CO2 was at 391 parts per million in 2011, exceeding pre-industrial levels by about 40% [14]. The Fifth IPCC Report states that warming of the climate system is unequivocal. The implications of this are that the climate is expected to change, with the amount and speed of change dependent on historic and future emission levels. In line with Sustainable Scotland Network guidance the Council has used Department of Energy and Climate Change (DECC) and Stockholm Environment Institute (SEI) estimates of CO_2 emissions for East Lothian as a whole.

4.40 For East Lothian, the most recently available data from DECC relate to 2011 and estimates that area wide emissions in East Lothian are 1133.5 kt CO_2. This was equivalent to **11.5 tonnes of CO_2 per capita** (see Figure 18 for a breakdown by source), which is significantly greater than the Scottish average of 7 tonnes of CO_2. This disparity reflects the presence of Lafarge cement works in the area as a major source of CO_2 emissions in Scotland[15]. The DECC methodology is a production based methodology where the emissions associated with the production and processing of fuels (including electricity) are allocated to the end-user. It excludes offshore oil and gas, aviation, shipping, exports and the embodied GHG emissions associated with imported goods and services.

[14] IPCC Fifth assessment Report Climate Change 2013

[15] Please note that Cockenzie power station is not included in these figures because the methodology attributes electricity emissions to the end-user.

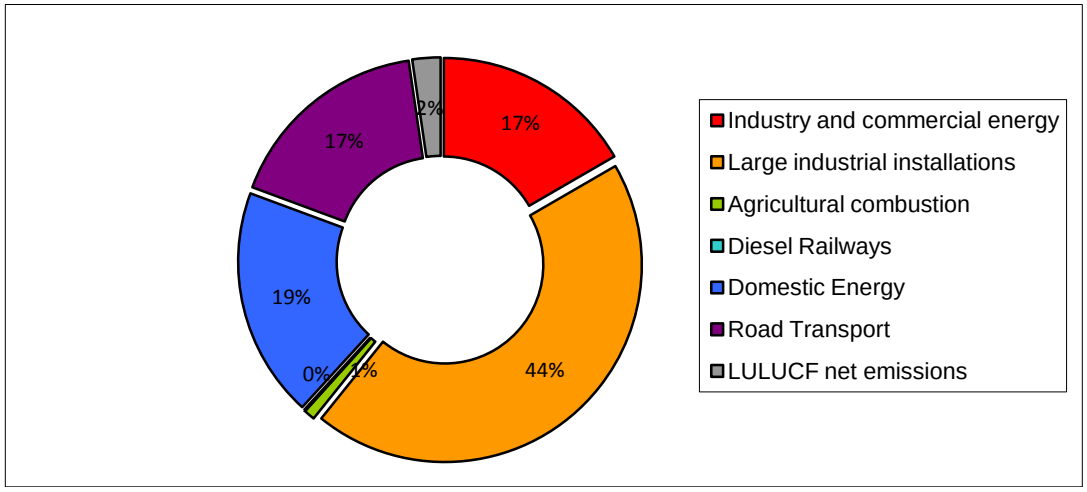

Figure 18 East Lothian emissions by producing sector

4.41 The Stockholm Environment Institute uses a **consumption based methodology**, which includes the embodied emissions associated with goods and services. This methodology is recommended by the Scottish Sustainability Network for carbon reporting. The most recent figures available estimate that in 2006 East Lothian's carbon footprint[16] was 1.163 million tonnes of CO_2. This is equivalent to **12.53 tonnes of CO_2 per capita**, which is exactly the same as the Scottish average and represents a 3% reduction when compared to 2004. A breakdown by source is shown below.

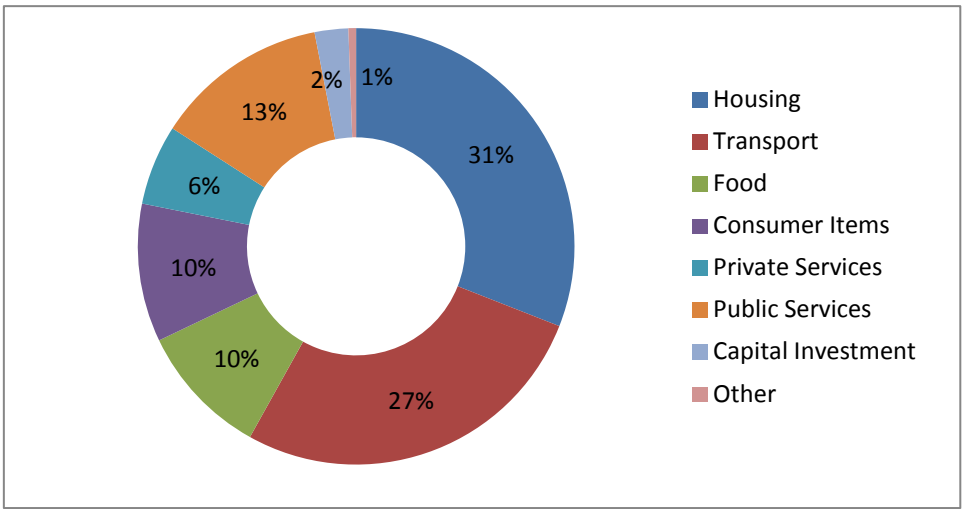

Figure 19 Breakdown of per capita CO2 emissions by source (SEI 2010)

4.42 The production of electricity from wind power reduces CO2 emissions, though the amount by which it does so is variable, depending on the fuel which it is assumed to have replaced. Table 10 below shows the contribution of electricity generation capacity already installed in East Lothian (note there may be more constructed wind turbines than shown as this is not routinely monitored).

[16] Defined by SEI as including CO_2 emissions only as opposed to all six Kyoto greenhouse gases (GHGs).

Table 10 Electricity Generation in East Lothian

Name	Capacity in MW
LARGE SCALE ELECTRICITY PRODUCTION	
Torness Nuclear Power Station	1364
Cockenzie Power Station (now closed)	*1200*
Crystal Rig (East Lothian side only)	73
Aikengall	48
Pogbie (consented)	5.1
Keith Hill (consented)	6.5
TOTAL LARGE WIND consented and (constructed)	132.6 (121MW)
SMALL COMMERCIAL AND DOMESTIC SCALE	
Blackdykes, Tantallon	0.040
Newmains Farmhouse, Traprain	0.030
East Mains, Samuelston	0.060
Hillhead Farm, Whitecraig	0.010
Limekilns, Phantassie	0.010
South Elphinstone Farm	0.011
Hoprig Farm, Gladsmuir	0.011
Woodside, Gladsmuir	0.011
Ferrygate Farm, Dirleton	0.011
Waughton, East Linton	0.055
West Fenton Farm South	0.010
Redacre, Pressmennan,	0.011
Woodhall Farm, Innerwick,	0.500
Howden Farm, Gifford	0.080
Byres Farm, Garleton	(0.022)
West Fortune Farm, Drem	0.330
Moorcockhall, Stenton	(0.010)
Ferrygate Farm, Dirleton	0.011
Muirton, Drem	0.100
Castlemains Farm, by Dirleton	(0.060)
Ferneylea, Cockburnspath	0.550
Carfrae Farmhouse, Gifford	0.050
Fa'side Castle, by Tranent	(0.015)
Alderston Mains, by Haddington	(0.050)
New Mains, Fenton Barns	0.045
Park Cottage, Gifford	(0.006)
Dolphingstone Farm, by Tranent	(0.011)
Luffness Mains by Aberlady	(0.022)
East Fenton Farm, Fenton Barns	(0.030)
Muirton by Drem	(0.044)
Whittingehame Mains Estate Office	0.045
Greenburn, East Fortune	(0.015)
Farm Shed, Cockielaw	0.045
Standingstone by Haddington	0.045
Ruchlaw Mains, by Stenton	(0.275)
Scotscraig, Braehead Road, East Linton	(0.015)
Townhead Farm, Gifford	(0.045)

Queenstonbank, North Berwick	(0.015)
Hoolets Yett, Pencaitland	0.006
Hornshill, by Newland Farm	(0.006)
Dunbar Primary School	(0.007)
Gullane Primary School	(0.006)
Newlands Farm, Gifford	(0.0025)
Hallhill Healthy living Centre	(0.012)
Wanside, Stobshiel	0.0025
1 Rockville Farm cottages	(0.0025)
TOTAL SMALL WIND	1.7505 MW (0.671MW constructed)

4.43 Since Feed in Tarriffs have been available for small scale renewable energy development, there has been an expansion in installation of these technologies, in particular solar panels which were not common before this. Electricity derived from installations registered for feed in tariffs, which is likely to be the majority of recent installations, are shown in Table 11 below. Some of the installations above will qualify for feed in tariffs, so there will be an element of double counting if the output shown in this table and Table 10 above are added together.

Table 11 Feed In Tarriff installations[17]

Technology	Domestic Installations East Lothian	Domestic Installations Installed Capacity (MW)	Commercial and Industrial Installations	Commercial and industrial Installations Installed Capacity (MW)	Community Installations	Community Installations Installed Capacity (MW)	Total Installations	Total Installed Capacity (MW)
Hydro	1	0.029	0	0.000	0	0.000	1	0.029
Photovoltaic	560	1.979	26	0.893	0	0.000	501	2.872
Wind	12	0.172	9	0.114	0	0.000	21	0.286
Total Installed Capacity (MW)	2.179		1.07		0.000		na	3.186
Total Installations	573		35		0		608	na

4.44 The benefit of renewable energy in climate change terms is to generate electricity without emitting CO2. Generally wind will replace fossil fuel generation as these are the most flexible feeds into the grid, with nuclear operating as baseload. Generally, the larger the wind turbine, the more electricity it will generate, and the more CO_2 it will displace. This relationship is more geometric than linear. Table 12 below shows the electricity that would be expected to be generated from different sized turbines in East Lothian, taking into account the variability of the wind, and resultant CO_2 displacement in tonnes and in terms of how many average East Lothian residents' carbon footprints this would offset. As a guide, the amount of CO2 saved by the operation of a Ruchlaw type turbine for a year is the rough equivalent of taking 110 cars off the road for a year, or 250 people taking an annual plane trip from Edinburgh to New York.

[17] From Ofgem Feed in Tarriff report viewer at https://www.renewablesandchp.ofgem.gov.uk/Public/ReportViewer.aspx?ReportPath=%2fFit%2fFIT+Installations+Statistical+Report_ExtPriv&ReportVisibility=1&ReportCategory=9 accessed 19 February 2013

Table 12 Amount of CO2 offset by different turbines

Turbine	Tonnes CO2 offset (equivalent number of people)	MWh Electricity generated (households)
Typical Crystal Rig turbine 2.3MW, 110m high	2600t (400 people)	6000 MWh (1276 homes)
Ruchlaw (275KW) 48.7m high	310t (47 people)	723MWh (154 homes)
Alderston (50Kw) 34m high	56t (9 people)	131MWh (28 homes)
Dolphinstone (by the A1 crossover) bridge) 24.5m high	12.4t (2 people)	29MWh (6 homes)

4.45 The Climate Change (Scotland) Act 2009 committed Scotland to targets to contribute towards mitigating global climate change. To set out the route to achieving these targets, the Scottish Government produced the Climate Change Delivery Plan[18]. This gives four transformational outcomes, namely

- A largely decarbonised electricity generation sector by 2030
- A largely decarbonised heat sector by 2050, through a combination of energy efficiency, reduced energy demand and low carbon heating
- Decarbonisation of road transport by 2050
- Ensuring carbon (and carbon cost) is factored into strategic and local decisions about rural land use

4.46 Clearly these targets are inter-dependent, and progress on one may mean a greater need for progress in another for example decarbonising road transport may lead to more electricity demand, so more generation. Conversely, more progress than expected in energy efficiency could reduce generation requirements. The Scottish Government have a target of delivering the equivalent of at least 100% of gross electricity consumption from renewable by 2020. To achieve a decarbonised electricity generation, the Scottish Government estimate 14-16GW[19] of renewable energy will be required. The intention of the policy however is that this should not be seen as a cap as anything generated beyond this could be exported. This chart includes offshore projects and shows renewable capacity[20] at various stages of planning. It is taken from Scotland's Electricity Generation Policy Statement 2013.

Figure 20 Renewable Energy Capacity in Gigawatts

4.47 Offshore, in Scottish Territorial Waters, ten sites have been granted "exclusivity agreements" by the Crown Estate to develop offshore wind. Together, these sites have been assessed as potentially provided 5.8GW of capacity. Further offshore, the 'Round 3' sites have a potential capacity of 4.8GW. The Offshore Valuation Study published in May 2010 estimated that Scotland has 206 GW of offshore wind, wave and tidal resources – enough to power Scotland 20 times over.[21] Scotland's Offshore Wind Routemap: Developing Scotland's Offshore Wind Industry to 2020 anticipates that offshore wind projects will be commissioned between 2015 and 2108. In addition, small-scale renewable energy projects have achieved a boost recently

[18] Available at http://www.scotland.gov.uk/Publications/2009/06/18103720/0
[19] Scotlands Renewable Energy Routemap update 2012 http://www.scotland.gov.uk/Resource/0040/00406958.pdf
[20] Scottish Government Electricity Generation Policy Statement http://www.scotland.gov.uk/Topics/Business-Industry/Energy/EGPSMain
[21] Quoted in Scotland's Offshore Wind Route Map; Developing Scotland's Offshore Wind Industry to 2020 at http://www.scotland.gov.uk/Publications/2010/09/28115850/0

from Feed-in tariffs, and it is reasonable to expect these sources to make a recognisable contribution by 2020.

4.48 The Scottish Government states that they have "*now calculated that significantly higher levels of renewables could be deployed by 2020 with little change to the current policy, planning or regulation framework in Scotland".*[22] The Low Carbon Economic Strategy for Scotland: Scotland, a Low Carbon Society (2010) states (page 11) that Scotland now generates 22% of its final electricity demand from renewable and is comfortably on course to meet previous targets of 31% by 2011 (which was exceeded by about 4%[23]) and 80% by 2020. The target is now 100% by 2020, with an interim target of 50% by 2015. The Renewables Routemap update states that taking data on renewable electricity capacity which is currently operational, and assuming the addition by 2015 of capacity which is either under construction at present or which has consent to build and which developers timetables forecast will be operational by 2015, and applying average load factors, allows the Scottish Government to estimate that renewable generation in Scotland could account for up to 50% of demand – see Figure 21 below. This would mean this interim target will be met with current consents.

4.49 Scotland's Electricity Generation Policy Statement[24] states that the target is a rallying call, but also technically achievable,as shown by modelling which includes a doubling of installed capacity. Achievement of the target will depend on factors such as demand reduction as well as renewables deployment.

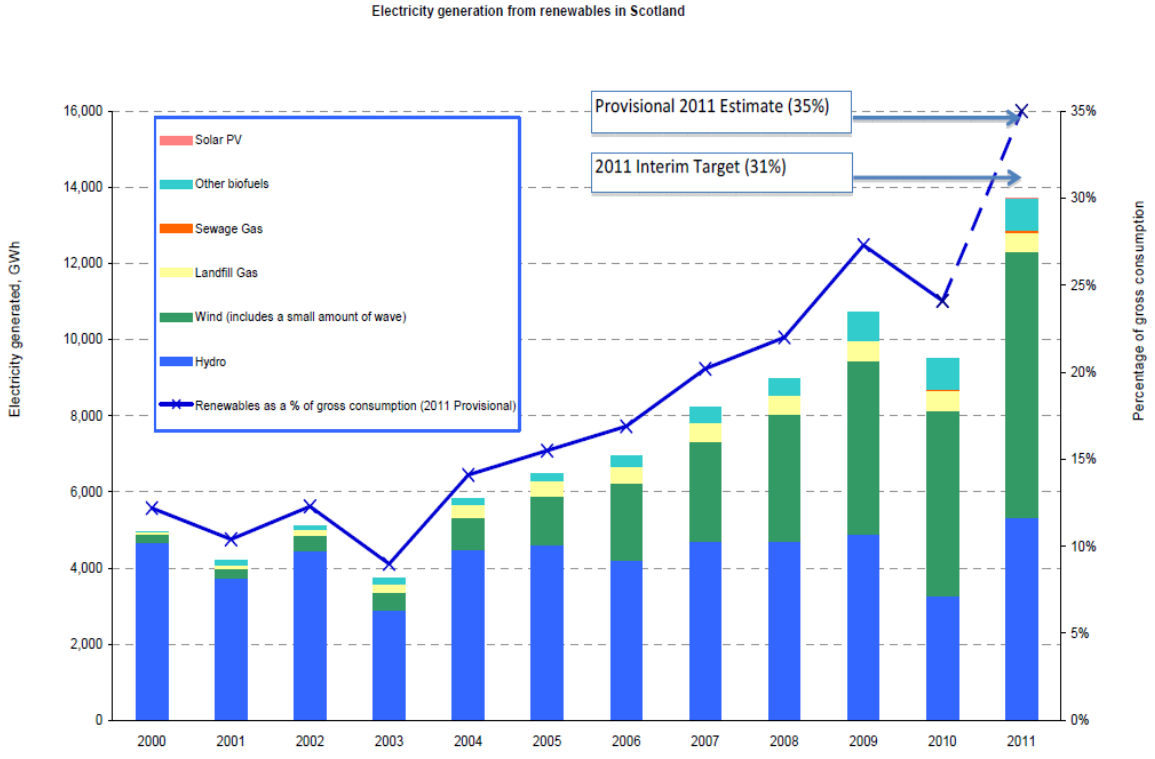

Figure 21 Electricity generated by renewables and as a % of gross consumption from Renewables Routemap update.

View chart data Source: Department of Energy and Climate Change (DECC)

Notes (1) Hydro excludes electricity generated from hydro - pumped storage
(2) Other biofuels includes biofuels co-fired with fossil fuels

[22] Scottish Government Press release see 2 above
[23] Renewable Routemap update http://www.scotland.gov.uk/Topics/Business-Industry/Energy/UpdateRenewableRoutemap
[24] Scottish Government "Electricity Generation Policy Statement available at http://scotland.gov.uk/Topics/Business-Industry/Energy/EGPS2012/DraftEPGS2012

4.50 East Lothian has a rich cultural heritage, and this is reflected in the historic environment. Nationally important are Scheduled Monuments and Category A listed buildings, of which there are 135, as well as items on the Inventory of Historic Gardens and Designed Landscape and Battlefields (HGDLs). Conservation Areas are designated locally, while there is also a rich variety of regionally and locally important listed buildings. The archaeological service maintains the Historic Environment Record, which includes locally and regionally important archaeological sites and finds. Figure 22 below shows elements historic environment (other than listed buildings). Further information on Scheduled Monuments, Listed Buildings, Historic Gardens and Designed Landscapes and items on the Historic Environment Record can be found at http://pastmap.org.uk/

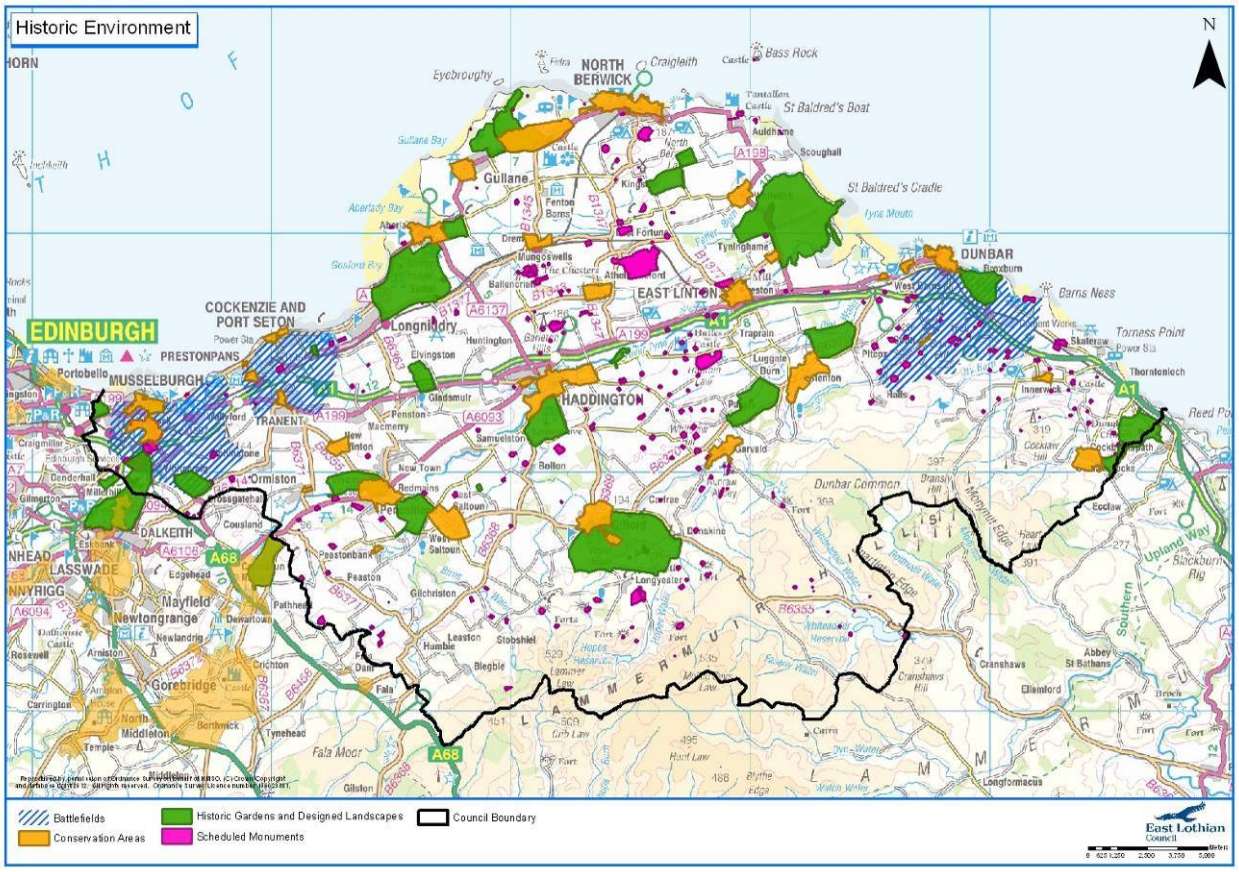

Figure 22 Historic Environment (not including listed buildings, or Conservation Areas in Scottish Borders Council area)

4.51 Most Listed Buildings and Scheduled Monuments have settings which should also be protected. It is difficult to set out in advance what will harm the setting of a listed building or monument; it depends on the type of development, its location and the historic value of the receptor. Some monuments and listed buildings have extensive settings. These include monuments such as hillforts or castles, where the outlook is an important part of their interest, or listed buildings which were intended to dominate their surroundings and show power and influence, such as churches or buildings such as Haddington Town House. Traprain Law is one such monument; its setting for large windfarm development extends over a considerable area, as shown on Map 6: Historic Environment of the GWOTM. Historic Scotland produces guidance on setting in its 'Managing Change in the Historic Environment' series at http://www.historic-scotland.gov.uk/managingchange .

4.52 Elements of the cultural heritage in the Lammermuir area, including Listed Buildings, are shown on Figure 29 and Figure 31 below.

LANDSCAPE

4.53 The quality of the local landscape and coast in East Lothian and the surrounding area is widely recognised. In East Lothian, attractive coastal landscapes give way inland to an extensive agricultural plain that is then framed by the Lammermuirs and its foothills. The Lothians Landscape Character Assessment, published by SNH in 1998, and further refined for the purposes of the East Lothian wind turbine capacity studies, is a useful baseline to consider East Lothian's landscape character in more detail.

4.54 East Lothian has no National Scenic Areas, however it has designated Areas of Great Landscape Value (ALGVs), and the designation of John Muir Country Park and HGDL's also have a landscape element. AGLV's were designated for their scenic value – see Figure 23 for their location. The AGLVs include parts of the Lammermuir hills, comprising mainly rough pasture and heather moorland; the dominating volcanic outcrops of the Garleton Hills, Traprain Law and North Berwick Law; parts of the coast; the river valleys; and some woodland.

4.55 There are also AGLV's/Local Landscape Areas contiguous with the East Lothian AGLV's across the boundaries with Midlothian and Scottish Borders Council area. There are no National Scenic Areas in East Lothian, and those in the Scottish Borders Council area at Eildon and Leaderfoot, and Upper Tweedale, are too distant to be affected by windfarm development in East Lothian.

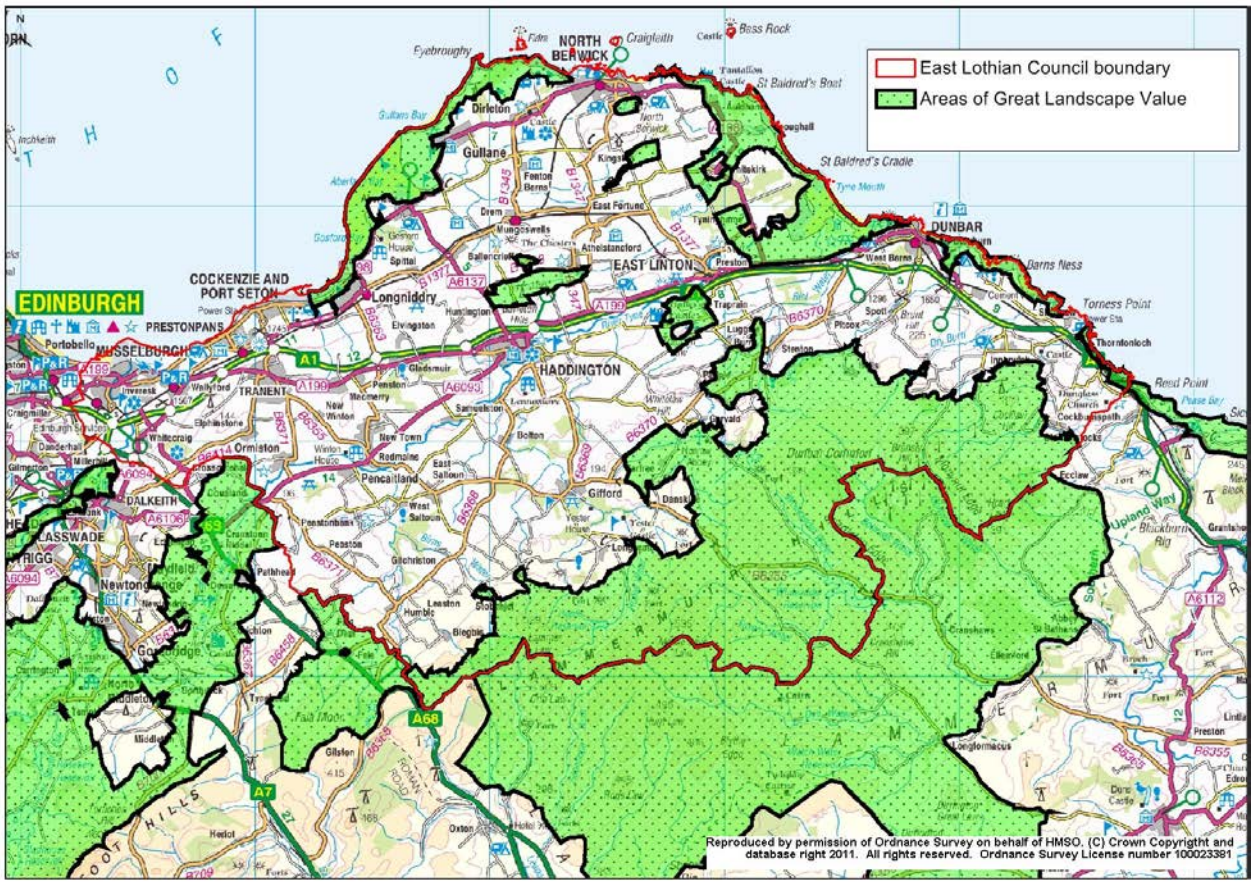

Figure 23 Areas of Great Landscape Value

4.56 East Lothian Council published a report on the Landscape Capacity for Wind Turbine Development in East Lothian in 2005[25]. This report examined the capacity for and sensitivity to different typologies of wind turbine development in the different landscape character areas of East Lothian, which were based on SNH's Landscape Character Types and area. The landscape character areas and their general sensitivity to wind

[25] Landscape Capacity Study for Wind Turbine Development in East Lothian, a Report to East Lothian Council, by Carol Anderson and Alison Grant, ELC, available here: http://www.eastlothian.gov.uk/downloads/file/4777/landscape_capacity_study

development are shown in Figure 24 and Figure 25 below. More detailed results of sensitivity to different typologies are contained within the LCS report.

Landscape Character Areas

Musselburgh/Prestonpans Fringe

4.57 This comprises a narrow, densely developed coastal fringe at the western extremity of East Lothian. This character is tightly contained by the Mayfield/ Tranent Ridge to the south and tends to be perceived as an extension of development around the wider basin of the Firth of Forth and Edinburgh. Much of this character area lies within the Edinburgh Green Belt which, together with extensive areas of open space, provides a landscape setting for its settlements, which include Musselburgh, Inveresk, Wallyford, Whitecraig, Prestonpans, Cockenzie and Port Seton. There are key views from the A1 to Edinburgh (with Arthur's Seat forming a key focus), the Firth of Forth and to the historic Inveresk Church.

4.58 This character area includes the Gardens and Designed Landscapes of Newhailes, Pinkie House, Inveresk Lodge Gardens, Seton House and part of Dalkeith House. It also contains two battlefields included in Historic Scotland's Inventory of Historic Battlefields26. These are the Battle of Pinkie Mains and the Battle of Prestonpans

Northern Coastal Margin

4.59 Moving east, the Northern Coastal Margin extends west of Seton Mains to the east of Dunbar. It features the least modified and most scenic seascapes within East Lothian and is a richly diverse coastal landscape with a distinctive pattern of policy woodlands and designed landscapes. It is a well-settled area, popular for recreation, and contains distinctive coastal settlements, many of which are popular tourist destinations, such as Longniddry, Aberlady, Gullane, Dirleton, North Berwick and Dunbar. The Firth of Forth and its islands are a key focus of views both from within this character area and from more elevated views.

4.60 This character area includes the Gardens and Designed Landscapes of Gosford House, Archerfield, Tyninghame, Luffness, Grey Walls, Belhaven House, Dirleton Castle and Broxmouth Park (part). It also contains part of the battle of Dunbar II included in Historic Scotland's Inventory of Historic Battlefields.

Eastern Coastal Margin

4.61 Extending eastwards from Dunbar to the border, the Eastern Coastal Margin comprises a gently undulating narrow strip of land abutting the North Sea and contained by the foothills of the Lammermuir Hills to the south. The landscape has been significantly man-modified and is characterised by large scale industrial, energy, landfill and extractive development, crossed by major transport routes in the form of the A1 and the east coast main line. The large scale turbines of the Aikengall windfarm are highly visible from this area. In the south-east part of this character area there are less modified stretches of coastline, with more complex landform including small scale valleys and headlands: this area is highly visible from the major transport routes. Settlement is small scale, primarily in the south-east at Bilsdean and Dunglass.

4.62 This character area includes the Gardens and Designed Landscapes of Broxmouth Park and part of Dunglass. It also contains part of the Battle of Dunbar II which is included in Historic Scotland's Inventory of Historic Battlefields.

The Agricultural Plain

4.63 The Agricultural Plain extends over much of the lowlands of East Lothian. In landscape character terms it comprises three broad sub-areas. To the east, it is characterised by a more rolling landform with pronounced ridges and occasional landscape features. Here, the landscape has a relatively high proportion of woodland which increases containment and reduces scale. Haddington and East Linton are the main settlements in an area where these are typified by their small scale and architectural integrity. The area is

[26] The Inventory boundary defines an area which is considered to encompass the landscape within which the main events of the battle took place (landscape context) and where associated physical remains and archaeological evidence occur or may be expected (specific qualities)

characterised by the presence of the landmark features of North Berwick and Traprain Laws and their landscape setting, extensive designed landscapes and wooded policies and a high visibility from the A1 and east coast main line. The Gardens and Designed Landscapes included within this sub-area are Lennoxlove, Stevenson House, Leuchie, Balgone House and St Mary's Pleasance.

4.64 To the north, the landscape is open, very gently undulating to flat with a relatively expansive scale. There is relatively little woodland and dispersed industrial development and infrastructure is a feature. There are key views to the Garleton Hills and parts of this landscape are highly visible from the A1 and the East Coast Main Line. Settlements are generally small-scale, Macmerry in the extreme west being the largest. Elvingston is included in the Inventory of Gardens and Designed Landscapes.

4.65 To the south, the landscape is gently undulating with long broad ridges and shallow valleys. Woodlands are often a key feature and are especially associated with adjacent valley landscapes. There is relatively little large scale built development, Ormiston and Pencaitland being the two largest settlements. This rural landscape has a simple, uncluttered character. Winton and Pilmuir are included in the Inventory of Gardens and Designed Landscapes.

The Garleton Hills

4.66 The Garleton Hills are a prominent landmark within East Lothian, particularly their rugged north face and diverse, craggy hill tops and ridges. They are highly visible from key transport routes and from settlements.

Mayfield/Tranent Ridge

4.67 Located on the north-eastern edge of East Lothian, this character area comprises an elongated north-east/south-west orientated low, undulating ridge forming a backdrop to the well-settled Esk valley. Its steep north-west facing slopes and ridge top are highly visible from parts of Edinburgh, other settlements and major transport routes. Tranent is by far the area's largest settlement. Carberry Tower is included in the Inventory of Gardens and Designed Landscapes.

Humbie, Gifford and Whittingehame River Valleys

4.68 These river valleys cut in a generally north/south alignment through the Agricultural Plain. They lie within consistently incised valleys characterised by dense woodland cover and policy landscapes. They have a general complex, rolling and incised landform with a richly intricate pattern of woodlands. These features provide an often highly scenic setting to the small historic settlements and mansion houses that are a key characteristic of these valleys. Gifford is the area's largest settlement.

4.69 Saltoun Hall, Lennoxlove, Yester and Whittingehame are included in the Inventory of Gardens and Designed Landscapes.

Eastern Lammermuir Fringe

4.70 This character area comprises rolling foothills edging the Lammermuir Plateau and sweeps round to the east to form the backdrop to the Eastern Coastal Margin. It has a diverse land cover pattern and a distinctly rural character. The landform is complex and rolling, with intimate narrow valleys and the dramatic landform of the steep-sided Lothian Edge and a pattern of distinctive knolly hills against the scarp of the Lammermuir Hills. Settlements, which include Humbie, are very small in scale.

4.71 Biel and Dunglass (part) are included in the Inventory of Gardens and Designed Landscapes. The area also contains part of the battle of Dunbar II which is included in Historic Scotland's Inventory of Historic Battlefields.

North Lammermuir Platform

4.72 This character area forms a long band of undulating farmland and small foothills fringing the northern edge of the Lammermuir Hills. This character area, which extends west into Midlothian, provides the foreground to extensive views to and from the Lammermuir Plateau. Distinctive landform features include the dramatically steep and rugged scarp slopes of the Lammermuir Hills which form the backdrop to character

area and also the pronounced small hills lying at the foot of this scarp, which feature hill forts of archaeological interest. Characteristic of the western part of this character area is the strong and distinctive pattern of policy woodlands, field trees and hedgerows. Settlements, which include Oldhamstocks and Spott, are small in scale.

4.73 Yester is included in the Inventory of Gardens and Designed Landscapes.

East Lammermuir Plateau

4.74 The eastern part of the Lammermuir Hills comprises an undulating plateau cut by the Whiteadder Valley. This upland area forms a backdrop to the eastern coastal plain and foothills of East Lothian and to the sparsely populated farmed valleys of the Scottish Borders to the south. The sheer-sided dramatic landform features of the Spartleton and Monynut Edges are now dominated by wind farm development and the remaining open and distinct hill tops, such as Spartleton, Penshiel and Priestlaw Hills, and the contained Whiteadder valley and reservoir are important features providing visual relief. The area is very sparsely populated.

Plateau Grassland

4.75 This character area covers the western part of the Lammermuir Hills and comprises an upland plateau of smooth, gently undulating hills covered by coarse grassland. Only a small part of this are falls within East Lothian, the majority of this character type being found in the Scottish Borders. Existing and consented windfarm development is a key characteristic of the wider character area. That part within East Lothian comprises the steep scarp slopes of the Lammermuir Hills, forming a highly visible backdrop to the adjacent North Lammermuir Platform and the western part of the Agricultural Plain. Blegbie Hill and West Hill are important in forming a rim of higher ground which visually contains the expansive upland basin of the plateau to the south, limiting close views of the Dun Law wind turbines from the North Lammermuir Platform.

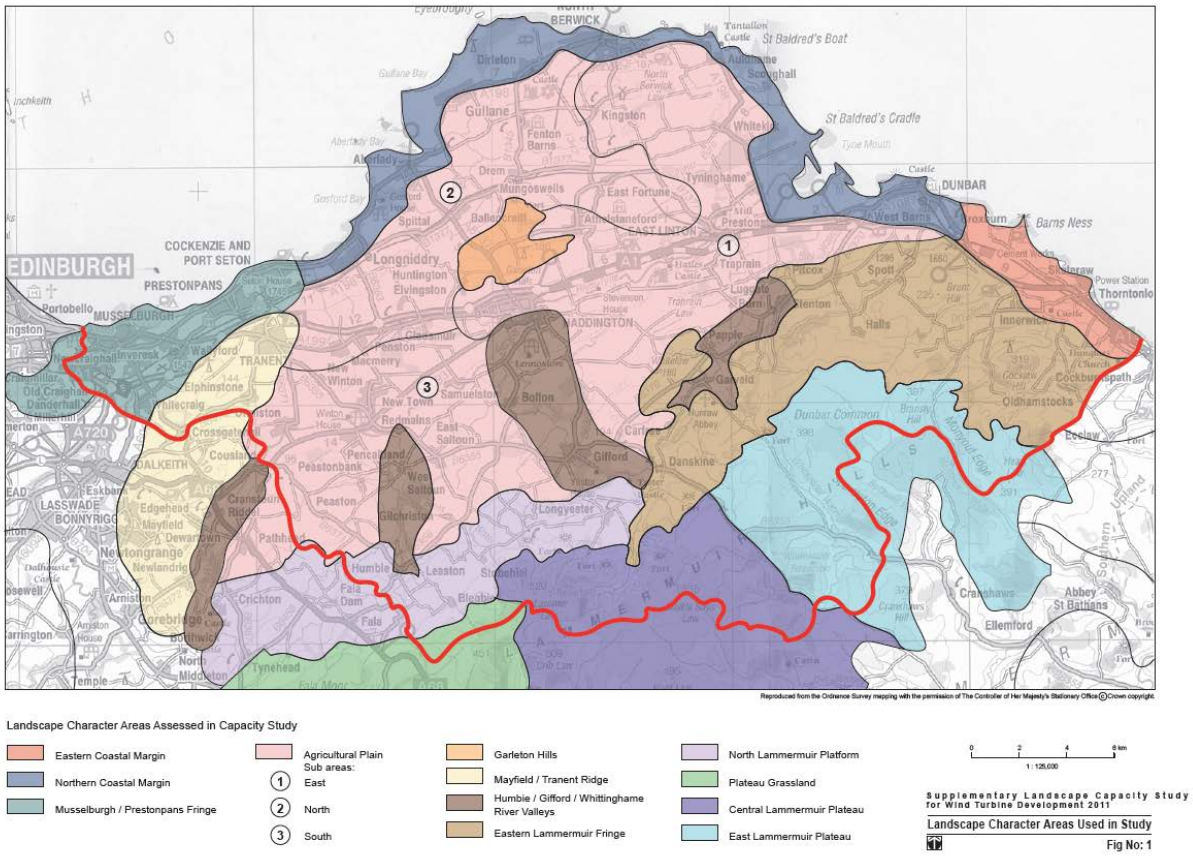

Figure 24 Landscape Character Areas of East Lothian

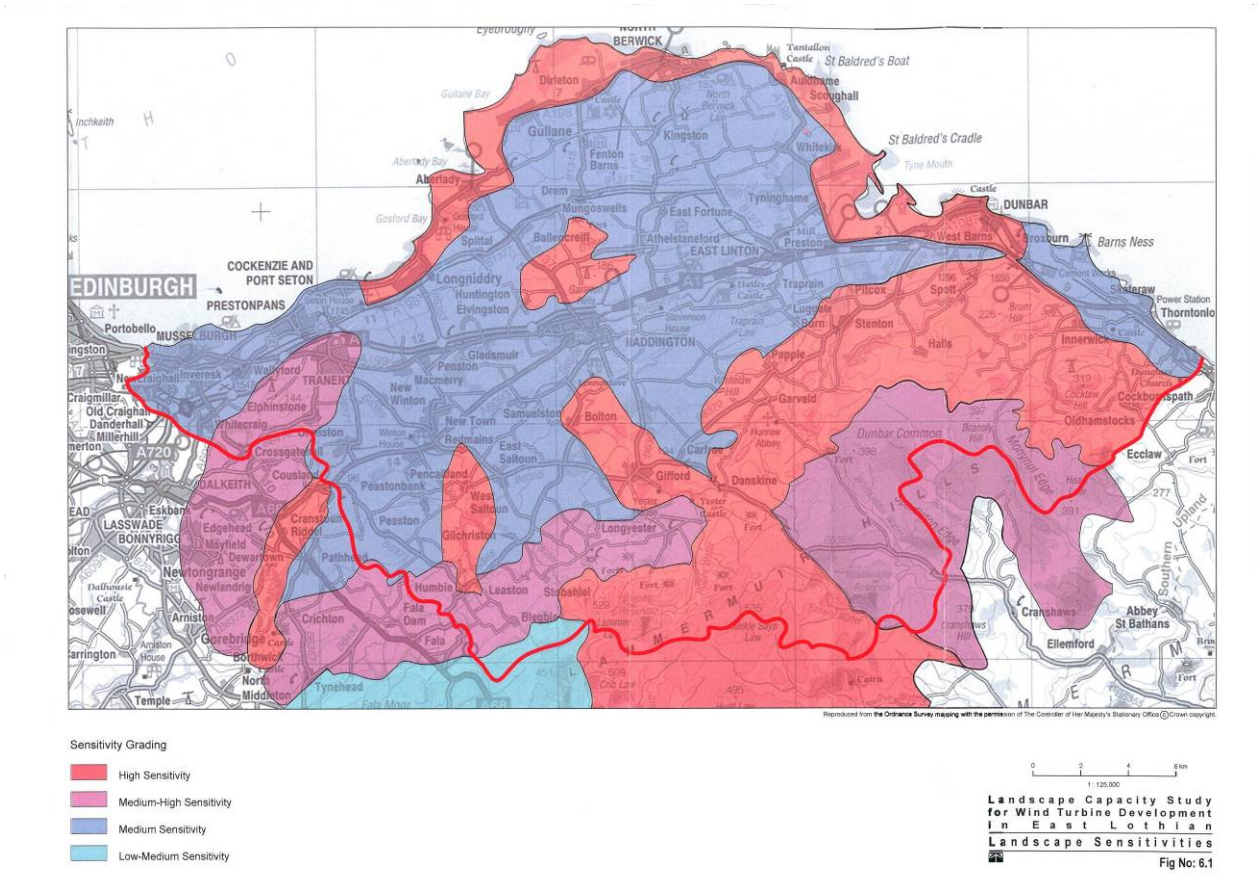

Figure 25 Sensitivity of East Lothian Landscape Areas to Wind Turbine Development

4.76 There is existing wind turbine development in and around East Lothian, along with some consented development which has not been implemented. The pattern has been for large wind turbines (60m and over) to be located in the open, expansive moorland/grassland landscapes of the uplands, with smaller turbines (up to 50m, but generally much smaller) being located in the lowland areas. This pattern of development reflects the scale of different landscape areas. Some areas – the sensitive Central Lammermuir Plateau and the Northern Coastal Margin for example – have thus far not received any wind development.

4.77 The topography, settled character of much of the East Lothian and the height of turbines means that development (other than in particularly sheltered locations) is likely to be highly visible throughout much of the area. This means that issues of cumulative impact will arise sooner rather than later. East Lothian already hosts large scale windfarm development at Crystal Rig and Aikengall, and has consented further medium scale development at Pogbie/Keith Hill. In addition, due to topography, wind development outwith East Lothian can also affect landscape in East Lothian, for example at Dun Law and the consented Fallago Rig, but also further afield.

4.78 Cumulative zone of theoretical visibility (ZTV) diagrams submitted as part of the Environment Statements (for example Crystal Rig Phase 2a) shows that there are few places in East Lothian from where there is no theoretical – and often actual – visibility of at least one, and often more than one, windfarm. With the addition of small scale wind turbine development, those areas without visibility of larger development are increasingly within sight of smaller scale development. The presence of a wind turbine or windfarm in the landscape is not necessarily an adverse effect; perception of wind development does vary. Perception depends on many factors, including the viewers' opinions of the merits of wind energy and landscape value generally. One viewer may perceive large scale windfarm development on moorland as majestic, breaking up an otherwise monotonous scrubby barren land, while another might see it is an industrial intrusion marring an unspoilt natural landscape. Smaller scale development may be seen as providing a feature of

interest, symbolic of an area taking on the challenges of the modern day, while another viewer might see it as a pointless gesture irritatingly distracting the eye from appreciation of the scenic quality of the area.

Wilder land

4.79 Wilder land is partly a landscape issue, but it also has links to cultural heritage and even human health. Scottish Planning Policy notes (paragraph 128) that areas of wild land in some of Scotland's remoter upland, mountain and coastal areas are very sensitive to any form of development or intrusive human activity. SNH note on their website[27] that these "wild and remote areas have a distinct and special character, which is increasingly rare to find". SNH have mapped relative wildness for the whole of Scotland, taking into account the perceived naturalness of the land cover, the ruggedness of the terrain, remoteness form public roads or ferries, and visible lack of buildings, roads, pylons or other artefacts. They have also produced draft maps of wildness, which do not include any areas within East Lothian.

4.80 Figure 26 shows relative wildness in East Lothian in a Scottish context. The scale of wildest to least wild areas is that used across the whole of Scotland, so the areas showing as 'high' are high not only in an East Lothian but also a Scottish context. The map shows where the wildest areas of East Lothian are. These include most of the upland Lammermuir area, with also sections of the coast from Gullane to North Berwick and at John Muir Country Park. There are some smaller areas in the foothills of the Lammermuirs, and even in the generally more developed lowland area. These maps were based on data from before the consent of Fallago Rig and Wester Dod windfarms, which would be expected to reduce the rating of wildness in and around these areas.

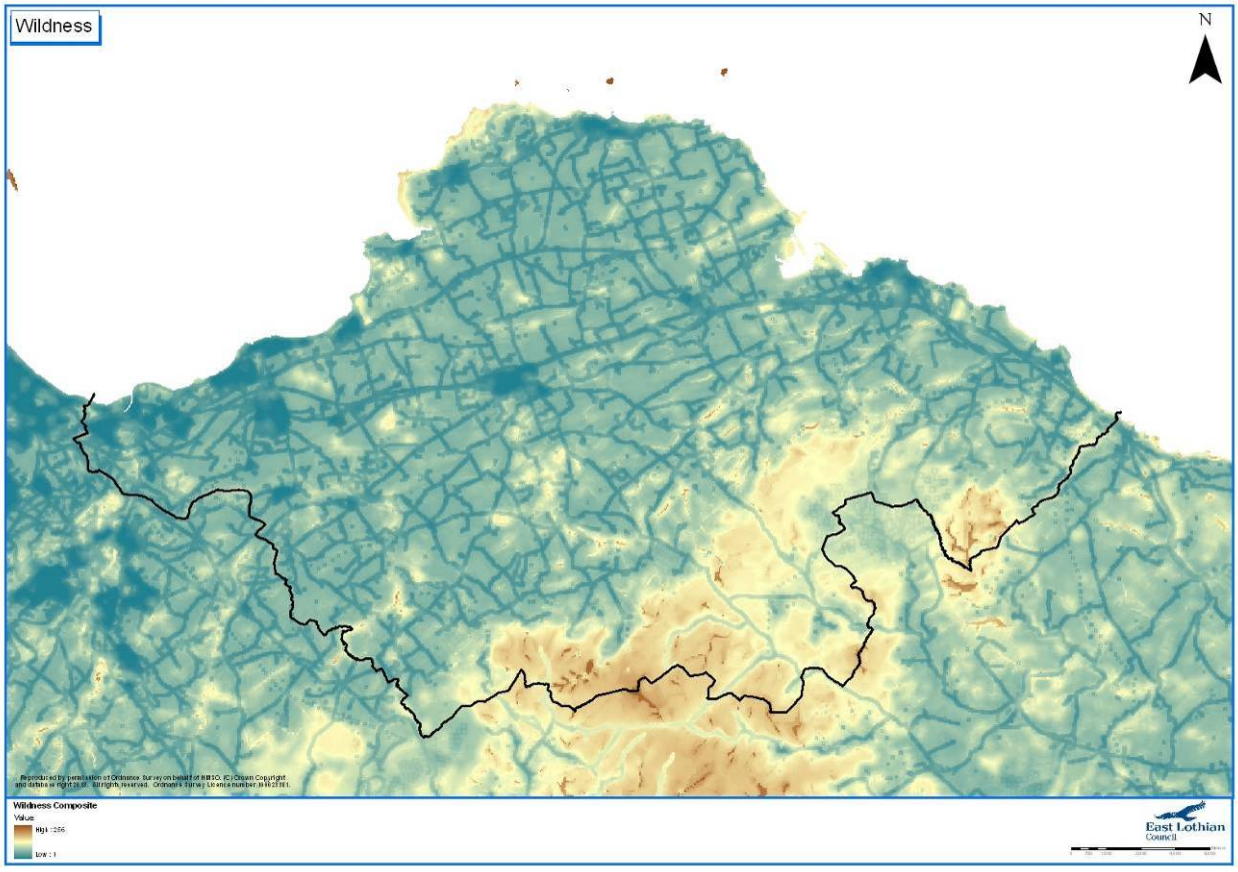

Figure 26 Relative wildness of land in East Lothian (from SNH wildness mapping data)[28]

[27] See http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/landscape-policy-and-guidance/wild-land/

[28] See http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/landscape-policy-and-guidance/wild-land/mapping/

5 ENVIRONMENTAL CHARACTERISTICS OF THE AREA LIKELY TO BE SIGNIFICANTLY AFFECTED

5.1 The SEA regulations require that the environmental characteristics of the areas likely to be significantly affected are described. Large scale windfarm development can affect areas at some distance from the development either through visual impact on a particular sensitive receptor or impact on a species important for a distant SPA for example. However, generally the greatest impact is likely to be felt closest to the site.

5.2 Impacts of current and consented development within the Areas of Search are not described, as these do not arise as a result of this guidance. It is possible but unlikely that two other types of application could come forward there; firstly, as Wester Dod is not yet built, in theory an application for a different scheme than the one proposed could be made. It is unlikely that an alternative scheme on this site would have significant effects beyond those identified for the existing scheme. Secondly, there could be applications for re-powering existing schemes, though this is likely to be beyond the life of the GWOTM. In this case, there would be expected to be the continuation of the existing significant impacts on landscape. There may also be additional significant effects from construction on soil (peat), water (from dust and possible pollution run-off), and consequently biodiversity (due to drainage into the River Tweed SAC). There could also be further significant effects on landscape if re-powering involved larger turbines. However, neither of these things are considered likely to happen in the lifetime of the guidance. It is the intention of the guidance that development does not come forward in the Area of Significant Protection, so impacts of development there are not described.

5.3 Under the guidance, development could in some circumstances come forward in that Area of Potential Constraint (APC) which is outwith the Area of Search and the Area of Significant Protection (referred to below as the APC). The following discussion is based on development coming forward there, which is not certain.

5.4 Figure 28 shows the main designated sites within this area, as well as housing and rare soils. Although the key shows houses, listed buildings and Scheduled Monuments, there are none of those in this area. Figure 29 shows designated sites and housing within 2km and 5km of the site. Impacts on soil and water and many aspects of biodiversity are likely to be greatest within a development site itself, or very close to it. Noise and amenity impacts to residential housing are likely to be greatest within 2km or even closer to the windfarm, but generally less so further afield. While significant effects on landscape can occur a long way from the site, the greatest impact is likely to be within 5km (dependent on topography).

5.5 The areas likely to be most significantly affected by the GWOTM are the APC (at Monynut and around Crystal Rig) as shown on Figure 28 and the Lammermuir Plateau area as shown on Figure 30, the former because development is more likely to come forward there, the second because it is less likely (i.e it is less likely to receive impacts associated with windfarm development). The Plateau Grassland area has not been included as development is already under construction there, so no more or less likely to come forward.

5.6 As the Lammermuir Plateau area is of a reasonable size, had it been allocated as an Area of Search it would seem capable (as a very rough estimate, without the benefit of technical assessment) of accommodating wind farm development of 60MW and upwards, which is likely to replace CO2 emitting generation. This would not now come forward. It is possible that the presence of peat would reduce the amount of CO2 that was mitigated (as development on peat can cause greenhouse gas emissions through drying out of the peat). Although the impact globally is extremely minor, it is likely that a combination of very small actions will be needed to address the problem of climate change. The impact of this is cumulative and global rather than impacting on any specific area.

AREA OF POTENTIAL CONSTRAINT - EXTENSION APPROACH

Figure 27 Area to north of Crystal Rig looking south from path above Deuchrie

5.7 The APC consists mainly of fairly remote (in East Lothian terms) moorland, mainly part of the shallow valley containing the existing Crystal Rig windfarm, but also some steeper scarp faces and valleys in the Monynut area. Underfoot, the area is mainly heathery, though there is some plantation forestry at Monynut, and also some small areas of bog. The area forms part of the backdrop to East Lothian and parts of the Scottish Borders, and the Monynut area is fairly widely visible from the Scottish Borders area. There are some paths through the area, including the historic Herring Road. There is some recreational use of the area for walkers and mountain bikers. It is likely that there are aspects of the cultural heritage that are not recorded, as the Lammermuirs in general is an under-recorded area.

5.8 Figure 28 shows designated sites and rare soils within the Extension O2 area. There are no houses, listed buildings or Scheduled Monuments within the area.

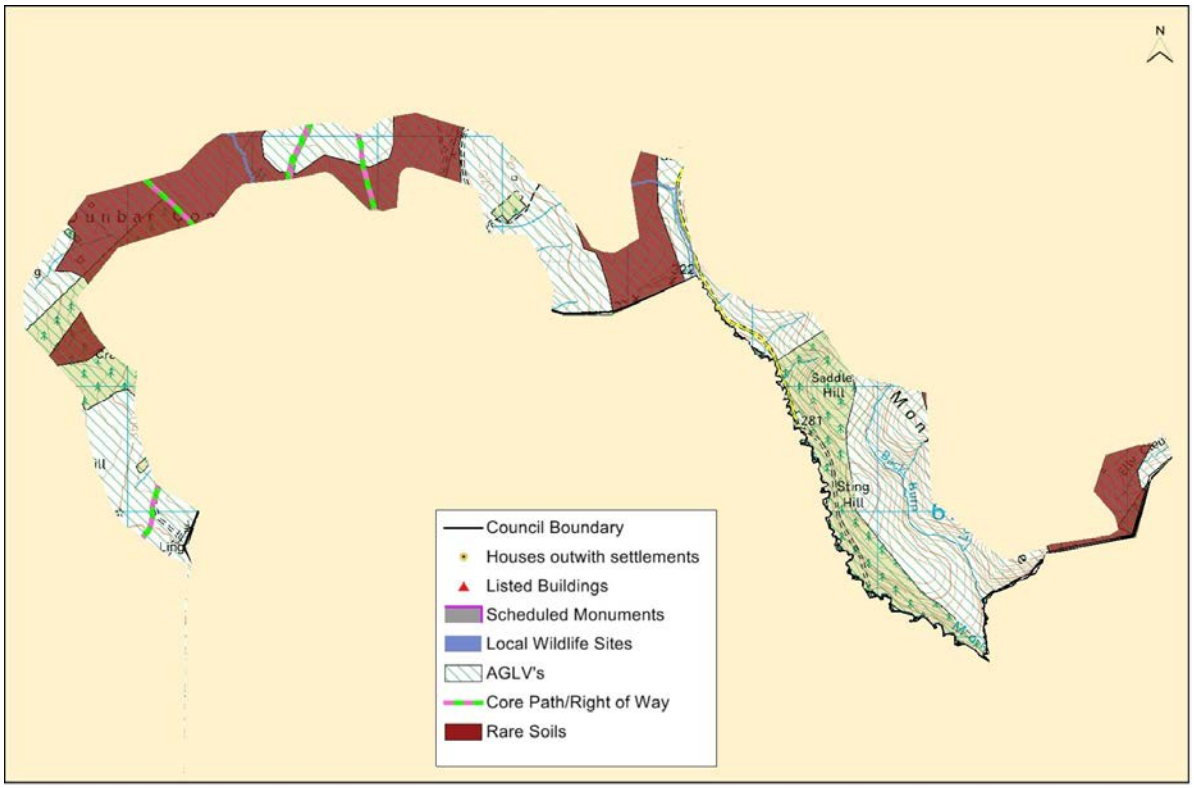

Figure 28: Area of Potential Constraint - Designated sites and rare soils

5.9 Figure 29 shows designated biodiversity, cultural heritage and landscape areas within 5km of the Monynut Area of Search. This distance was chosen as it is the area within which the most significant visual effects are likely, including effects on setting of elements of the cultural heritage. Sites further afield can be seen on Figure 22 above.

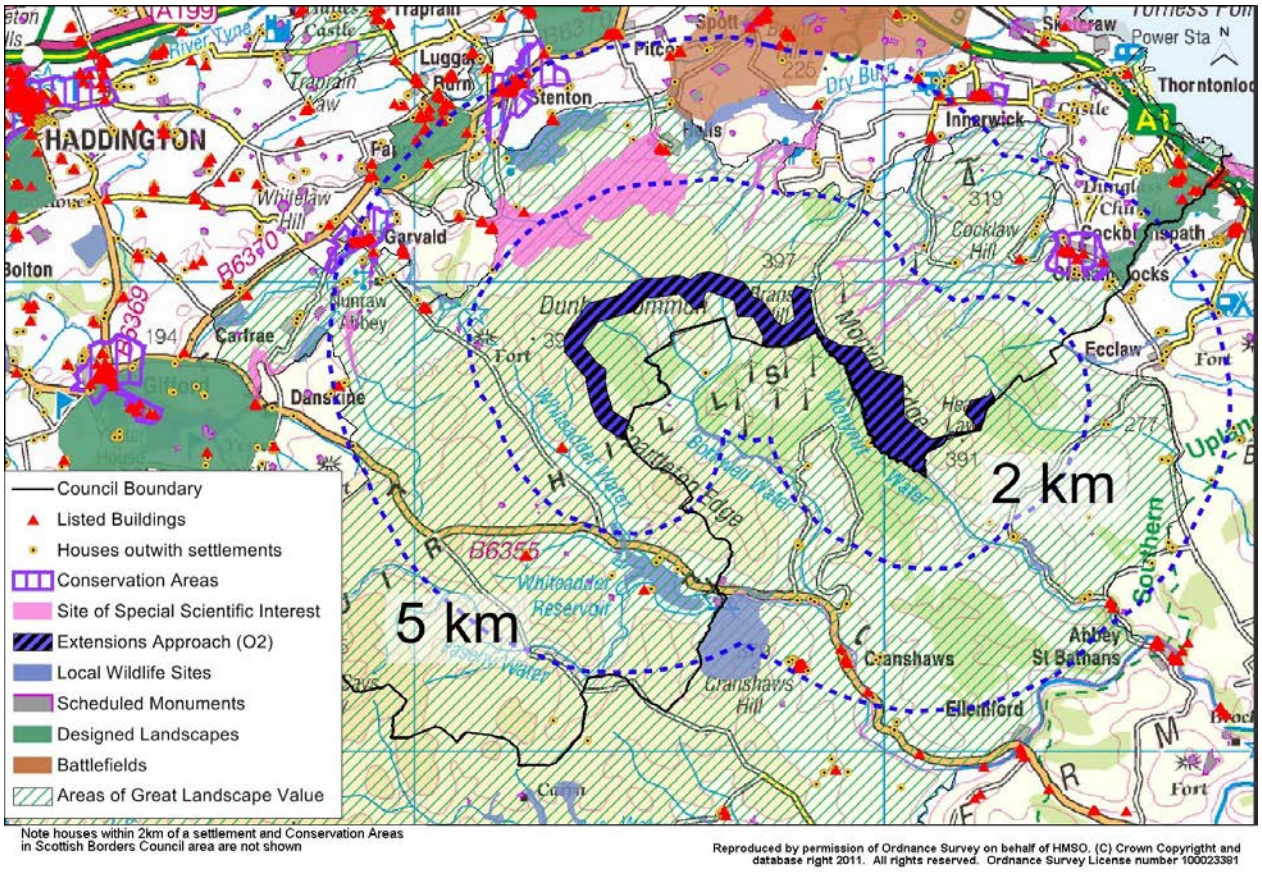

Figure 29 Designated Sites and Dwellings around the Area of Potential Constraint (Extension Approach – O2)

Biodiversity

5.10 There are two Local Wildlife Sites within the APC; Monynut Water and Bothwell Water. Windfarm development could impact directly onto these sites due to the need for access tracks. In addition the sites could be affected indirectly by dust or pollution incidents from a windfarm. These streams also drain into the River Tweed SAC. Silt (from dust) from construction or run-off from paths in storm events could potentially affect the water quality of the SAC and through this its conservation interest. However, good practice in construction should allow any effect to be avoided (see the Habitats Regulation Appraisal for further information on this). There is also a potential effect on the Wildlife Sites through increased disturbance from visitors if tracks were to make the area more accessible for recreation. This effect, if it were to occur, is difficult to quantify. For further information on impacts on Natura 2000 sites, see the Habitats Regulation Assessment.

5.3 Outwith the APC, Lammermuir Deans and Woodhall Dean are both designated as SSSI's for their biological interest. It is unlikely that there would be affects on these SSSI's as the main pathway for an affect would be if a proposal drained into the SSSI, which development here would not do. There are some areas of ELBAP Priority Habitat on the site, which could be directly affected by land take for turbines, roads and other infrastructure. Rammer Cleugh SSSI is within 2km of the APC. It's interest is Upland Oak Woodland and Quaternary geology, neither of which would be affected by a windfarm over a kilometre distant.

5.5 The EIA for Wester Dod windfarm identified a low impact on four Annex 1 birds. Similar impacts are likely across the APC as the habitat is similar. A small part of the area at the north of the APC is within an area the

RSPB mapping shows as of medium sensitivity for birds.[29] There is some area of Black Grouse habitat in the eastern part of the area. Black Grouse may be deterred from using an area due to disturbance from wind farm activity.

5.11 For European Protected Species, the habitat is not generally suitable for bats. Bat surveys undertaken for the Wester Dod EIA found limited bat activity. Bat surveys were not undertaken for Crystal Rig 3 as the habitat was not considered suitable. The habitat is suitable for otter in places and there was some evidence of otter found in the Wester Dod and Crystal Rig 3 EIA's. No other European Protected species were found and this is likely to be the case across the APC.

Human Health

5.12 Noise is the main likely effect from windfarms on human health. There are no residences within the APC. There are some residences that could potentially be affected by noise outwith the area, both in East Lothian and Scottish Borders Council area. The Wester Dod ES identified nine houses for noise assessment for this proposal, namely Middle Monynut, Stottencleucgh, Aikengall, Upper Monynut (a consented dwelling is also near that location), Wester Aikengall, Nether Monynut, Shepherds Cottage and Paitshill. Their ES found that the ETSU noise condition could be met at all of these locations; while this was contested at Inquiry, with the imposition of conditions the Council agrees that it would be possible to meet this condition. The Crystal Rig 3 EIA (which is partially within the APC) considered noise impacts at Moorcock, Deuchrie, Lucknow, Weatherley, Elmscleugh, Wester Aikengall, Crichness and Upper Monynut and reported that the increase in noise from this project would be less than 1dB at each of the properties.

5.13 Access to recreational facilities can also affect human health. Windfarm development could decrease the attraction of an area for outdoor recreation, and if this occurred, some of this recreation may not be transferred to other areas (i.e., there would be a net decrease in outdoor recreation). This could affect both physical and mental health, though the impact is extremely difficult to quantify and could work in the opposite direction, for example if windfarm tracks were opened up to cyclists or made attractive to walkers.

5.14 There are some pathways through the area, such as the Herring Road, and while not as busy as for example the John Muir Way, they are used by walkers.

Soil

5.15 There is some peat within the APC (see Figure 13). Peat is a carbon rich soil and wind development can affect it directly, and also by changes to hydrology. There are also some rare soils in part the area (peat and humus-iron podzols) which could be affected. There is no prime quality agricultural land in this area.

Water

5.16 There are several watercourses in the APC, and the area drains mainly into the River Tweed system (the Monynut, Whiteadder and Bothwell Waters). A small part of the area drains into the Eye Water to the south, while an area in the north drains into Woodhall burn. There is also some standing water in the form of small areas of bog. The SEPA water classification maps[30] show that the Monynut, Eye and Bothwell waters were all classified as 'good' while the Woodhall burn was moderate.

Cultural Heritage

5.17 There are 3 Conservation Areas within 5 km of the APC. Oldhamstocks Conservation Area is a linear village in the valley of the Oldhamstocks burn with rising ground on the north and south sides forming its landscape setting. The village contains listed buildings, including Oldhamstocks Parish Church. Churches are generally designed to appear as the most important structure in their area and so the setting is likely to be wider than for other domestic buildings in the village. There is visibility of windfarm development from Oldhamstocks Conservation Area, including Aikengall and Drone Hill. From the Cockit Hat (to the east of the village) visibility is considerable, but it is less in the lower central area of the Conservation Area. There is also predicted to be visibility of consented wind development at Hoprigshiel and Wester Dod.

[29] See maps at http://www.rspb.org.uk/news/details.aspx?id=tcm:9-179628
[30] SEPA water quality maps at http://gis.sepa.org.uk/rbmp/

5.18 Stenton and Garvald Conservation Areas are also within 5km however due to the landform and in the case of Garvald, surrounding woodland, there is little or no visibility of existing wind development in the core of those areas.

5.19 The Listed Buildings to the north of the area at Thurston Mains are a farmhouse and steading, which are likely to have a more local setting. Dunglass HGDL is heavily wooded towards the west and so has little view of the area. Whittingehame HGDL is also within 5km of the APC; this site is enclosed by policy woodland and while the citation mentions long distance views to Arthurs seat views to the Lammermuirs are not mentioned. There are no Scheduled Monuments in the area though the Lammermuirs are not well recorded and there could be unknown remains of significance. There are three Scheduled Monuments within 5km, two homesteads on Blackcastle Hill, one of which is facing north and probably not intervisible with the area, and an enclosure at Thurston Mains.

5.20 There are no Listed Buildings within the APC. There is only one Listed Building within 2km of it, which is Johnscleugh. Some of the windfarms from Crystal Rig are visible in the view looking towards Johnscleugh from the south. There are around 80 Listed Buildings between 2 km and 5 km, many of which are in villages or small clusters. Many of these listed buildings have little or no visibility of the existing Lammermuir windfarms, for example those in Stenton and Garvald, due to their location in lower lying areas, while much of the existing wind development is on the plateau area shielded from the lower lying areas by topography. Even where the listed building has no visibility of a windfarm however, it may be affected indirectly through views of its setting.

5.21 There are no Scheduled Monuments within the APC. Within 2km of it, there is one at Gamelshiel Castle, Whitecastle Fort, and the Nine Stones and Yadlee Stone Circles. Other than the Yadlee stone circle, which is within the Crystal Rig windfarm, these monuments are at roughly 2 km of the APC. Gamelshiel Castle does not appear to have visibility of existing or consented wind development. Whitecastle Fort has limited visibility of Crystal Rig; the turbines of Phase 2a were designed with the intention of limiting visibility from this Fort to 10m of blade tip. Four turbines were removed from the consent to Crystal Rig 2 to protect the setting of Yadlee Stone Circle. Nine Stones Stone Circle has visibility of Crystal Rig (all phases), Aikengall, and Wester Dod.

5.22 Between 2km and 5km there are around 40 Scheduled Monuments. Some of these are for example sheepfolds or enclosures, which do not have an extensive setting. However, there are also several Forts, for which outlook is an important part of their interest.

5.23 Dunbar 1 Battlefield is also within 5km of the APC boundary.

Landscape

5.24 The APC falls entirely within the East Lothian Lammermuir AGLV. The AGLV was designated for scenic attraction. Although this area is not greatly visited, it is widely visible as a backdrop in more distant views both from the East Lothian plain and Scottish Borders Council area. It is part of an undulating plateau of generally wild, heathery moorland with occasional grassy or boggy parts.

5.25 There are likely to be direct landscape impacts on this area and indirect impacts on areas further afield. Direct effects result from large scale windfarm development on a site without such development (although there is wind development nearby at Aikengall and Crystal Rig). They result from the wind turbines themselves, and associated infrastructure such as tracks, anemometers, control housing &c. Direct effects include a loss of scenic attraction to some viewers; an increase in the degree of modification and loss of remoteness; alteration to perception of landform and scale and cumulative impact with other development. Indirect effects include effects on the skyline from both East Lothian and the Scottish Borders Council Area; alteration of views of the landscape character area; impacts on adjacent landscape character areas.

5.26 There will be an impact of loss of wilder land; according to the SNH mapping, the Monynut area contains some of the wildest land in East Lothian, and it is also wilder in a Scottish context. However this mapping was based on data collected prior to the consenting Wester Dod, so this might be judged as less wild now.

LAMMERMUIR PLATEAU AREA

5.27 The Lammermuir Plateau contains the largest area of wilder land in East Lothian. It is an open, expansive landscape, consisting of an undulating plateau with broad ridges and rounded hills, with occasional sheer sided narrow valleys, as well as a broader valley leading into the Whiteadder. It is sparsely populated, with roads generally routed through valleys. The power line from Torness is prominent, as is existing windfarm development in the area. The Lammermuirs are important in forming the backdrop to East Lothian. It is covered by AGLV designation, as well as containing Lammer Law SSSI. Figure 30 shows the main designations in and around the Lammermuir Plateau area, as well as addressable properties. Figure 31 Lammermuir Plateau Approach (O3) area; Designated sites, houses and rare soilsshows designated sites, houses and areas of rare soil within the Lammermuir Plateau approach area itself.

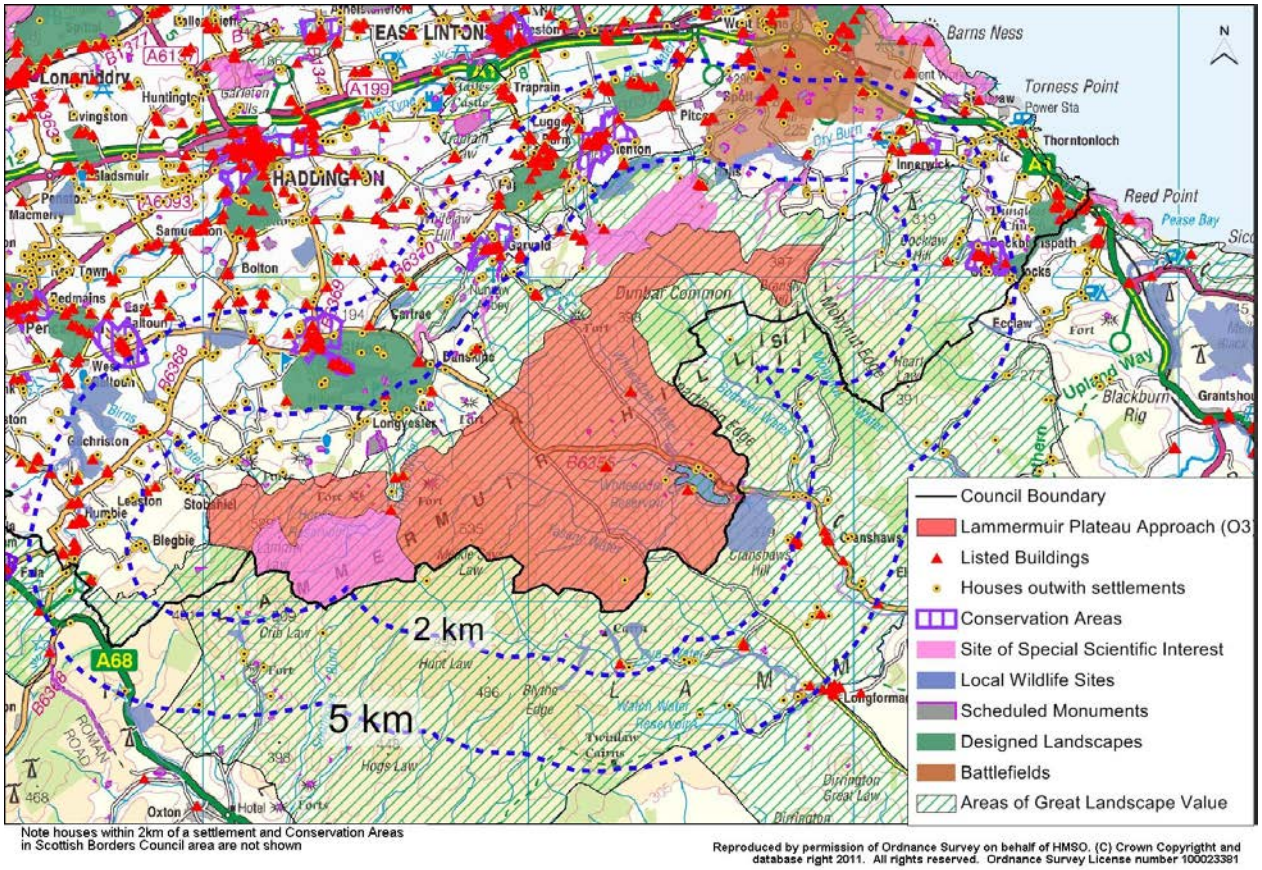

Figure 30 Lammermuir Plateau Approach (O3) – see paragraph 7.12

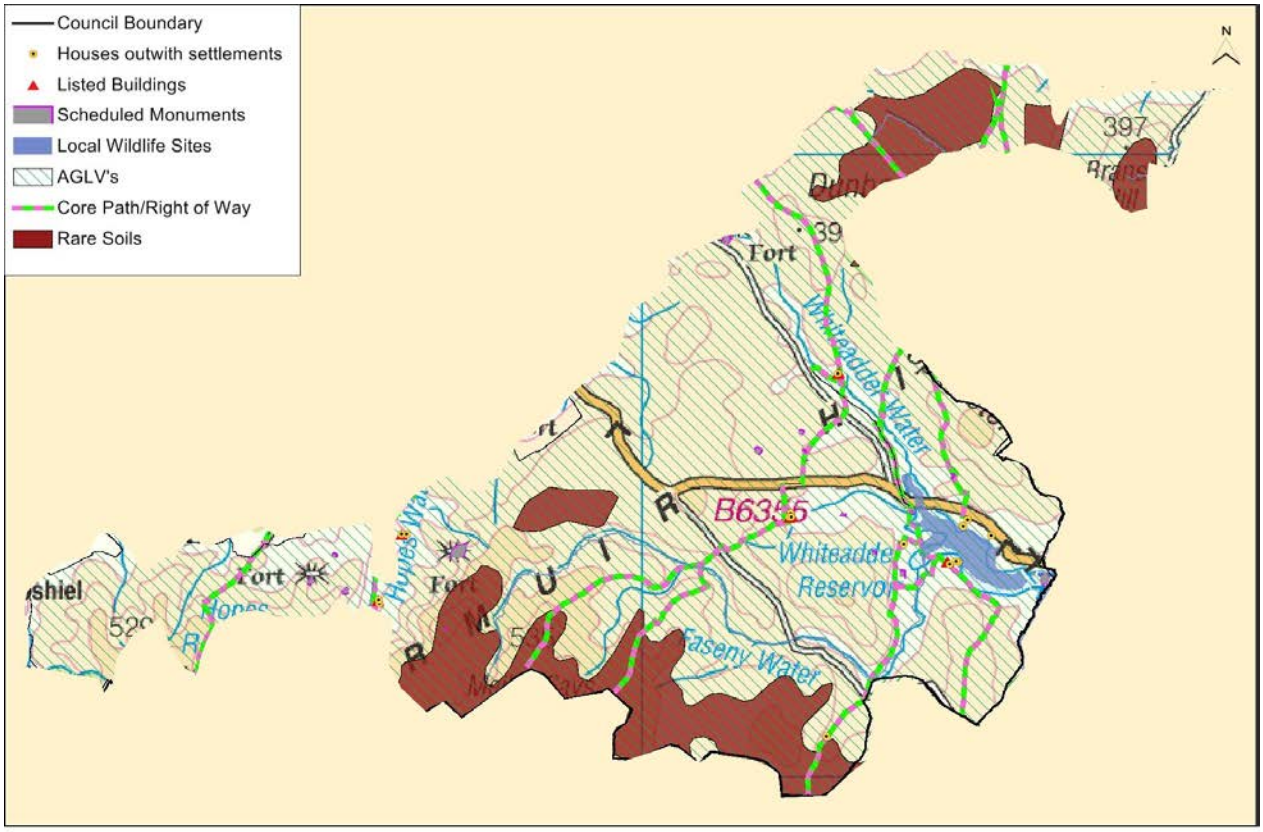

Figure 31 Lammermuir Plateau Approach (O3) area; Designated sites, houses and rare soils

Biodiversity

5.28 Biodiversity in this area would be protected from the adverse impacts of windfarm development. This is likely to mainly benefit Black grouse which require open moorland habitat and are known to be particularly affected by windfarm development. It could also benefit Annex 1 and other bird species in the area. The baseline is not likely to alter from where it is at the moment, though windfarm development can bring opportunities for habitat development which might benefit other species and this opportunity would be lost. Priority habitat in the area will be less likely to be affected by windfarm development.

Human Health

5.29 In terms of noise, there are very few noise sensitive properties within this area. It is expected that at project level, conditions would be imposed to protect residents of nearby noise sensitive properties from noise, and it would be possible to design development to meet this condition. The noise sensitive properties that are there however are likely to enjoy below average noise levels currently.

5.30 Parts of this area are popular for outdoor recreation, including the area around Hopes and Whiteadder Reservoirs, and Lammer Law. There are several paths which cross this area, some of which are well used. There could be alterations to the use of this area; at the moment (anecdotal evidence) it is used by walkers, cyclists including off-road cyclists, and birdwatchers. Some of these people might have been put off by the presence of a windfarm here; however others may have been encouraged to visit.

Soil

5.31 Parts of this area contain rare soil, namely peat and humus iron podzol. Development on peat could lead to loss of stored carbon, but it would also lead to the loss of a soil resource which although renewable, does take a long time to renew. This resource is less likely to be developed and lost. There is no prime agricultural land in this area.

Water

5.32 Windfarm development could have impacts during construction and operation on water quality however this should in practice be avoidable by good practice in construction at project level, though a level of risk is likely to remain. It is possible development might also lead to unforeseen changes in hydrology. These impacts are less likely as this area is less likely to be developed.

Cultural Heritage

5.33 The baseline would not alter from what it is at the moment. Elements of the cultural heritage that might have been subject to impacts from development would remain as they are.

Landscape

5.34 The landscape of this area is open moorland and rough grazing interspersed with more intimate stream valleys. The landscape is valued in providing a natural and wild seeming moorland and hill area close to centres of population. Despite the existing level of windfarm development in this area, which is considerable, due to the topography there are still areas where this is not apparent. Development in Scottish Borders area could affect this area as well as development here. However, the landscape would be likely to remain broadly unchanged by windfarm development. This part of the Lammermuir AGLV would be protected. The wilder land characteristics of this area would remain.

6 ENVIRONMENTAL PROBLEMS

6.1 The Environmental Report is required to include a description of existing environmental issues, in particular those relating to areas of particular environmental importance. The purpose of this section is to explain how existing environmental issues will affect or be affected by the GWOTM, and whether the PPS is likely to reduce or otherwise affect existing environmental issues. This cannot be predicted entirely, as the effect of the GWOTM on planning applications, both in terms of their determination and which projects are brought forward, is necessarily speculative.

6.2 The Framework is not of itself the source of any environmental impacts. Its function is to guide windfarm development to the areas of least environmental impact, and impacts will depend on what projects do actually come forward. Environmental Issues relevant to large scale windfarm development in East Lothian were identified through the scoping process and are shown in Table 13 below, along with the GWOTM response.

Table 13 Existing Environmental Issues

Problem	Supporting data (where available at this stage)	GWOTM response
Biodiversity: Cumulative effects of wind development on biodiversity	Evidence that Black Grouse are affected by wind turbine development and may be displaced by it; cumulatively there may be insufficient habitat remaining to support a viable population. There may be an affect from wind turbine development on the Pink Footed Geese, which are a qualifying interest for the Firth of Forth and other nearby SPA's.	*The GWOTM has identified Natura sites and SSSI's, as well as the most sensitive area for cumulative impact on Black Grouse and included these in the Area of Significant Protection. Advice on impacts on Natura 2000 interests which might occur from development outwith these areas has been included Mitigation at project level is likely to be sought where applications do affect these species.*
Human Health: noise from windfarms	A neighbouring authority has received complaints over noise from an existing windfarm.	*The GWOTM identifies and maps communities and caravan sites as a potential constraint and notes noise as one of the reasons for this. It refers to ELLP policy on noise. Advice is also given referring to Planning Advice Note 1/2011 and the Technical Assessment Note on noise for information.*
Soil: loss of prime agricultural land to development	Development pressure has led to the loss of prime agricultural land to development.	*All of East Lothian's prime agricultural land is included in the Area of Significant Protection*

Problem	Supporting data (where available at this stage)	GWOTM response
		(though for other reasons).
Soil/climate change: development on peatland	Developing on peatland can lead to loss of this resource, both through construction impact and changes to hydrology. Peat stores carbon, so this can reduce the benefits of wind as a low-carbon energy source. It can also contain biodiversity and archaeological remains.	*Most of the areas of peat have been included in the ASR (though for other reasons). The GWOTM highlights Scottish Government advice on payback calculations for peat and states that developers would be expected to take this into account.*
Cultural Heritage: development on battlefields	Like other elements of the historic environment, battlefields are a fragile and finite resource, vulnerable to a range of impacts including from development, which can reduce their value and potential.	*The GWOTM maps Battlefields as a potential constraint and notes that Historic Scotland's policy on battlefields is a material consideration.*
Landscape: Cumulative effects of wind development on visual amenity	EIA statements from existing development analyse cumulative impacts. The level of cumulative impact for these developments has been accepted but the LCS notes that impacts may start to occur with further development.	*The GWOTM has identified where cumulative limits to development have been reached and incorporated this into the ASR. This has been done with reference to the LCS and professional judgement of qualified planners and landscape architects.*
Landscape: Cumulative effects on landscape including loss of wilder land	EIA statements from existing development show cumulative impacts. This has so far been accepted but the LCS notes that impacts may start to occur with further development. Existing development and consents have already and will further reduce areas of wildness in East Lothian.	
Landscape/biodiversity; Lack of tree cover compared with natural levels	The area of woodland has been increasing in Scotland in recent years (though not in East Lothian), however it is still not near its natural coverage.	*The GWOTM refers to Scottish Government Policy on Control of Woodland removal and notes that it is a material consideration for decisions on planning consent.*
Climatic factors: Climate change	Climate Change Act 2009 notes that reductions to carbon dioxide emissions require to be made based on scientific evidence of the International Panel on Climate Change.	*The GWOTM aims to show where development is and is not likely to be acceptable. This may help developers to concentrate on proposals where consent is most likely, helping the wind industry as a whole develop. Where it was not certain if cumulative limits had been reached or not (some areas of the APC) the GWOTM has not included them in the ASR.*

6.3 Objectives for SEA were chosen to help assess the impacts of the alternative. These objectives have been chosen to relate to existing environmental issues, and the aims of other policies and plans.

Table 14 SEA Objectives

SEA Topic	SEA Objectives	SEA Indicators
Biodiversity	Protect the interest of Natura 2000 sites Protect Annex 1 species Preserve populations of European Protected Species (EPS) Protect habitat suitable for Black grouse from windfarm development	Will the approach conserve and enhance Natura 2000 sites? Will the approach conserve Annex 1 species? Will the approach preserve populations of European Protected Species? Will the approach protect habitat suitable for Black Grouse from windfarm development?
Human Health	Protect people in their homes from the effects of noise	Will the approach protect people in their homes from the effect of noise?
Soil	Protect peat and rare soils Protect Prime Agricultural land	Will the approach protect peatland and rare soil? Will the approach protect prime agricultural land?
Water	Protect the water environment	Will the approach allow protection of the water environment?
Climatic factors	Mitigate climate change	Will the approach help achieve Scotland's targets on producing energy from renewable sources?
Cultural Heritage	Preserve historic buildings and other culturally important features, including their settings	Does the approach preserve historic buildings and other culturally important features, including their settings?
Landscape	Protect important features of the local landscape including the Lammermuir skyline, undeveloped moorland, feature hills and the coast.	Does the approach protect the local Landscape resource?
Landscape/Cultural Heritage/Human Health	Preserve some areas of wilder land in East Lothian	Does the approach preserve some wilder land in East Lothian?

ALTERNATIVES

7.1 The GWOTM has followed the methodology set out by Scottish Ministers in SPP and web-based guidance. The range of alternatives considered was therefore limited as the GWOTM should conform to SPP and have regard to web-based guidance. The requirement to identify Areas of Search, Areas of Potential Constraint and Areas of Significant Protection comes from SPP. It is policy contained in that document which states that some areas require significant protection, some areas have constraints where proposals should be considered against identified criteria, and that in Areas of Search, proposals should be supported. No alternatives to how areas should be treated themselves were considered, as this is set out in SPP. Where alternatives were considered is in the mapping of the areas, and in which constraints should be included, which is discussed below.

7.2 The GWOTM also contains references to three Scottish Government policies or procedures which have been produced since the ELLP 2008 was adopted. These are Historic Scotland's Policy on Battlefields, the Scottish Government's Policy on Protection of Peat and Avoidance

of Carbon Emissions, and their Policy on Control of Woodland Removal. It notes that these will be material considerations

7.3 The following matrix (Table 15) assesses each aspect of the GWOTM which could be considered new guidance for East Lothian against the EIA topics, although they are constrained by higher level policy. The table shows '+' for a positive effect on the topic; = for neutral; '--' for adverse impact; and ?? for where the effect is uncertain, with some commentary on the reason for the judgement.

Table 15 Guidance Assessment Matrix

GWOTM Ref / SEA Topic	Identifying Areas of Significant Protection	Identifying Areas of Potential Constraint	Identifying Areas of Search	Reference to Protection of Battlefields	Reference to Protection of peat and avoidance of carbon emissions	Reference to Control of Woodland Removal
Biodiversity (Natura 2000 sites, Annex 1 species, European Protected Species, Black grouse habitat)	+ Protects Natura 2000 sites and SSSI's	= development in the APC could potentially impact the River Tweed SAC but is controllable at project level (see Habitats Regulation Assessement) .	= AS identified reflect existing development/ consents. Impacts on this interest through re-powering application would be controlled at the project level	=	+ helps protect peat as habitat	+ protects valued woodland outwith designated areas and supports habitat connectivity; should help bats; woodland edge in the right place can also help support Black Grouse
Human Health (noise and shadow flicker; also outdoor recreation)	=	=/+ the mapping of the APC identifies communities; the area which is only APC avoids communities and households: potential impacts are controllable at project level	= as above	=	=	+ indirectly may encourage outdoor activity by preservation of woodland for recreation
Soil (peat and rare soils)	+ areas of peat are, though not for that reason, included in the ASP.	-- the APC does contain areas of mainly shallow peat which could be affected by development	- there are rare soils on the Area of search (peat and humus-iron podzol which could be affected by re-powering applications	+ protects soil which might contain archaeological remains	+ protects peat as a rare soil	+ will help avoid erosion of soil from woodland removal
Water	+ Protects Natura 2000 sites	--/= development within the	--/= re-powering could affect water	=	+ helps retain existing hydrology	+ will help avoid pollution through run-off

		APC could affect water quality but this would be controllable at project level by good practice	quality but this would be controlled at the project level			by retaining woodland needed for water catchment control
Climatic Factors (carbon dioxide equivalent emissions)	-- Restricts wind development	+ the identification of an APC allows development subject to criteria	= supports wind development but in areas that are already developed/consented	-- may restrict wind development	+ avoiding developing where there will be carbon losses is positive	+/-- provides for replacement woodland where development goes ahead however where valued woodland prevents development this could lead to greater emissions
Cultural heritage	+ many elements of the cultural heritage are within the ASP	+ many elements of the cultural heritage have been identified as potential constraints.	--/= repowering could have greater impact on cultural heritage through greater height of turbines however this is unlikely in the lifetime of this guidance	+ protects battlefields	+ peat lands is the traditional land cover and also may contain unknown remains	= will help to protect woodland which is part of a historic landscape
Landscape	+ Protects Green Belt and areas which have reached the cumulative landscape and visual limits	+ identifies Country Parks, Local Nature Reserves and golf courses as a potential constraint	--/= as cultural heritage	+ protects battlefields as historic landscapes	+ peat is the natural land cover in some parts so is likely to be a valued part of the landscape	+ East Lothian does not have high levels of woodland cover so woodland is likely to be a valued part of the landscape

7.4 At that time of drawing up the Scoping Report, it was not envisaged that there would be much room for consideration of alternatives in applying the guidance of Scottish Ministers, so the alternatives suggested at that stage were of drawing up the GWOTM, or doing nothing. In producing the draft GWOTM, it became apparent that there were some choices to be made. The online guidance stated that variations to the approach set out would be acceptable where this was justified. Firstly, an attempt was made to identify those factors that are considered so important locally that development would be very unlikely to be consented there, in addition to those listed specifically in the online guidance and SPP. It was thought this would be of help to developers. These factors included the northern coast and the volcanic hills, which were included in the ASP.

7.5 The second choice was around how to identify and map those areas where significant protection was appropriate due to cumulative limits being reached. This was done through a series of site visits and discussions among planners and landscape architects of the Council, along with examination of information submitted for windfarm applications. It culminated in the view that due to East Lothian's topography and the extent of existing windfarm development both within and outside the area, that cumulative limits had been reached in most areas.

7.6 Thirdly, the types of area to be included as potential constraints were considered. The draft included some non-designated areas, which were nonetheless thought important and in practice, constraining. These included areas of native and near native woodland, tree preservation orders, areas included in the Councils Coastal Tourism Strategy, and individual addressable properties. However, it did not apply the Area Great Landscape Value designation in what was the Area of Search, in recognition of the fact that there was a windfarm application there to which the Council had not objected.

7.7 During the consultation process, the Scottish Government, while stressing that it was for the Council to interpret SPP, stated that the intention had been to produce a broadly consistent approach across Scotland, and that they considered that the approach should be more designation driven. SNH also stated that they did not support the conclusions of the draft that cumulative limits had been reached in all the areas shown, and that there might be some scope around existing windfarms. Representations were also received from the wind industry that existing windfarms should logically be included in an Area of Search. Just after the publication of the draft, Wester Dod windfarm received consent, with 3 turbines close to Oldhamstocks removed, and shortly after this, applications at Hoprigshiel and Ferneylea were approved. The approach taken in the draft is therefore no longer considered reasonable. Following the advice of the Scottish Government, the designations listed have now been strictly applied. This has led to alteration in the Area of Search. It also means that the factors listed above (native and near native woodland &c) have not been taken into account in mapping the APC. In practice this has made very little difference as they are in general overlaid by ASP.

7.8 It is accepted that existing windfarms should be classified as Areas of Search, as in these areas clearly the constraints which were 'potential' are considered to have been overcome. This has led to the identification of further 'Areas of Search' (though the opportunities there have already been found). Conversely, the area which was included as an Area of Search (the area around the Wester Dod windfarm application bounded by Aikengall windfarm to the north, the boundary with SBC to the west and south, and the East Lammermuir Plateau Character Area to the east) has now, other than the consented Wester Dod windfarm, changed its status. The part to the west is APC, as the Scottish Government made it clear that the approach should be designation driven, and the area is covered by AGLV designation. The area to the east is, following the consenting of both Wester Dod and Hoprigshiel/Ferneylea, considered to have reached cumulative limits. No alternative in this area is considered reasonable.

7.9 The main reasonable alternatives were in deciding where the limits of cumulative development had been reached. It was clear early on that there was a distinction between the upland and lowland areas. The upland areas had already received considerable development, either within them or close to them. Large scale wind development by its nature can be a defining feature of a landscape. Because it was already so strongly associated with upland areas in and around East Lothian, and because of the amount of smaller scale development already in the lowland area, it was considered that development of this nature in the lowlands would not be acceptable for cumulative reasons. This is considered one of the strongest cumulative limits. Breaching this is not considered a reasonable alternative.

7.10 The upland areas of East Lothian consist of the Plateau Grassland, Central Lammermuir Plateau and East Lammermuir Plateau LCA's. Before the GWOTM was finalised, planning consents were issued in Plateau Grassland area at Pogbie and Keith Hill, and construction has now started on the Pogbie site. Refusal of a larger scheme at Keith Hill was previously upheld at appeal, so it is unlikely that if the current scheme is not taken forward, that a scheme of 12MW or greater would be consented at that site. The rim of the scarp is a clear limit to the edge of development, and there are technical challenges with the slope on much of the remaining area. Those parts of this area containing windfarm consents have been shown as

AS; other than this they are included in the ASP, for reasons set out in the GWOTM. This is considered to be the only realistic option for this area.

7.11 That leaves that area of undeveloped East Lothian Lammermuir Plateau (the Central and Eastern Lammermuirs Plateau in the LCS) excluding Rammer Cleugh SSSI, which is automatically in the ASP. The question is what weight should be given to different cumulative issues, and so which parts of this area should be included in the ASP. The reasoning for the decision to include most of it is set out in the GWOTM. Scottish Ministers in their guidance recognise that areas where cumulative limits have been reached should be protected. However, the judgment on when this has occurred is for planning authorities to make. The area could not be an Area of Search, as it is within the East Lothian Lammermuir AGLV; but if cumulative limits were not thought to have been reached, it would not be included in the ASP. As represenatations from the wind industry during consultation note, the East Lothian Lammermuirs are a good area technically for wind development, and therefore careful consideration of this area should be made.

7.12 As there are many aspects of cumulative limit, the weight given to each could lead to a variety of possible limits to the ASP. For the purposes of the ER, three options have been chosen to show the impact of different choices. The Options are shown in Figure 32 below. **All** options include existing windfarms as Areas of Search, so the Options are:

- Option 1: All other areas are included in the Area of Significant Protection ("Whole East Lothian Approach")
- Option 2: All other areas except the area around existing eastern East Lothian windfarms is included in the Area of Significant Protection, with the remainder as an Area of Potential Constraint ("Extensions Approach").
- Option 3: All other areas except the East Lothian Lammermuir Plateau are included in the Area of Significant Protection; the East Lothian Lammermuir Plateau and the Option 2 area are defined as Area of Potential Constraint ("Lammermuir Plateau Approach").

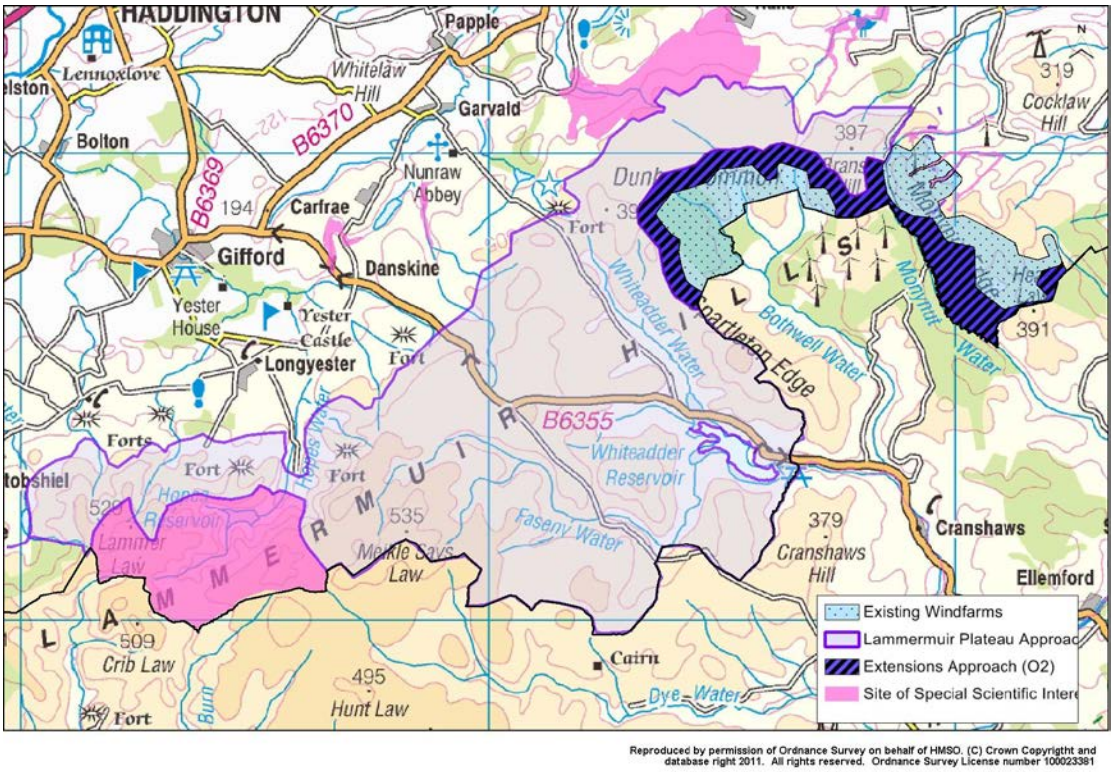

Figure 32 Map of Alternatives

7.13 The three main alternatives are described in Table 17 below as O1 – Whole East Lothian Approach, O2 – Extensions Approach and O3 – Lammermuir Plateau Approach. As O3 Lammermuir Plateau Approach includes O2 Extensions Approach, plus an additional area, if there is an impact on the baseline from O2, it will also be an impact from O3. The additional impacts of the inclusion of Lammermuir Plateau Area are not shown separately but should be apparent from the text.

7.14 Table 17 shows the likely effect of each alternative against the SEA indicators. The overall effect is given as Adverse, Uncertain, Neutral, or Positive. An indicator is marked as adverse where there is expected to be some adverse impact, however slight. A neutral effect is identified where the approach does not affect the receptor in either a positive or a negative way. Sometimes effects are uncertain, as when an effect is dependent on how site specific development comes forward, or when it is not known how wind development would affect a receptor generally. An effect is positive when beneficial effects on the indicator are likely.

7.15 The options are compared against both the current baseline (including consent at Wester Dod) and the predicted future position without the GWOTM. The second two options comprise both a permissive element (inclusion in APC, where development is supported subject to meeting criteria) and a protective element (Areas of Significant Protection). For example O2, the chosen option, indicates that the area around existing eastern windfarms may be suitable for development subject to certain criteria, while the rest of East Lothian should be subject to significant protection due to cumulative impacts. Option 1 comprises only a protective approach.

7.16 Comparison against the current baseline looks at the impact of development in each area; the aim is to pick out the effects of development. The resultant protective effects in other areas are not considered as a change to the current baseline. So if for example the cultural heritage was not expected to be affected by development coming forward under an option, if that is compared against the current baseline, the effect is marked as neutral as it has not improved the cultural heritage in any way. However if there is no impact on a receptor this is marked as positive when compared against what is thought likely to happen in the future without the GWOTM, if it is thought that that receptor would have been adversely affected otherwise.

7.17 For the purposes of SEA, the predicted future position assumes that there would be around 2 relatively small (not much above 12MW) windfarms somewhere in the East Lothian lowlands, and development at both the area identified in the GWOTM as APC and within the Lammermuir Plateau approach area. Had cumulative limits not been identified and described as Areas of Significant Protection, development is considered likely to have come forward in those areas. Multiple large scale windfarm development in the lowland areas or Plateau Grassland is thought to be unlikely due to the existence of other potential and practical constraints. For assessment of impacts, this means that for example, an impact might be marked as positive even though it has adverse affects, as when compared against what would have happened without the GWOTM, it is better. This means an impact would be rated as positive where harm is avoided.

7.18 The extent of the impact is judged using a combination of the magnitude of the impact and the sensitivity of the receptor. The magnitude of the impact is High, where there is a complete loss or major change to elements of the baseline; Moderate, where there is a partial loss or change; low, where there is a small change, and negligible where there is a very slight change. The sensitivity of the receptor is determined by its importance internationally, nationally or locally, its rarity and its value, and is rated as High, Medium or Low. This is shown in Table 16.

Table 16 Significance Matrix

Magnitude / Sensitivity	High impact	Moderate impact	Low impact	Negligible impact
Highly sensitive	Significant	Significant	Potentially significant	Not significant
Medium sensitivity	Significant	Potentially significant	Not significant	Not significant
Low sensitivity	Potentially significant	Potentially significant	Not significant	Not significant

7.19 Where an impact is potentially significant, the probability, duration, frequency and reversibility of the change are considered in looking at whether or not an effect is significant. A judgement has then been made on whether the effect is actually significant. The judgement of significance, against the predicted future without the GWOTM is imprecise as it depends on whether and where development would have come forward which is impossible to predict with certainty. The overall comparison of the options is shown in Table 18 below.

Table 17 Option Comparison against SEA Indicators

SEA Indicators	Option 1 (O1): The Whole East Lothian Approach	Option 2 (O2) The Extensions Approach	Option 3 (O3) The Lammermuir Plateau Approach
Will the approach conserve and enhance Natura 2000 sites?	**Yes.** O1 identifies Natura 2000 sites as ASP. The approach would restrict further development so there is no risk to Natura 2000 sites.	**Yes.** Some areas drain into the River Tweed SAC, and this is only pathway for an impact. Habitats Regulation s Assessment shows that it is possible to take this approach without harming Natura 2000 sites subject with the application of good practice at the project level. A slight risk from human error or unforeseen incident could not be totally ruled out however. This would mainly be a risk for the River Tweed SAC, but it is considered low. Development in the areas used by birds from the Firth of Forth and Forth Islands is avoided.	**Yes.** As O2.
Overall effect of each approach compared with baseline	**Neutral** The approach does not envisage further development.	**Neutral** (low or negligible impact on high sensitivity receptor)	**Neutral** (low or negligible impact on high sensitivity

			receptor)
Overall effect compared to predicted future with no guidance	**Positive; potentially significant; not significant** Windfarm development affecting the SPA could have come forward though not such as to have a significant effect due to the need to meet the terms of the Habitat Regulations. This option avoids a Low magnitude effect on High receptor.	**Positive; potentially significant; not significant** As O1	**Positive; potentially significant; not significant** As O1
Will the approach conserve Annex 1 species?	**Yes** The approach restricts further development.	**Yes** The EIA for Wester Dod windfarm identified a low impact on four Annex 1 species. This is likely to be the case across O2. Due to the restricted area, a fair amount of habitat for these birds would remain.	**Uncertain but probably no.** The Fallago Rig EIA found a similar range of Annex 1 species to that at Wester Dod. Impacts from collision, disturbance and displacement were considered and generally were low or negligible significance though there was a medium significance impact on one species. The RSPB has identified part of this area as sensitive to bird impact. Due to the extensive area there is more likely to be an impact as there is less scope for using alternative sites within the area.
Overall effect of each approach compared with baseline	**Neutral** The approach restricts further development.	**Adverse (less than O3); potentially significant; not significant** Low impact on High receptor; the impact may or may not happen, is unlikely to be frequent, is of long duration if it does (lifetime of the	**Adverse (more than O2) significant** Moderate impact on a High receptor The impact is likely to happen, is of long duration and is probably

		windfarm) and is probably reversible.	reversible.
Overall effect compared to predicted future with no guidance	**Positive; potentially significant; not significant** The predicted future assumes two or three small windfarms in the lowlands and Lammermuirs, and the significance would vary considerable depending on where they are assumed to be.	**Positive; potentially significant; not significant** As 01; other than any effect on Annex 1 species from development in the APC.	**Neutral or positive; unknown significance** As O1 as regards the lowlands.
Will the approach preserve populations of European Protected Species?	**Yes** The approach does not envisage further development.	**Uncertain but probably yes.** The Wester Dod EIA found limited bat activity but low significance of impact. Some evidence of otter using the site was found but again the significance of impact was assessed as low. The Crystal Rig 3 EIA found some evidence of otter but did not look for bats due to unsuitable habitat. No other EPS were found. There could be some bat activity in parts of O2 around the Monynut Water.	**Uncertain but probably yes.** Habitat in O3 is broadly similar to that at O2 and it is likely impacts on EPS would be similar though where there are any impacts the cumulative effects would be greater. Attention to design should allow effects to be avoided.
Overall effect of each approach compared with baseline	**Neutral**	**Uncertain; potentially significant: not significant** Potentially a low impact on high sensitivity receptor; there could be adverse impacts on habitat however this could also be improved through development benefitting EPS. As EPS are protected by legislation any significant impact would be avoided at project level. Development could have both positive and negative effects.	**Uncertain; potentially significant: not significant** As O2

Overall effect compared to predicted future with no guidance	**Probably Positive; potentially significant; not significant** Predicted future development could have a low impact on this high sensitivity receptor, however as EPS are protected a significant effect is unlikely in any case.	**Probably Positive; potentially significant; not significant** As O1	**Probably Positive; potentially significant; not significant** As O1
Will the approach preserve habitat suitable for Black Grouse? **[Black grouse are one of only 4 birds on SNH's Species Action list, and a priority species for the UKBAP]**	**Yes.** The approach avoids development in the main areas of habitat suitable for Black Grouse. Upland habitat is likely to be suitable for Black Grouse, and indeed the Wester Dod ES records one male at the site. No leks were recorded. However, Black Grouse are likely to connect to the population at Watch Water. By discouraging windfarm development more habitat for Black Grouse is likely to be preserved.	**Yes** As O1	**No** The upland habitat is suitable for Black Grouse. No leks are recorded. This is a key area for Black Grouse in the Lammermuirs. Black grouse are marginal in the Lammermuirs and without some key parts of this area being kept free from development they are likely to be lost from East Lothian.
Overall effect of each approach compared with baseline	**Neutral; not significant** Negligible effect on highly sensitive receptor (Black Grouse is one of only four birds with a SNH species action plan, and is on the verge of extinction in East Lothian).	**Neutral; not significant** As O1.	**Adverse; Significant** Moderate impact on highly sensitive receptor; depending on the level of development that actually came forward, Black Grouse could be affected to the extent that they are no longer viable in East Lothian.
Overall effect compared to predicted future with no guidance	**Positive; significant** The approach would protect areas of the Lammermuirs from development avoiding a moderate impact on a highly sensitive receptor.	**Positive; significant** As O1.	**Neutral** Habitat outwith the Lammermuirs in East Lothian is not suitable for Black Grouse so further development outwith O2 would

			make no difference.
Will the approach protect people in their homes from the effect of noise and shadow flicker? [Protection from noise means that external free field noise levels at any independently owned neighbouring residential property does not exceed 35dbLA90 10 min at any wind speed up to 10m/s. For properties where the occupier of the property has some financial interest in the windfarm this can be increased to 45db(A)]	**Yes** No further development is envisaged.	**Uncertain but probably yes** There are some properties which could be potentially affected by noise through development in this area. It is normal practice to impose noise conditions where this occurs. Development could still come forward without limits being breached however there may be some residual effects of noise which is below that required to meet the standard planning condition but which nonetheless occupiers may consider to be an impact.	**Uncertain but probably yes** As 02 however more noise sensitive properties would be potentially. The extent of this would depend on where development was actually proposed, with there being more such properties to the north of the Lammermuir edge, and also in the river valleys.
Overall effect of each approach compared with baseline	**Neutral; not significant** As baseline.	**Neutral: not significant** Negligible effect on highly sensitive receptor (residents). Even if standards are met, some residents may perceive an adverse effect from noise. Few houses will be affected, and the health effects from noise are not likely to be extreme. While an effect could remain that would be significant for the individual it would not be significant on a strategic level.	**Neutral; not significant** Although more households would potentially be affected the numbers are still low, so the effect would be as O2
Overall effect compared to predicted future with no	**Positive; potentially significant; significant** Avoidance of a Low impact on highly sensitive receptor.	**Positive; potentially significant; significant** As O1	**Positive; potentially significant; significant**

guidance	Assuming the noise condition could be met at any consented development, noise below that level could still be perceived as a problem; it would be difficult to locate such a development outwith the Lammermuirs without affecting many more people. The effect is likely to happen, long lasting, and frequent, and it is not completely reversible in that stress effects can give rise to permanent health effects.		As O1.
Will the approach protect peatland and rare soils? [Potential areas containing peat have been identified through the British Geological Survey mapping and Phase 2 habitat mapping carried out for ELC in 1997, as well as on the John Hutton Institute maps. These maps do not completely agree as to where the peat is] (see Figure 13)	**Yes** No further development is envisaged.	**Partially** Some areas of mainly shallow peat are identified by the British Geological Survey in this area. The Phase 1 habitat mapping also shows it is likely that much of the area contains shallow peat (less than 0.5m). The John Hutton Institute mapping also shows there to be peat in parts of this area. The peat could be affected both by direct impact of development and changes to hydrology. The John Hutton Institute maps also show humus iron podzol in parts of this area.	**No** O3 contains most of the areas of peat identified on the BGS mapping. The John Hutton Institute maps and Phase 1 habitat maps also show much of the remaining area other than at lower levels around the Whiteadder reservoir appear to contain at least shallow peat. However wind turbines and associated infrastructure have a small total land take.
Overall effect of each approach compared with baseline	**Neutral** No further development is envisaged.	**Adverse: not significant** There is likely to be a low impact on a Moderately sensitive receptor (although peat in general would be highly sensitive this peat is not very deep). The effect is considered low as this is a small area, and only a small area of this would be affected by development.	**Adverse; potentially significant; significant** There is likely to be a moderate impact on a medium sensitivity receptor. The effect is judged as moderate as it could potentially affect most of the peatland in East

			Lothian directly or indirectly. The probability of the effect is not certain, but if it does occur it will last a long time (windfarm life plus time for restoration); is a constant effect and is of doubtful reversibility.
Overall effect compared to predicted future with no guidance	**Positive: significant** There will be avoidance of a moderate impact on a medium sensitivity receptor (see Overall effect/O3/peat above).	**Positive** Generally as O1.	**Neutral** Almost all of the peat in East Lothian is within O3 (most that isn't is within Rammer Cleugh SSSI, which is protected in any case).
Will the approach protect prime agricultural land?	**Yes** No further development is envisaged	**Yes** There is no prime agricultural land in O2. Much of the East Lothian lowlands are prime agricultural land and development out with O2 could affect this.	**Yes** As O2
Overall effect of each approach compared with baseline	**Neutral** There is no effect.	**Neutral** As O1	**Neutral** As O1
Overall effect (avoidance of predicted future scenario)	**Positive; Potentially significant: not significant.** Prime agricultural land is highly sensitive due to its rarity in Scotland. The direct land take for a windfarm is not large and agricultural activity can generally continue. The impact of development outwith O2 would therefore be low.	**Positive; Potentially significant: not significant.** As O1	**Positive; potentially significant: not significant** As O1
Will the approach allow protection of water	**Yes** No further development is envisaged.	**Yes** Development has the potential to affect water environment in	**Yes** As with O2, it is likely that effects on watercourses

environment?		several ways. Firstly, by dust from construction. There are watercourses which could be affected by this however this effect should be avoidable by good practice in construction. Secondly, by pollution incidents. Again, these should be avoidable by good practice. Thirdly, by changes to the water environment in terms of culverting &c. To some extent adverse effects should be avoidable by good practice. Fourthly, by changes to hydrology. Where development will affect the water environment a CARS licence from SEPA will be required. The risk of an adverse impacts can be lessened by good practice at the project level.	from dust, pollution and water crossings &c could be avoided by good practice or mitigated. Impacts on hydrology are uncertain.
Overall effect of each approach compared with baseline	**Neutral**	**Adverse: Potentially significant: not significant** Good practice in construction and the need for a CARS licence will reduce but not completely eliminate risk of an adverse impact. The impact is unlikely to occur, short lasting, infrequent and reversible so not significant.	**Uncertain** Good practice in construction and the need for a CARS licence will reduce but not completely eliminate risk. Parts of this area are in the surface water Drinking Water Protected Areas. It is not clear what effect an incident would have on this, or the impact on the availability of a CARS licence.
Overall effect (avoidance of predicted future scenario)	**Positive: potentially significant: not significant** Risk of an adverse impact is avoided by restricting development. However impacts under the predicted future scenario are unlikely, short lasting, infrequent and reversible,	**Positive: potentially significant: not significant** Risk of an adverse impact is avoided by restricting development, especially avoiding some sensitive	**Neutral**

	so not significant.	areas such as drinking water protected areas and wetlands however this area does drain into the River Tweed SAC which is sensitive. However impacts under the predicted future scenario are unlikely, short lasting, infrequent and reversible, so not significant.	
Will the approach help achieve Scotland's targets on producing energy from renewable sources?	**No** The approach restricts development and some of the areas restricted are considered by the wind industry to have good potential for development. The Wester Dod area has a particularly good wind regime; in the last year Aikengall windfarm has achieved efficiency of 37% which is above average for British windfarms, and the potential developer of Wester Dod states that meteorological readings from the area show that this area has as good if not better wind resource. [31]	**Yes** By allowing for the possibility of development a further contribution towards the target could be achieved, in addition to the capacity of existing consented and operational wind farms.	**Yes** The Lammermuirs are probably the best areas technically for development of wind energy. Encouraging additional development here would further help achieve Scotland targets for production of electricity from renewable energy.
Overall effect of each approach compared with baseline	**Neutral** No further development is envisaged but no capacity is lost and existing windfarms could be re-powered.	**Positive (less than O3); not significant** The area could host further wind development of over 12MW, but probably not more than around 50MW at the most. This is therefore judged as a negligible impact.	**Positive (more than O2); significant** There could be considerable capacity in O2. This area measures some 68000 hectares; if a tenth of this area were developed at the same density as the Wester Dod application in relation to the Monynut area, this would give around 650MW. This is purely indicative; there is no evidence of how developable

[31] The Scotsman 5 May 2012 http://www.scotsman.com/news/environment/east-lothian-wind-farm-would-match-output-of-coal-fired-power-station-1-2276705

			this area actually is. The renewable energy target is highly sensitive as mitigating climate change is critical and meeting the target is a crucial element of achieving targets in Scotland. This would be a low impact so potentially significant. It is probable that the effect will occur, it will last the duration of the wind development, is constant and not reversible (in that once the electricity has been generated it can't be 'ungenerated'), so significant.
Overall effect (avoidance of predicted future scenario)	**Adverse (more so than O2); potentially significant; significant** The main impact is likely to be from not developing the Lammermuir area. This would mean a significant positive impact does not occur. As above, the renewable energy target is considered highly sensitive; restricting development would have a low impact on it.	**Adverse; potentially significant; significant** Generally as O2 with a slight lessening of effect from potential development of the APC.	**Adverse (less than O1 and O2); not significant** The renewable energy target is highly sensitive; the impact of limiting development in areas outwith O3 is probably negligible.
Does the approach preserve historic buildings and other culturally important features, including their settings?	**Yes** No further development is envisaged.	**Yes** Development within the some parts APC could potentially impact on some a listed buildings or Scheduled Monuments, for example Johnscleugh or Whitecastle Fort. However the criteria for development to be acceptable should prevent harm to these	**Uncertain** As O2; there are some listed buildings and Scheduled Monuments including Index no's 4423, 7873, 7872, 6028, 5606, within the area, and there could also potentially be indirect effects on

		interests. The Lammermuir area generally is not well researched in terms of archaeology and there could be direct impacts on unknown remains.	forts which are Scheduled Monuments on the Lammermuir Edge such as 756 Whitecastle Fort and 751 Hopes Fort.
Overall effect of each approach compared with baseline	**Neutral** No further development is envisaged. There could be a negative impact on unknown remains, as the Lammermuirs are under-recorded and windfarm development could result in the discovery of currently unknown remains. However, the remains are there regardless of their discovery, so this has been judged as neutral.	**Neutral** Development in this area could potentially have an impact however the criteria on the APC should prevent harm to these interests.	**Adverse potentially significant; not significant** The impact is dependent on site specific proposals. Direct effects should be avoided by the application of criteria however given the visibility of some parts of this area there are likely to be indirect impacts on elements above, which depending on siting could have a low-high impact on receptors of varying sensitivity. While the application of criteria should avoid significant harm, some effect would be hard to avoid. There are some Scheduled Ancient Monuments, mainly enclosures but including Crow Stones, and these are highly sensitive. The impact would be limited by the sparseness of features, and the nature of some e.g. farm related listed buildings which do not have

			large settings. There could also be indirect effects on elements outwith the area e.g. Lennoxlove Designed Landscape which has vista's towards the Lammermuirs, Traprain Law fort. With attention to siting high impacts are avoidable and moderate impacts are likely to be avoidable. The effect is likely, long-lasting, potentially frequent where it occurs, and reversible.
Overall effect (avoidance of predicted future scenario)	**Positive; potentially significant; significant** Development of a windfarm in the Lammermuirs, the lowlands or foothills would be difficult without impacting some aspect of the cultural heritage. This would be a moderate impact on either a receptor of varying sensitivity. However as above it should be assumed that the policies of the ELLP would prevent significant harm to these interests so the impact that O1 would avoid would not be significant. Any impacts avoided of future development are hard to judge as they are very site specific. However due to the amount and distribution of cultural heritage features in particular in the lowlands features it would be difficult to locate and design a 12MW windfarm to avoid impacts completely. Existing policies of the ELLP would provide protection from harm for most elements. Due to the strength of support for renewable energy in	**Positive; potentially significant; significant** As O1 as regards most of the Lammermuirs, foothills and lowlands, neutral as regards the APC.	**Positive; potentially significant; significant** As O1 as regards the foothills and lowlands; neutral as regards the Lammermuirs.

	policy however there could still be some harm to some of the elements, some of which are highly sensitive. Some of the receptors are highly sensitive, and could suffer a partial loss, which is significant such as for example an adverse impact on the setting of a Scheduled Monument. It is likely that an impact would occur, and if it did so it would be fairly constant, long lasting though reversible after some time.		
Does the approach protect the East Lothian Landscape resource? *See Annexe A, Landscape Assessment	**Yes** No further development is envisaged.	**Yes** East Lothian has a varied and valuable local landscape resource, and it is not possible to develop large scale windfarms without impacting on this to some degree. Development within this area will affect Landscape Character Area in which it lies, as well as having indirect impacts on other landscape character areas. Development in the O2 area would have some landscape impacts however the application of the criteria would prevent significant harm.	**No** It would not be possible to develop in this are without impacting on the cumulative landscape and visual issues outlined in the GWOTM. For example development in all of these areas would mean East Lothian has no upland moorland which is not directly or very closely affected by large scale windfarm development. In addition the Lammermuir skyline is one of the defining elements of the East Lothian landscape as a whole, and development affecting the skyline would affect the character of much of East Lothian.

Overall effect of each approach compared with baseline	**Neutral** No further development is envisaged.	**Adverse; Potentially significant; not significant** It would be difficult to design a windfarm here without some impact on the Lammermuir AGLV, a moderate impact on a medium sensitivity receptor. However, unless the AGLV constraint can be overcome, development would not be supported under this option. This would avoid significant adverse impacts therefore. There could also be an impact on landscape character. The LCS assesses this as being a medium-highly sensitive area. Consideration of O2 on its own (rather than the landscape character area as a whole) taking into account the existence of Aikengall windfarm reduces the sensitivity of parts of this area. The extent of the impact would be limited. The effect would be likely to happen, long-lasting, infrequent (in daylight in most weather conditions, but only when a concerned observer is present, or deterred from being so by the impact), and reversible.	**Adverse; Potentially significant; significant** The impact is dependent on site specific proposals. There will be some impact on the Lammermuir AGLV though this would be limited by the constraints listed in the GWOTM, but probably not avoidable completely. This would be a moderate impact on a medium sensitivity receptor. There will also be impact on landscape character. The LCS assesses this area as of high or medium-high sensitivity to windfarm development. This is a high impact on a medium sensitivity receptor (as it is a local landscape rather than a nationally important one).
Overall effect (avoidance of predicted future scenario)	**Positive; significant** Any impacts avoided of future development in the lowland area are hard to judge as they are very site specific. As a locally important landscape, the sensitivity would be medium. The impact of development is likely to be high due to the topography and intervisibility of the area.	**Positive; significant** As O1.	**Positive (less than O1 and O2); significant;** As O1 as regards the lowlands and foothills, neutral as regards the Lammermuir area.

	Impacts of development in the Lammermuirs are likely to be significant (see O3; landscape, above). Although there are protective policies in the ELLP this might be considered by the decision maker to be outweighed by the need for renewable energy. This would mean the predicted future scenario would have a significant impact which would be avoided by O1.		
Does the approach preserve some wilder land in upland East Lothian?	**Yes.** No further development is envisaged.	**Yes** Although the APC does include some areas shown as wilder, the the maps were based on data produced prior to the consenting of Wester Dod, so the wildness score is likely to be reduced in that area. The larger area of wilder land in the central Lammermuirs remains.	**No.** Development of O3, even if not much of the area was developed, is likely to mean no major areas of wilder land within East Lothian remain.
Overall effect of each approach compared with baseline	**Neutral** No further development is envisage.	**Adverse; not significant** Development in the O2 would not affect the remaining areas of wilder land. The wilder areas of East Lothian are not included in the SNH draft maps of Wild Land, however they are wild in a local context. Given changes to the area since the data was produced, it is likely that some of the areas would not now score so highly, making this a low impact on a medium sensitivity receptor.	**Adverse: Significant (more than O1)** It would take only a small amount of further development of this type to reduce the wildness of the central Lammermuir area considerably. This would mean the loss of major areas of wilder land, which has already been reduced by the consenting of Fallago Rig and Wester Dod, potentially leaving no wilder land remaining in the East Lothian uplands remaining. This would be a high

			impact on a medium sensitive receptor.
Overall effect (avoidance of predicted future scenario)	**Positive: Significant** By protecting the Lammermuir Plateau the loss of all (or most) upland wilder land in East Lothian is avoided. This avoids an adverse high impact on a medium sensitivity receptor.	**Positive: Significant** As O1	**Neutral** Both this and the predicted future scenario will involve the loss of most upland wilder land as such in East Lothian.

Table 18 Overall Option Comparison

	Option comparison	Option with the least adverse effect on receptor	Magnitude of difference (Extreme, High, Moderate, Low, Negligible, Uncertain)
Biodiversity	No option is likely to adversely affect Natura 2000 sites. O3 may adversely affect Annex 1 species. O2 and O3 could have some positive effects for EPS, which are likely to be greater for O3 due to its greater area. Black Grouse are likely to be adversely affected by O3, through cumulative impact. It is very difficult to weight this as different species are affected differently, and some windfarm schemes may include improvements for biodiversity (which would not occur if they don't come forward). Due to the importance of this area for Black Grouse, and the potential impact on Annex 1 species, O3 is thought likely to have the most adverse impact overall.	Uncertain	**Uncertain.** There is negligible difference between O1 and O2. There is more difference between these options and O3, though effects could go in different directions for different species and habitats. The difference is Moderate looking at the impact from the turbines themselves, however there could be improvements to habitat as well through the application as a whole so the difference might be negligible or even favouring O3.
Human Health	Development of O3 would potentially affect more houses however both O2 and O3 are likely to be capable of development while meeting the noise condition. O1 would avoid any effect.	O1	**Negligible** Few houses are likely to be affected in either case and design would require noise conditions to be met.
Soil	While there is some peat at O2 it would be more difficult to avoid in developing O3. O1 would have no adverse impact	O1	**Low** difference between O1 and O1; **moderate** difference between O3 and O1 or O2.
Water	Good practice in construction and site specific design should enable impacts on water courses to be avoided. However unpredicted effects on hydrology or ground and surface water could occur.	O1	Negligible between O1 and O2; low between O3 and O1/O2. Good construction methods and CAR licensing are likely to limit any impact in either area however the impact of development of O3 on drinking water protected areas is uncertain.
Climatic factors	Developing O3 would allow the most wind development to be brought forward; developing in O2 would bring forward some; O1 none.	O3	Moderate between O1/O2 and O3; low between O1 and O2. Although impact on climate change is negligible in global terms it is a very important and difficult target to meet. Not using sites such as O2 and O3 which are probably technically good, means that there will be less of a contribution to meeting the

			Scottish Government renewable energy targets.
Cultural Heritage	Developing O3 is likely to have more indirect and potentially direct effects on aspects of the cultural heritage than O2 alone. However these might be possible to mitigate through attention to siting and may not be significant.	O1	Low between O1 and O2; Moderate between O1/O2 and O3. ELLP Policies will provide some protection for elements of the cultural heritage.
Landscape (including wildness)	Developing O3 would have greater impact on landscape (including wilder land) than O2 alone. While this would not impact on nationally designated landscapes the local effects are likely to be significant. O1 would have no effect.	O1	**Low** between O1 and O2; **High** between O3 and O1/O2.

7.20 For all of the indicators there is likely to be a low or negligible difference between the impact of O1 and O2. For some (human health, water) the impacts of O3 over O1 and O2 are likely to be low or negligible. For others (soil, cultural heritage) the adverse impacts of O3 over O1/O1 are greater but may not be significant. However, for landscape and biodiversity there is a significant difference between the expected impacts in terms of local landscape including wildness and impacts on Black Grouse. There is also a difference in terms of climate change impact, with O3 having a more positive impact on mitigation of climate change.

7.21 There is clearly a tension between achieving aims in helping meet Scottish Government Renewable Energy targets, and thus helping to mitigate climate change, and meeting objectives for landscape and biodiversity, and to a lesser extent protection of cultural heritage. The part that Scotland will play in total in mitigating climate change is clearly a small proportion of the total effort required, and the part played by meeting its renewable energy targets only a proportion of that. However, this does not mean the effect should be ignored as insignificant. To meet global targets suggested by current climate science a large number of individual and collective actions will be required, and if all of these are dismissed because they are separately insignificant, no progress will be made.

7.22 In choosing avoid the impacts on landscape and biodiversity by including O3 in the ASP, there are residual impacts of the strategy on climatic factors (assuming O3 would otherwise be at least partially developed). It is likely that with a willing landowner a wind development of at least 50MW and quite probably more could come forward in O3. For this site as the wind speeds are good a windfarm is likely to be more efficient than average, so development here would mean fewer turbines would be needed overall. Locating these turbines in other areas (or taking other actions to meet CO2 targets) as an indirect result of this policy have impacts in other places which are not predictable.

7.23 Conversely, not including O2 in the ASP will have a slightly greater adverse impact on some receptors (soil, water, cultural heritage, landscape) than taking the approach of O1 and including the whole East Lothian area in ASP other than existing windfarms. There will be a slightly more positive impact on climatic factors.

7 MEASURES ENVISAGED TO PREVENT, REDUCE, AND OFFSET SIGNIFICANT ADVERSE EFFECTS

7.0 The significant adverse impacts of the GWOTM are shown in Table 19 below.

Table 19 Remaining Significant Impacts of the GWOTM

Impact	Mitigation
The impact on climate of including the O3 area in the ASP in that there will be less of a contribution to meeting the Scottish Government renewable energy targets.	No mitigation is possible.

DATA GAPS

During the compilation of the SEA some gaps in knowledge were noticed. These were:

- Impact on annex 1 species of bird outwith sites that have already been the subject of a planning application
- Phase 1 habitat data is from 1997 and is therefore likely to be out of date in some places
- Energy generating capacity of areas that have not already been the subject of a planning application
- Lack of knowledge of effects of existing and potential windfarms on local climate (e.g. there have been suggestions that there could be local effects on rainfall and temperature).
- Lack of knowledge of effects of potential windfarms on hydrology
- Lack of knowledge of the effect of wind farm development on the rare soils other than peat
- Lack of knowledge of the possible impact of windfarm development on drinking water protected areas

8 MONITORING

8.1 Monitoring of the GWOTM is a required by legislation, and is also useful for the planning authority to check the impacts of the strategy. It is anticipated that a short monitoring report will be produced every 3 years. This Report will show the applications received for windfarm development over 12MW, and their progress or outcome. The record for each application will show:

- The status of the application;
- Reasons for refusal, if the application was not consented;
- The generating capacity of the windfarm;
- the height and number of turbines;
- whether the application was within an ASP, APC or AS;
- whether the application was within any designated site.

In addition, the report will consider how wind farm development (or lack of it) is affecting the SEA objectives where it is possible to do so. Table 20 shows the monitoring that is intended to be done, along with remedial action. This strategy will be revised in future as part of the Local Development Plan rather than a standalone strategy, so remedial action in policy terms will be through this route rather than revision of the GWOTM.

Table 20 Monitoring Proposals

SEA objective and monitoring response	Data source, frequency of monitoring	Summary of proposed remedial action (if information is available)	Timescale and responsibility
Have Natura 2000 sites been affected by windfarm development over 12MW?	SNH monitoring of SPA's plus any ad hoc information.	Discuss with SNH any SPA's which are not in favourable condition to see if this could be caused by East Lothian windfarms. Check conditions on consented windfarms are being complied with. If cumulative issues appear to be causing a problem, make sure the Biodiversity Officer is aware to enable this to be fed back to Development Management in responses to future applications. Discuss with SNH to see if any policy response is possible/required.	SNH timescale for monitoring SPA's plus reacting to any ad hoc information obtained. Policy and Projects Planning Officer to check for site condition reports.
Will the approach conserve Annex 1 species? /Will the approach preserve populations of European Protected Species?	None proposed	None proposed	None proposed
Has habitat suitable for Black Grouse been protected from windfarm development?	Planning Applications: at time of application/ consent of windfarms over 12MW	Check the impact on Black Grouse habitat of any windfarm application.	Policy and Projects Planning Officer in liaison with Biodiversity Officer.
Are people in their homes affected by noise or shadow flicker from windfarms?	Record of complaints regarding noise or shadow flicker to East Lothian or Scottish Borders Council; yearly check and ad hoc response as complaints are received.	Environmental Health Officers will act on any individual complaint to check that there is no statutory nuisance. Planning enforcement officers will check that planning conditions are being complied with where a complaint is received. Consider whether a stronger policy response is required; however government guidance on this is fairly clear so there may be limited scope.	Policy and Projects Planning Officer in liaison with EHO; To fit with the LDP timetable.
Has peatland/ prime agricultural land been affected by windfarm development?	Planning applications for windfarms of over 12MW; as they arrive; check location.	If there is a loss of peatland or prime agricultural land, consider whether a stronger protective policy is required as part of the production of the LDP.	To fit with the LDP timetable; Policy and projects team monitoring of planning consents

SEA objective and monitoring response	Data source, frequency of monitoring	Summary of proposed remedial action (if information is available)	Timescale and responsibility
Does the approach allow protection of the water environment?	SEPA water quality monitoring and ad hoc complaints: to LDP timetable.	Discuss with SEPA whether windfarms are causing the problem and if any policy response is possible/required as part of the production of the LDP.	To fit with the LDP timetable; Policy and projects team.
Is the approach preventing the achievement of Scotland's targets on producing energy from renewable sources?	Scottish Government reports on achievement of targets; frequency is as they are produced. East Lothian's renewable and low carbon energy generation (yearly).	If it appears that the Scottish Government will not meet the target, consider whether a policy response is required as part of the production of the LDP.	To fit with the LDP timetable; Policy and projects team
Is the approach preserving historic buildings and other culturally important features, including their settings?	Seek the views of the Heritage Officer and Historic Scotland on whether windfarm development of over 12MW has affected these features.	If it appears that large windfarm development is affecting these features, consider whether stronger policy is required through the production of the Local Development plan.	To fit with the LDP timetable; Policy and projects team.
Is the approach protecting East Lothian's landscape resource?	Monitoring of planning applications	If it appears that large windfarm development is affecting East Lothian's landscape resource, consider whether stronger policy is required through the production of the Local Development plan or SPG.	Policy and Projects team; yearly
Is the approach preserving some wilder land?	Planning applications on arrival.	If it appears that East Lothian's wilder land is being affected, consider if a stronger policy response is possible/required through the LDP process.	To fit with the LDP timetable; Policy and projects team.

APPENDIX A: SUMMARY OF CHANGES TO PLAN AS A RESULT OF THE EIA PROCESS.

Table 1: Changes as a result of the Scoping Exercise

Change	**Reason for change**
Topics of biodiversity, flora and fauna amalgamated	Suggested by SNH
Non-designated water courses identified as a potential constraint because of the Water Framework Directive	Advice from SEPA

Table 2: Changes as a result of preparing the Environment Report

Change	**Reason for change**
Noted that enjoyment of access rights mean views from private areas that are well used for recreation may be taken into account	Examination of the relationship between the PPS and the Land Reform Act and Enjoy the outdoors; An SNH Policy Framework
Further reference to the need to avoid increasing the risk of flooding off-site added.	Examination of the relationship between the PPS and Directive 2000/60/EC; The Water Framework Directive and the East Lothian Local Plan
Reference to Wild land altered	Production of SNH wild land mapping identified wilder areas in East Lothian and subsequently draft Wild Land maps
Mitigation for effects on Monynut Water Wildlife site added	To make explicit that mitigation would be required for any adverse impact on Monynut water wildlife site
Reference to Woodland removal added	To comply with Scottish Government policy on Control of Woodland removal
Reference on avoidance of development on peat added	In recognition of SSP, but also considering new research on the impact of removal of peat.
Reference to protection of battlefields added	To recognise designation of battlefields by Historic Scotland as an aspect of cultural heritage.

TABLE 3; Changes as a result of Consultation on the GWOTM and the draft ER

Change	**Reason**
Identified existing windfarms as Areas of Search	Representation from the wind industry that this was the correct designation; the potential constraints have been recognised as overcome in these areas.
Reducing the Area of Significant Protection to exclude some areas round existing windfarms	Representation from SNH, the wind industry and some members of the public that cumulative limits may not have been reached in all such areas and that mitigating climate change should be given greater weight
Removing consideration of features of local landscape importance (the Northern Coast and Volcanic Outcrops) in defining the Area of Significant Protection;	Representation from the Scottish Government Planning and Architecture Division (and in some parts SNH) that they did not consider this was compatible

removed consideration of Native and Near Native Woodland, Trees covered by preservation orders, golf course buffers, 500m around individual houses, the setting of Traprain Law, and the Coastal Tourism Strategy areas in considering the Area of Potential Constraint	with SPP
Alteration of reference to 'wild land' to 'wilder land'	Representation from SNH which has now published draft wildness maps which do not include any part of East Lothian as 'wild'.
Inclusion of advice on set back from trunk roads	Representation from Transport Scotland
Inclusion of further advice on groundwater dependent terrestrial ecosystems, SUDS, engineering activities in the water environment and the treatment of peat	Representation from SEPA
Inclusion of further advice on design and siting	To allow for the inclusion of an Area of Potential Constrain, and on representation from SNH
Updating of GWOTM to recognise consent at Wester Dod windfarm, Ferneylea and Hoprigshiel	Granting of consent at Wester Dod windfarm, Ferneylea and Hoprigshiel and the resultant impact on cumulative limits
Inclusion of reference to and consideration of Scottish Soil Framework and Zero Waste plan (reference added to possible treatment of excavated peat as waste)	Representation from SEPA

APPENDIX B: LOCAL WILDLIFE SITES

Site name	Site description - summary	Site name	Site description - summary
Aikengall Glen	Valley adjacent to the Cauld Burn wildlife site and in close proximity to the Lammermuir Deans SSSI. The site holds the largest population of dark green fritillary in the Lothians.	Johnstounburn Water	River with variety of habitats on banks
Archerfield Estate	Large coastal estate	Kate's Cauldron	River with variety of habitats on banks
Backburn to Monynut	Riverbank, rich flushes, remnant woodland.	Kidlaw Dam Pond	
Balgone Loch & Sheriff Hall Grassland	Variety of habitats rich in wildlife, base rich grassland with rare flora	Knockhill Wood and Hopes Wood	River with variety of habitats on banks
Bara Wood	Variety of habitats, rich flora and fauna	Lennoxlove Estate	Estate with mixture of agricultural land and woodland
Bellyford Burn East	Wide variety of habitats with a rich flora & fauna	Letham Burn	Contains one of the very few populations of water voles in East Lothian
Biel Water	River with variety of habitats on banks	Linn Dean East	Wooded gorge with rare flora

Site name	Site description - summary	Site name	Site description - summary
Biel Estate and Biel Wood	Estate and woodland	Lochend Woods	Not the best woodland but reasonable and a reasonable size with large immediate population
Bilsdean Cliffs and Foreshore	Cliff and foreshore	Longniddry Bents	Site is a coastal area of generally consolidated dunes with small areas of fen and broad-leaved woodland. Several rare plant species occur on the site.
Bilsdean Gorge	Gorge woodland, rich associated flora	Markle Quarry Pond	Pond
Birns Water - Milton Bridge	River with variety of habitats on banks	Monynut Water - north	River with variety of habitats on banks
Birns Water - Saltoun Bridge to Tyne Water	River with variety of habitats on banks	Monynut Water - south	River with variety of habitats on banks
Bolton Muir Wood	Pine wood with rare flora and roadside verge with local grassland plants	Musselburgh Shore and Lagoons	Feeding & roosting area for wintering birds
Bothwell Water	River with variety of habitats on banks	Myles Hedgerows	
Brock Wood	This SWT reserve lies along the Lammermuir fault, has complex geology and contains areas of mature woodland (some of which are of ancient semi-natural origin)	Nunraw Glen	Varied woodland, rich ground flora
Broxmouth Estate	Sizeable area of woodland	Oldhamstocks Burn - Haystall Knowe & Oldhamstocks	River with variety of habitats on banks
Brunt Valley	Variety of habitats, rich flora & fauna	Oldhamstocks Burn - Lammermuir to Stottencleugh	River with variety of habitats on banks
Burnhead Valley	Valley woodland & scrub, rich ground flora	Papana Water	River with variety of habitats on banks
Burnt Wood Strips	A narrow broadleaved plantation tree belt enclosing three sides of a block of 3 fields in a flat intensely farmed landscape	Pencaitland Railway Walk - Gifford	Wide variety of habitats with a rich flora & fauna
Butterdean Wood	Varied woodland rich in wildlife	Pencaitland Railway Walk - Milton	Wide variety of habitats with a rich flora & fauna
Carberry Estate	Large estate with mixed woodlands	Pencaitland Railway Walk - Ormiston	Wide variety of habitats with a rich flora & fauna
Cat Craig	Emerging wildlife from recently completed limestone	Petersmuir Wood	Birchwood with rich ground flora

Site name	Site description - summary	Site name	Site description - summary
	quarry		
Cauld Burn	Small remnant woodland in cleuch	Pressmennan Wood	Woodland & loch with associated flowers & fauna
Colstoun Water - Bolton to Coulston	River with variety of habitats on banks	Puddle Wood	Varied woodland, rich bird community
Colstoun Water - Colstoun Old Mill to Bolton	River with variety of habitats on banks	Redhouse Dean	Varied woodland, rich ground flora
Colstoun Water - Gifford to Colstoun Old Mill	River with variety of habitats on banks	River Esk - Musselburgh	River with variety of habitats on banks
Colstoun Wood	Varied policy woodland	River Esk at Smeaton Bridge	River with variety of habitats on banks
Costerton and Fala Woods East	Varied woodland and scrub with rich ground flora	River Tyne - Abbey Mill to Crow Island	River with variety of habitats on banks
Cowpits Wood	Varied policy woodland, rich ground flora	River Tyne - Crow Island to Hailes Castle	River with variety of habitats on banks
Disused Railway - Haddington	Linear site	River Tyne - Brae Head to East Linton	River with variety of habitats on banks
Disused Railway - Longniddry	Linear site	River Tyne - East Linton	River with variety of habitats on banks
Disused Railway - Longniddry to Haddington	Linear site	River Tyne - East Linton to Tyninghame Estate	River with variety of habitats on banks
Donolly Reservoir	Important for a variety of birds	River Tyne - Haddington	River with variety of habitats on banks
Drem Pools	Pond	River Tyne - Samuelston to Haddington	River with variety of habitats on banks
Dry Burn - the A1 to Barns Ness	River with variety of habitats on banks	River Tyne - Spilmersford to Samuelston	River with variety of habitats on banks
Dry Burn - Woodhall Dean to the A1	River with variety of habitats on banks	Saltoun Big Wood	Varied plantation rich in wildlife
Dunglass Gorge (North)	Woodland with rich flora in small gorge	Smeaton Pond	May be significant for epiphytes
Elmscleugh Water &	River with variety of habitats on banks	Spittal to Gullane Railway	Wide variety of habitats with a rich flora & fauna

Site name	Site description - summary	Site name	Site description - summary
Thornton Burn			
Faseny Water - Craig Knowe to Whiteadder Reservoir	River with variety of habitats on banks	Spott Burn	River with variety of habitats on banks
Faseny Water - Dunside	River with variety of habitats on banks	Thornton Glen & Burn	Varied woodland, rich ground flora
Faseny Water - Marlion Grain	River with variety of habitats on banks	Thurston Glen	Extending the boundaries of Thurston Burn to include wooded banks etc.
Faseny Water - Redstone Rig to Southern Law	River with variety of habitats on banks	Traprain Meadows	A series of unimproved meadows
Faseny Water - Wanside Rig	River with variety of habitats on banks	Tyne Water - Easter Pencaitland	River with variety of habitats on banks
Glen Wood	Wood with rich ground flora	Tyne Water - Ormiston to Pirnie Braes	River with variety of habitats on banks
Gosford Estate	Coastal estate with broadleaved plantation & ponds	Tyne Water - West Byres to Ormiston	River with variety of habitats on banks
Gullane Bents & beach	Bleaching Rocks to Jamie's Neuk includes coastal grassland, scrub and woodland	Tyninghame Estate	Large coastal estate with wide biodiversity interest
Hailes and Howkins Wood	Wide variety of habitats with a rich flora & fauna	Waughton Crossroads Roadside Verge	Rich grassland with rare flora
Hopes Water - East Hopes to Quarryford	River with variety of habitats on banks	Whiteadder Reservoir	Reservoir, important for wintering wildfowl
Humbie Wood (North)	Varied woodland beside burn with rich ground flora	Whittingehame Water - Papple Bridge to Redcliffe	River with variety of habitats on banks
Humbie Wood (South)	Varied woodland beside burn with rich ground flora	Yester Estate	Estate with ancient valley woodland and rich flora

APPROPRIATE ASSESSMENT UNDER THE HABITATS REGULATIONS FOR:

GUIDANCE FOR WINDFARMS OF OR OVER 12MW

Department of Partnerships and Services for Communities
Housing and Environment
East Lothian Council
Haddington

27 November 2013

APPRAISAL OF THE IMPLICATIONS OF THE PROPOSED GUIDANCE FOR WINDFARMS OF OR OVER 12MW (GWOTM)

INTRODUCTION

1. The European Union has designated a suite of sites, the Natura 2000 sites, which represent the best of European wildlife. The series is made up of Special Protection Areas (SPA's) which are designated for their bird interest, and Special Areas of Conservation (SAC's) which are designated for their habitat or the species they support. In order that these sites are conserved across Europe, the Habitats Directive requires that competent authorities – those adopting a plan or giving consent for a proposal – first assess any impact on a Natura 2000 site. If the plan or proposal adversely affects the integrity of the site, it can only be approved in the very limited circumstance of where there are imperative reasons of overriding public interest.

2. The Guidance for Windfarms of or Over 12 MW (GWOTM) has been prepared to meet the requirement in Scottish Planning Policy that a spatial framework for windfarms of over 20MW is prepared to guide large windfarm development to suitable areas (for local topographical and policy fit reasons this has been reduced to 12MW). SPP sets out the method for doing this, and asks that planning authorities show Areas of Significant Protection, which includes Natura 2000 sites, Areas of Potential Constraint and Areas of Search. The GWTOM has defined Areas of Significant Protection, which covers much of the area, and Areas of Potential Constraint, where criteria based policies apply. There are also Areas of Search however these cover only areas where there are existing or consented windfarms. As there has been considerable development and consents in the most suitable areas already, it is not clear that it would be possible to bring forward a further development of over 12MW in any other part of the area. These areas are shown as Areas of Search mainly to reflect the reality that they are areas which were found suitable for large scale wind development. It is possible that there could be development in these areas under this plan other than that existing or consented in two cases: either applications could come forward for re-powering, or, in the case of Wester Dod which is not yet built, that a different scheme is proposed from that consented. It is not considered likely that this would happen in the lifetime of the plan.

3. The following appraisal has been prepared by the East Lothian Council as the Competent Authority for the GWOTM, with reference to SNH guidance "Habitats Regulations Appraisal of Plans; Guidance for Plan-making Bodies in Scotland" Version 2.0. The flowchart in Figure 1 is taken from this guidance and shows the procedure which requires to be followed under the legislation

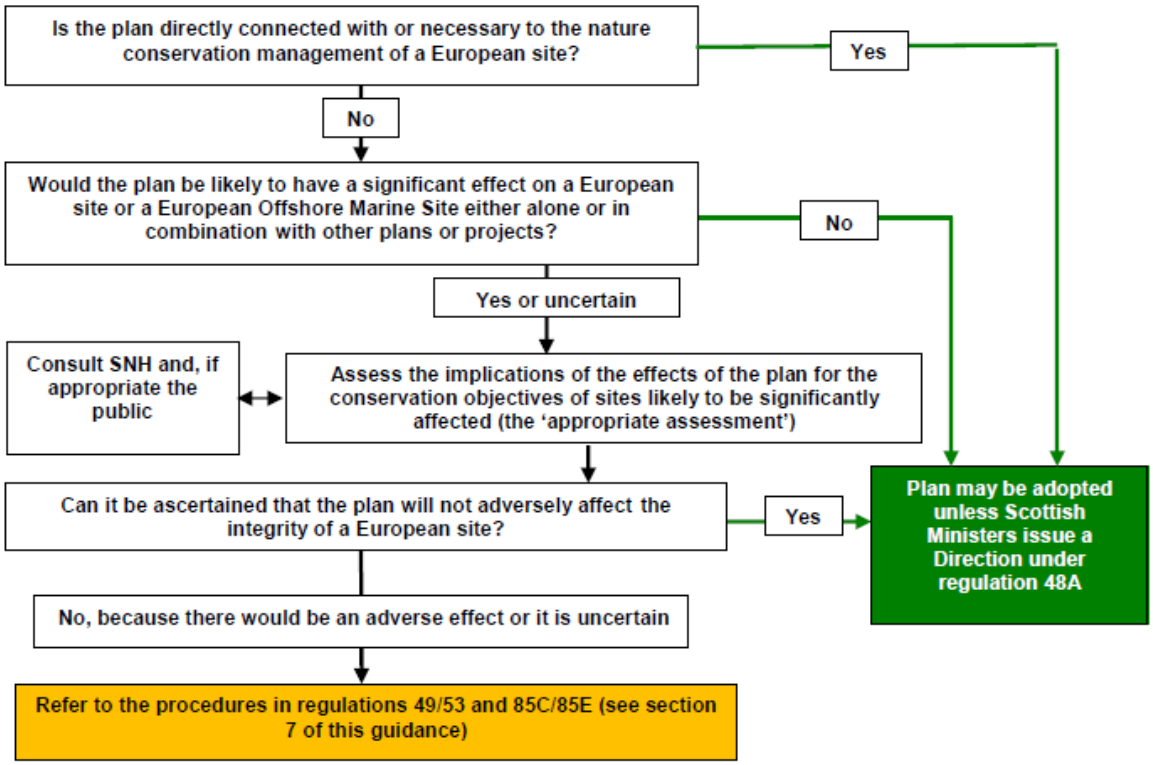

Figure 1 Procedure required by Regulations 48 and 85B of the Habitats Regulations (from SNH guidance[1])

SCREENING

4. The Screening stage determines whether further assessment will be required. The first stage is to ask if the plan is directly connected with or necessary to the nature conservation management of a European site. The answer to this is "No". The appraisal therefore moves onto the second question, "Would the plan be likely to have a significant effect on a European Site, either alone or in combination with other plans or projects".

5. To judge this, this stage of the appraisal has to look at the intended outcome of the plan, the sites that may be affected, and whether these effects would be significant, either alone or in combination with other plans or projects.

Outcome of the plan

6. The intended outcome of the plan is that development will not come forward in the Area of Significant Protection (ASP), but may do so in the Area of Potential Constraint or Area of Search (APC/AS), provided the constraints can be overcome and subject to other criteria. The Areas of Search show areas that already contain constructed or consented windfarm development, as this was thought to be the most appropriate treatment of them. Further development is very unlikely to come forward in the Areas of Search, but it may do so, in the form of re-powering or a different

[1] SNH's Habitats Regulations of Plans: Guidance for Plan Making Bodies in Scotland

proposal on an existing site. In carrying out this assessment, the 'worst' (i.e. most impacting on Natura 2000 sites) case scenario has been assumed. This is that significant further development comes forward in the APC, including the part that drains into the River Tweed SAC. The plan does not guarantee that development will come forward in the APC, though it is possible and probably even likely that this could happen.

7. It is possible that development would happen outwith this area as each planning application must be judged on its merits, and in exceptional circumstances material considerations might outweigh the provisions of the plan so that development outwith this area is consented. This is not the intention of the plan however. The Area of Potential Constraint in the GWOTM is shown in Figure 2 below.

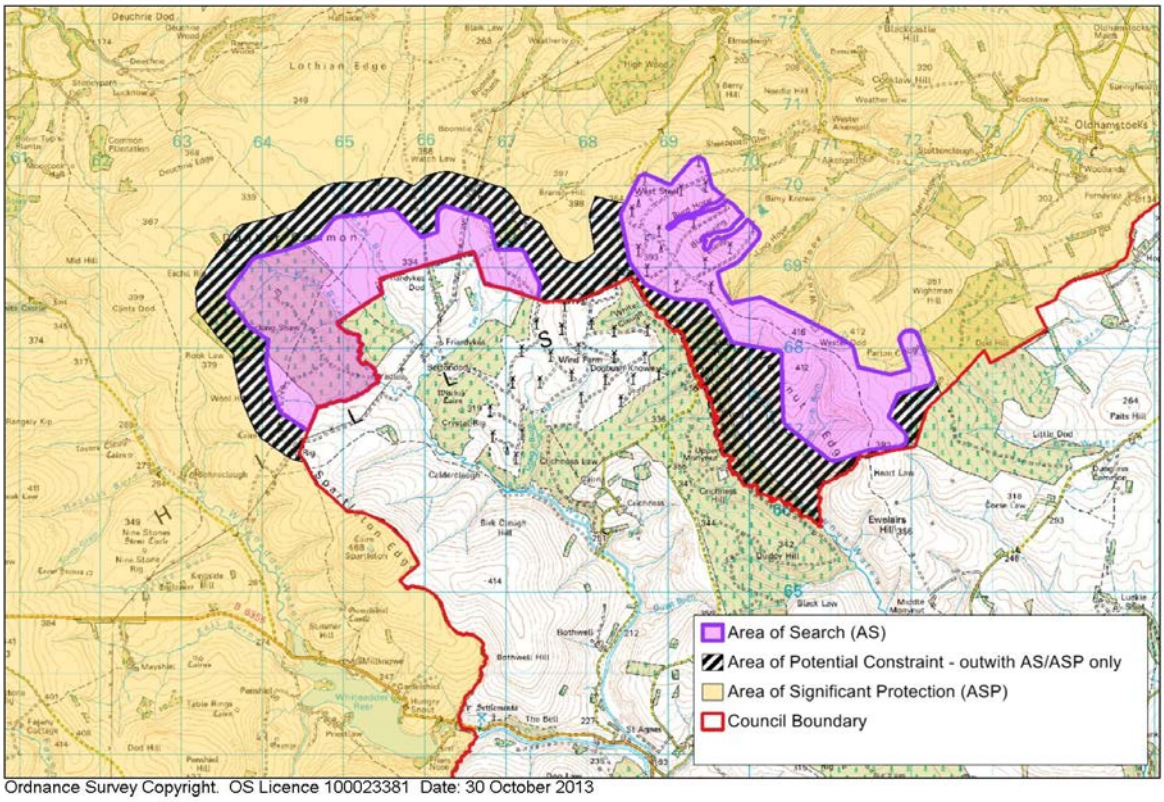

Figure 2 Spatial Framework Areas showing Area of Potential Constraint (APC) outwith Area of Search and Area of Significant Protection.

Will the plan have a significant effect on a European Site on its own?

8. Figure 3 shows the location of Natura 2000 within 25km of East Lothian. This is thought to be the maximum distance that windfarm development in East Lothian could affect. Not all of these sites have been further considered as they have not been picked up in the checklist below.

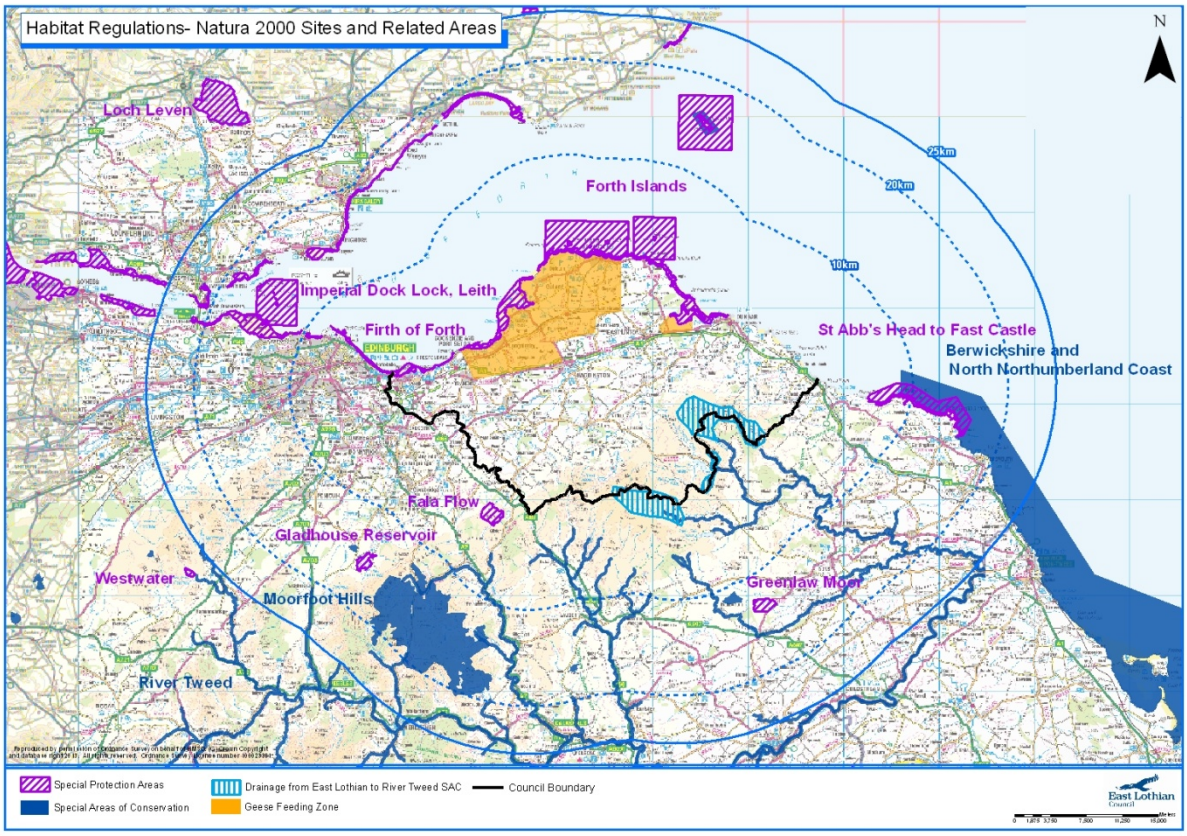

Figure 3 Natura 2000 sites and Related Areas

9. To judge whether or not there is likely to be a significant effect on any of these sites, it is necessary to consider the pathways there might be for an effect to occur. A pathway is the means by which an interest of the Natura 2000 site could be affected. For example, one potential pathway is for dust from construction of a windfarm draining into the River Tweed SAC, which could affect water quality and therefore the qualifying interests there. The areas which drain into the River Tweed are shown in Figure 3 above. Also, it is known that wind turbines can potentially affect geese, which form part of the interest of several Special Protection Areas. If geese are disturbed in their feeding areas, or on route to and from these, this could affect those SPA's. Figure 3 also shows the main areas where the geese feed.

10. The following table shows sites and pathways to be considered, following the method in SNH Guidance. Most Natura 2000 sites were not considered at all due to the distance making it very unlikely if not impossible that there could be a connection, and these include all sites outwith the Lothians and Scottish Borders area. It also explains where sites have been considered for a potential pathway but it was concluded that there was none, the reasons for this.

Table 1 Natura 2000 sites to check

Criteria	Natura 2000 sites to check	Sites identified/Not identified	Reason
All plans	Sites within the plan area	Firth of Forth SPA - identified	This site is within East Lothian
		Forth Islands SPA - identified	This site is within East Lothian
Plans that could affect the aquatic environment	Sites upstream or downstream of the plan area in the case of river or estuary sites	River Tweed SAC identified	The proposed APC/AS drains partly into the River Tweed SAC.
	Peatland and other wetland sites with relevant hydrological links to land within the plan area, irrespective of distance from the plan area	Berwickshire and North Northumberland Coast – not identifed	This site is 13km from East Lothian and 18km from the APC which is too distant and the potential pathway too diffuse for an effect along this pathway.
Plans that could affect Mobile species	Sites which have significant ecological links with land in the plan area	Firth of Forth –identified	Some of the qualifying species use inland areas including the APC/AS.
		Forth Islands – not identified	The qualifying species are breeding sea birds which do mainly not use the mainland area (other occasional coastal sites outwith the APC/AS for breeding) however some birds from this site could possibly use the APC/AS. Arctic tern: forages at sea[2] Common tern: see Imperial Dock Cormorant: coastal birds generally feed on bottom dwelling fish, the maximum foraging range recorded is 35km. There is little suitable forage for cormorant in the APC/AS.
		River Tweed SAC – identified	Otter would be expected to move from the SAC to the tributaries in East Lotthian. The JNCC states that the headwater tributaries provide good feeding habitat. Salmon, brook lamprey, river lamprey, and sea lamprey may also do so.

[2] Natural England TIN137 "Arctic Tern; Species information for marine SPA consultations"

		St Abbs Head to Fastcastle SPA – identified	Some birds from this site also visit East Lothian
		Fala Flow SPA – not identified	This site is 2.5km from East Lothian and just over 20km to the APC/AS. This is than the 20km core feeding areas given in SNH Guidance "Assessing Connectivity with SPA". Maps given in Mitchell[3] show there are no records of foraging from this site in the APC/AS
		Gladhouse Reservoir SPA – not identified	This site is 14km from East Lothian and over 30km to the APC/AS. This is more than the 20Km maximum foraging distance given in SNH guidance and no foraging from this site is shown on the Mitchell maps[3].
		Greenlaw Moor SPA – not identified	this site is 12km from east lothian and 16km from the apc/as. this is within the core foraging distance identified by snh however it is not shown as a foraging are on the Mitchell maps[3].
		Imperial Dock, Leith – not identified	This site is designated for common tern, which is also found on the East Lothian coast and sandy marshes. The SPA is around 5.7 km from East Lothian and over 30km from the APC/AS. Foraging range for common terns varies between colonies and with season. During the breeding season, coastal birds are associated with shallow inshore waters such as inlets and bays. The maximum foraging range recorded is 30km, with a mean maximum range recorded from different studies is 15.2km[4]. The APC/AS contain very little if any suitable forage so if common terns are unlikely to visit this area.

[3] Mitchell, K "Mapping the distribution of feeding pink footed and Icelandic Greylag Geese in Scotland" – Report by the Wildfowl and Wetlands Trust as part of a work programme funded by WWT and SNH.

[4] Natural England Technical Information Note TIN138 "Common Tern; species information for marine Special Protection Area consultations"

Plans that could increase recreational pressure on Natura 2000 sites potentially vulnerable to such pressure	Natura 2000 sites in the plan area	Firth of Forth SPA – not identified	It is conceivable that if people are put off visiting areas containing windfarms they may choose to visit the coast instead, however numbers visiting the Area of Potential Constraint are low, so even if some were displaced there would not be an effect.
		Forth Islands SPA– not identified	The Forth islands are difficult to access, as well as mainly having access limited by their managers so would not experience increased visitor pressure.
	Such Natura 2000 sites within a reasonable travel distance of the plan area boundaries that may be affected by local recreational or other visitor presence from within the plan area	River Tweed SAC - identified	It is not clear what effect windfarm development would have on recreational use of the area. At the moment, the APC/AS is used recreationally by a small number of walkers, campers, mountain bikers, and grouse shooters. With the installation of tracks there could be an increase in use of the area. An increase in visitors could lead to an increase in erosion and thus siltation, and also disturbance.
	Such Natura 2000 sites within a longer travel distance of the plan area which are major visitor attractions where visiting is promoted	None	
For plans that would increase the amount of development	Sites that are used for, or could be affected by, water abstraction in or close to the plan area	None	Windfarms do not require water abstraction.
	Sites used for, or that could be affected by, discharge of effluent from waste water treatment works or other waste management streams serving land in the plan area	River Tweed SAC – identified	Windfarms will not require waste water treatment works; sewage from construction work can be managed through good construction practice. Other types of waste could discharge however e.g. solid and liquid concrete from washout operations, run off from spoil from foundation digging.

		Moorfoot Hills SAC – not identified	No part of East Lothian drains into this site so there is no pathway for an effect
	Sites that could be affected by increased deposition of air pollutants arising from the proposals, including emissions from significant increases in traffic	River Tweed SAC – identified	Dust from construction could potentially affect the SAC.
Plans that could affect the coast	Sites in the same coastal 'cell', or part of the same coastal ecosystem, or where there are interrelationships with or between different physical coastal processes	None	The APC/AS is not on the coast and too far away for development here to affect it.

11. The following table is a list of Natura 2000 sites considered and their Conservation Objectives, with the condition of each qualifying interest when it was last visited, with the dates of the last visit.

Table 2: Conservation Objectives of Natura 2000 sites

Firth of Forth SPA
Conservation Objectives: To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species
Qualifying Interest: (all non-breeding) Bar-tailed godwit (*Limosa lapponica)- favourable declining;* Common scoter *(Melanitta nigra)*- unfavourable declining ;* Cormorant (*Phalacrocorax carbo)**- favourable maintained; Curlew (*Numenius arquata*) – favourable maintained;* Dunlin (*Calidris alpina alpina)**- favourable declining; Eider (*Somateria mollissima)** - favourable declining; Golden plover (*Pluvialis apricaria) – favourable maintained;* Goldeneye (*Bucephala clangula)*- unfavourable declining;* Great crested grebe (*Podiceps cristatus)*- unfavourable declining;* Grey plover (*Pluvialis squatarola*)* - favourable declining; Knot (*Calidris canutus) – unfavourable declining;* Lapwing (*Vanellus vanellus)* - favourable maintained*; Long-tailed duck (*Clangula hyemalis)* - unfavourable declining;* Mallard (*Anas platyrhnchos)*- unfavourable declining;* Oystercatcher (*Haematopus osterlegus)* favourable maintained;* Pink-footed goose (*Anser brachyrhynchus*) – favourable maintained; Red-breasted merganser (*Mergus serrator)** - favourable declining; Redshank (*Tringa totanus) – favourable maintained;* Red-throated diver (*Gavia stellata) – favourable maintained;* Ringed plover (*Charadrius hiaticula)** - favourable maintained; Sandwich tern (*Sterna sandvicensis)- favourable declining;* Scaup (*Aythya marila)** - unfavourable declining; Shelduck (*Tadorna tadorna) – favourable declining;* Slavonian grebe (*Podiceps auritus) – favourable declining;* Turnstone (*Arenaria interpres)- favourable maintained;* Velvet scoter (*Melanitta fusca)** - favourable maintained; Wigeon (*Anas penelope)*- favourable recovered;* Waterfowl assemblage, non-breeding – favourable declining.

P
*assemblage qualifier only
(visited October and November 2010)

Forth Islands: Comprises a number of islands located in and around the Firth Of Forth. The inner isles are low lying, while the outer islands are steeper and rockier, especially the volcanic plug which is the Bass Rock. The islands support a range of breeding seabirds, especially terns, auks and gulls.

Conservation Objectives: As Firth of Forth

Qualifying Interest: (all breeding) Arctic tern (Sterna paradisaea) – favourable declining; Common tern (Sterna hirundo) – favourable maintained; Cormorant (Phalacrocorax carbo)* - favourable declining; Fulmar (Fulmarus glacialis)* - favourable maintained; Gannet (Morus bassanus) – favourable maintained; Guillemot (Uria aalge)* - favourable maintained; Herring gull (Larus argentatus)* - favourable maintained; Kittiwake (Rissa tridactyla)* - unfavourable declining; Lesser black-backed gull (Larus fuscus) – favourable maintained; Puffin (Fratercula arctica) – favourable maintained; Razorbill (Alca torda)* - favourable maintained ; Roseate tern (Sterna dougallii) – unfavourable declining; Sandwich tern (Sterna sandvicensis) – unfavourable declining; Shag (Phalacrocorax aristotelis) – unfavourable recovering; Seabird assemblage, breeding – unfavourable declining.
*assemblage qualifier only
(visited 2001 – 2004; Shag, Herring Gull, Common and Sandwich tern, Puffin, Gannet, Fulmar, Seabird Assemblage; 2007/8 – Razorbill, Guillemot, Kittiwake, Lesser black backed gull; 2009/10 – Arctic and Roseate tern, Cormorant)

River Tweed SAC; Running from the Lammermuirs to the North Sea, most of the River Tweed SAC consists of inland waterbodies, with some bog, marsh, fens and water-fringed vegetation. It is the most species rich example of a river with *ranunculus* in Scotland, and has high ecological diversity.

Habitat: To avoid deterioration of the qualifying habitat (listed below) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
To ensure for the qualifying habitat that the following are maintained in the long term:

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

Species:
To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species, including range of genetic types for salmon, as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

Qualifying Interest: Habitat: Rivers with floating vegetation often dominated by water-crowfoot – unfavourable no change
Species: Atlantic Salmon *(Salmo salar)* – unfavourable recovering; Brook Lamprey *(Lampetra planeri)* – unfavourable no change, Otter *(lutra lutra)* – unfavourable no change; River Lamprey *(Lampetra fluviatilis)* – unfavourable no change, Sea Lamprey *(Petromyzon marinus)* – unfavourable no change
(Visited November 2003 – November 2004)

Fala Flow: Located in the Lammermuir Hills, this site is blanket mire, with some pools. The vegetation consists of heather and cotton grass,with other characteristic species. This mire is relatively undisturbed. The geese which are the qualifying feature of this site feed in surrounding areas of agricultural land.

Gladhouse Reservoir – Located in the Moorfoot hills, this is a water supply reservoir, with limited aquatic and

emergent vegetation, plus small areas of marginal fen. It is the largest freshwater body in the Lothians. It is an important winter roosting area for Pink footed geese, which feed in surrounding areas of agricultural land.
Greenlaw Moor Located in the southern Lammermuir Hills, the site contains heather moorland and raised mire. There are two pools at Hule Moss, and these support an important wintering roost of pink footed geese, which feed in surrounding areas of agricultural land.
Conservation Objectives: As Firth of Forth
Qualifying Interest: Pink-footed goose (Anser brachyrhynchus) Condition (date of visit in brackets): Fala Flow – Favourable Maintained (2009); Gladhouse Reservoir – unfavourable declining (2009); Greenlaw Moor – Favourable Maintained (2007)
St Abbs Head to Fastcastle SPA: A 10km stretch of Old Red Sandstone and Silurian cliffs, located on the coast of Berwickshire, backed by areas of grassland, open water, flushes and splash zone communities. The site is important for large numbers of breeding seabirds, especially auks and gulls, which feed outside the SPA in surrounding marine areas, as well as in the North Sea.
Conservation Objectives: As Firth of Forth
Qualifying Interest: (all breeding) Guillemot (Uria aalge)* - Favourable Maintained; Herring gull (Larus argentatus)* – unfavourable declining; Kittiwake (Rissa tridactyla)* - unfavourable declining; Razorbill (Alca torda)* - Favourable Maintained; Shag (Phalacrocorax aristotelis)* - unfavourable declining; Seabird assemblage, breeding - Favourable Maintained *assemblage qualifier only (Date of visit: 1998 – Razorbill and Guillemot; 2002 – Seabird assemblage, Herring Gull; 2008 – Kittiwake, Shag.
Imperial Dock, Leith:
Conservation Objectives: As Firth of Forth
Qualifying Interest: Common tern (Sterna hirundo), breeding, – favourable maintained. (Date of visit; 2009)

12. The following table shows the vulnerabilities of each identified site as recorded by the JNCC.

Table 3; Vulnerability of Sites (JNCC)

Site	Vulnerability (JNCC Standard Natura 2000 sheets)
Firth of Forth	While the major factor potentially affecting the site is coastal industrial development, such development is subject to detailed planning control, ensuring that the site is not significantly affected. Oil and other industrial developments concentrated along the shore line do pose a threat, however rigorous emergency contingency plans are in place to minimise the impact of any incident. Localised tipping is an ongoing problem but consists mainly of inert building waste and is mostly controlled by the relevant licensing authority. Implementation of the Habitats Regulations will tighten control on these operations. Recreational pressures, including small-scale bait digging, are not currently considered to be a problem, while commercial bait digging is being monitored. The potential for rising sea levels to remove important habitats is recognised, and a number of coastal realignment schemes (planned retreat) are planned for these areas which will go some way to offsetting any habitat loss.
Forth islands	There are few threats to the interest of the site. The Isle of May is a National Nature Reserve managed for its nature conservation interest by Scottish Natural Heritage. Fidra, The Lamb and Inchmickery are managed for their nature conservation interest by the Royal Society for the Protection of Birds while Long Craig Island is managed by the Fife Bird Club and the Scottish Wildlife Trust. The tern population has declined, probably because of the expansion in gull numbers combined with the natural mobility of tern colonies. SNH and RSPB are undertaking management initiatives to encourage a recovery in the tern population. The Scottish Seabird Centre has raised awareness of the colonies on the East Lothian islands. Measures to prevent disturbance to breeding birds by increased visitor numbers have been taken, e.g. remotely-operated cameras give close-up views of birds without causing disturbance.
River Tweed	The main impacts on the river are from pollution, acidification and eutrophication, river-works and bankside management, genetic pollution and disease, abstraction and impoundment management. Aspects of pollution and eutrophication from point-sources

	are addressed in Scotland through current SEPA regulations and will be enhanced through the Water Framework Directive which will also tackle diffuse pollution. River-works are controlled by fisheries legislation, planning control and guidance through Tweed Forum River-Works Subgroup. Water resource management will also be addressed by WFD. Problems arising from potential genetic pollution of native fish populations will also be subject to existing statutory controls. Current standards of forestry practice already minimise impacts. In England, aspects of pollution and eutrophication from pointsources, impoundment management and river-works are addressed by the Environment Agency. The River Tweed Catchment Management Plan, SSSI consents and Habitats Directive regulation will combine to effect long-term protection of the site and its features.
St Abbs Head to Fastcastle SPA	The site is managed by the full-time ranger and summer warden who work to the St Abb's Head Management Committee and to the current management plan for the site. Visitor numbers are high but they are not thought to cause significant disturbance to the interest at present. Site managers will continue to monitor the impact of disturbance on the interest.
Imperial dock, Leith	As an entirely man-made structure with little vegetation this site is at low risk from any degradation of habitat. However as it is in the centre of an active industrial area (Leith Docks) it is at great risk of disturbance. Although terns are generally sensitive to disturbance this colony appears to be resilient to disturbance from port activities and has been steadily increasing in size. A few years ago a gantry crane was built on the quayside adjacent to the colony and although it has not been operated regularly, use of the crane seems to be increasing. Regular monitoring of the colony during the breeding season should highlight any increased disturbance from this source.

13. The plan must be screened for 'likely significant effects' on the European Site. A 'likely' effect is one that cannot be ruled out on the basis of objective information. The Waddenzee judgement found that appropriate assessment should be carried out if "it cannot be excluded, on the basis of objective information, that it [a project in that case] will have a significant effect on the site, either individually or in combination with other plans and projects. A significant effect would be one that could undermine the conservation objectives of the site. The assessment of risk must be made in light of the characteristics and the specific environmental conditions of the site concerned.

14. The following matrix shows the results of screening the aspects of the GWOTM for significant effects, to allow a focus on the salient areas.

Table 4 Screening of Aspects of the plan

Aspects of the plan which would not be likely to have a significant effect on a European site alone	Relevant parts of the plan
General Policy Statements	Non-policy text and explanatory guidance on application of existing policy
Aspects excluded from the appraisal because they are not proposals generated by this plan	Mapping of Allocation of Areas of Search as these reflect existing development and consent
Aspects which protect the natural environment, including biodiversity, or conserve or enhance the natural, built or historic environment	Statement on treatement of Areas Requiring Significant Restraint, and the mapping of this area; the criteria given for Areas of Potential Constraint; Summary list of Development Management Criteria; Statement on Battlefields, Statement on Woodland Removal
Aspects which will not lead to development or other change	Statement on treatment of Area of Significant Restraint
Aspects which make provision for change but which could have no conceivable effect on a European site, because there is no link or pathway between them and the qualifying interests, or any effect would be a positive effect, or would not otherwise undermine the conservation objectives for the site	None
Aspects which make provision for change but which could have no significant effect on a European site (minor residual effects), because any potential effects would be so restricted that they would not undermine the conservation objectives for the site	None
Aspects which are too general so that it is not known where, when or how the aspect of the plan may be implemented, or where any potential effects may occur, or which Natura 2000 sites, if any, may be affected	None

15. The areas which remain for assessment are therefore the statement on treatment of the APC in that it envisages development with the APC under given circumstances and the statement of treatment of Areas of Search in that it allows for re-development of existing or consented windfarms, and the mapping of the APC. The following table considers possible pathways for an effect from the identification of area of APC that is outwith the Area of Significant Restraint (where development may be supported). This takes the pathway and Natura sites from Table 1 Natura 2000 sites to check above and examines them in more detail. There are several connectivity pathways which are likely to lead to significant effects upon Natura 2000 sites. However, provided appropriate caveats or restrictions are contained within the GWOTM, then these significant effects can be avoided, thereby avoiding adverse effects on the integrity of these Natura 2000 sites.

Table 5 Pathway Assessment

Site and pathway	Impact on Conservation Objectives	Significant Effect?
Direct Impact: Firth of Forth SPA; the site is within East Lothian	The site is located on the coast some 8.5km from the nearest part of the APC/AS. Development in the APC/AS will have no impact on the habitats of this site, or disturbance of the species while using the site.	No – the site is too distant
Direct Impact: Forth Islands SPA; the site is partly within East Lothian	The site is located offshore over 15km from the nearest part of the APC. Development in the APC will have no impact on the habitats of this site, or disturbance of the species while using the site.	No – the site is too distant
The aquatic environment: River Tweed SAC	Parts of the APC/AS drain into the River Tweed, giving rise to potential effects from: 1) pollution incidents, mainly from accidental spillage of fuel oil or chemicals 2) erosion and sedimentation 3) increase in run-off 4) modification to drainage patterns including impediments to flow either through water management or as an effect of infrastructure altering existing patterns of water movement 5) peat instability. All of these, were they to occur, could have an effect on the Conservation Objectives of the SAC in that: • This would be a deterioration in the qualifying habitat; • impact the structure and function of the habitat; • impact processes supporting the habitat; • impact distribution of typical species of the habitat This could potentially have a resultant impact on all of the qualifying species. However, at a project level mitigation (such as silt traps, peat handling plans, provision for monitoring, employment of an Ecological Clerk of Works) can avert the likelihood of these impacts occurring. For much of the APC/AS, the SAC is at some distance, which would make an impact less likely as pollutants may disperse or silt settle, while an impact on drainage is more dispersed. Habitats Regulation Assessment was carried out for the Wester Dod windfarm project, which studied that part of the AS and for the Wester Dod wind farm found that there would not be expected to be a loss of site integrity, function or structure providing mitigation is implemented. This conclusion took into account the following information: • Lamprey species: Despite intensive electro-fishing [for the ES] none were	Yes – however significant effects can be avoided by specifying appropriate mitigation at the project level

	detected. • Water courses with floating vegetation: the project is unlikely to lead to a change in water quantity within the SAC. While there is potential for water quality change through pollution, increased sedimentation, mitigation measures will address this potential impact. • Otter: Surveys showed otter present within 10 km2 of the site at Bothwell Water and Monynut Water, fieldwork showed low-level evidence of otters using the site, in particular, the Crib Burn. No otter holts were located. There would be very little loss of habitat for otters and although there may be temporary disturbance during construction, the impact is considered to be low. Mitigation addressed this. • Atlantic salmon: There was an absence of salmon from the sites surveyed, the most likely explanation was the absence of good migration conditions over the last two years during spawning season. This in itself is not sufficient reason to conclude no adverse effect on integrity as the absence has been attributed to temporary conditions, although the River Tweed Foundation's opinion was that there would be negligible impact of any fish here. Impacts on the SAC would be addressed by industry standard mitigation. Any residual impact would be non-significant.	
Mobile Species – Firth of Forth	An effect on mobile species when they are outwith the site could affect the conservation objective "Population of the species as a viable component of the site". Many of the Qualifying Interest species of this site are seabirds/coastal, and do not use the APC/AS. These are: Bar-tailed godwit, common scoter, dunlin, eider, knot, long tailed duck, red-throated diver, sandwich tern, turnstone. SNH have provided information on the main species from the Firth of Forth SPA and the inland areas that they mainly use, so where there may be an impact on them at the SPA from development. These species are: golden plover, grey plover, lapwing, curlew, oyster catcher and redshank (see **Error! Reference source not found.**). The APC/AS is outwith these areas. Where these species do use the APC/AS they do so in low numbers, such that displacement/collision effects, if any, would be negligible. The land take from wind turbine	No – species do not use the site in significant numbers, or in the case of the pink footed goose, are generally flying too high to be affected by development here.

	development is generally small, and during operation the birds are likely to continue to use the area. In operation, studies have shown that in general, species are not disturbed beyond 500m to 800m from turbines and in some cases are not disturbed at all [5,6,7,8,9]. Use of inland areas by other SPA species: Goldeneye[10] occur both in coastal areas on inland rivers. The streams that occur in the APC/AS are generally small and fast flowing so are unlikely to be suitable. They were not noted in either the Wester Dod or Crystal Rig 3 ES's as present in the area. The impact of any displacement or collision is likely to be negligible and would have no significant impact on the species or the assemblage. Great crested grebe[11] - waterbird found on the coast and inland waters. The rivers within the APC/AS are small and faster flowing so are unlikely to offer suitable habitat. The JNCC sheet A6.4b notes that the Great Crested Grebe is widespread and increasing. It was not observed in the surveys for the Wester Dod or Crystal Rig 3 ES's and it is likely that it does not use the APC/AS, or does so in very low numbers. There would therefore be no significant impact on the SPA. Mallard: JNCC sheet A6.31 notes that mallard are widespread and generally abundant. They occur on almost every type of freshwater wetland, though avoid fast flowing waters. 2 mallard were noted in Crystal Rig 3 ES, none in the Wester Dod ES. As the habitat in the APC/AS is not especially suitable and the species is abundant, and displacement/collision impact is likely to have a negligible impact on the species at the SPA and so on the assemblage. Pink footed goose. The APC/AS is around 8km from the SPA, which is within daily foraging distance, however, the Mitchell maps show no feeding distribution in this area. this species could potentially overfly this area on daily	

[5] Drewitt, A L and Langston, RHW (2006) "Assessing the impacts of wind farms on birds",;
[6] Hotker, H, Thomson, K-M, Koster, H (2006) "The impact of renewable energy generation on biodiversity with reference to birds and bats";
[7] Pearce-Higgins, JW, Stephen, L, Langston RHW, Bainbridge EP and Bullman, R, (2009) "The distribution of breeding birds around upland windfarms" – Journal of Applied Ecology 46
[8] Devereux, CL, Denny, MJH, and Whittingham, MJ (2008) "Minimal effects of wind turbines on the distribution of wintering farmland birds – Journal of Applied Ecology 45; Fielding, AH, Haworth PF (2010)
[9] "Farr windfarm: A review of displacement and disturbance on golden plover arising from operational wind turbines between 2005 -2009" Haworth Conservation, Isle of Mull, Scotland

[10] JNCC sheet A6.41 Goldeneye

[11] http://www.rspb.org.uk/wildlife/birdguide/name/g/greatcrestedgrebe/index.aspx

	foraging flights or in migration. Studies in Hotker (2006)[6] and others finds little evidence of collisions with windfarms at existing sites. The geese are generally flying high at this location, and are therefore very unlikely to collide with windfarm development here. If there were collisions, they are likely to involve a very few geese, and this would not affect the population as a viable component of the SPA. Red-breasted merganser – JNCC note A6.42 states that in winter the species prefers brackish or saline waters, preferring shallow, protected coasts, estuaries, bays and lagoons, only occasionally coming inland in harsh weather. As there is a lack of suitable water bodies in the APC/AS they are very unlikely to use the site so there will be no significant impact on this species. Ringed plover; breeds mainly on the coast but also inland on sand and gravel pits. This is not a species that by flight pattern or response behavior is particularly impacted by windfarms[12], which combined with expected low numbers using the APC/AS means development here would not lead to a significant impact on the species or assemblage. Scaup, Shelduck; these are coastal and deep inland water birds. There is no suitable habitat in the APC/AS and therefore no pathway for an impact. Slavonian Grebe: these birds breed mainly to the north and south of the Great Glen and in winter are confined to the coastal area. There is therefore no pathway for an impact on this species. Wigeon; mainly coastal however they can occur on inland flooded grassland. The Crystal Rig 3 ES noted that it was seen on one occasion flying outside the site boundary. It is likely that use of the APC/AS is low and any impact would not significantly affect the species or the SPA.	
Mobile Species: Forth Islands	Of the Conservation Objectives, the only impact wind development in the APC/AS would be to "population of the species as a viable component of the site". The distance from the APC/AS to the site means that there is no pathway for the other conservation objectives to be affected by an impact on mobile species. For the qualifying species: The following feed only at sea, so there is no	No – SPA species do not use the APC/AS in significant numbers

[12] SNH guidance "Assessing significance of impacts from onshore windfarms on birds outwith designated areas" suggests research effort should be focused on species that, due to flight patterns or response behavior, are likely to be significantly affected by windfarms; Crystal Rig 3 ES.

	pathway for an impact: Arctic tern[13], Fulmar[14], Guillemot[15], Kittiwake[16], Razorbill[17], Roseate tern[18], Sandwich tern[19], Shag[20] Of the remainder: Common tern: forages mainly at sea but the APC/AS is within maximum foraging distance. However there is little suitable forage within the APC/AS so if this area is used it will be very lightly; the impact of disturbance or collision would therefore be insignificant. The JNCC information states that tern numbers have declined probably as a result of expansion of gull numbers. Disturbance or loss of birds when outwith the site are not mentioned as a threat. Cormorant: coastal birds generally feed on bottom dwelling fish, the maximum foraging range recorded is 35km. These birds are common and not under threat. There is little suitable forage for cormorant in the APC/AS and if they did use the site, it would be lightly. Any impact from disturbance or collision would not have a significant impact on them at the SPA. Herring Gull[21] is part of the assemblage only. They have suffered moderate declines over the past 25 years but are widespread. The JNCC Herring Gull information sheet notes they are an adaptable and successful species. The Crystal Rig 3 ES bird surveys counted 1 Herring Gull in the breeding bird survey and 1 on the winter walkover survey. The Wester Dod windfarm ES found occasional records of Herring Gull flying over the site. As the habitat of the APC/AS is very similar it is probably that the usage is similarly low and that any impact would be negligible, and not significantly affect the SPA. Lesser Black Backed gull (assemblage only). The Wester Dod ES found individuals and small groups occasional flying over moorland and forest, and negligible impact of the windfarm. One individual (non-breeding) was found at the site in the Crystal Rig 3 breeding bird survey (non-breeding) and none in the winter walkover. As the habitat of the APC/AS is similar (and is in	

[13] Natural England TIN137 "Arctic Tern; Species information for marine SPA consultations"

[14] Natural England TIN126 "Northern Fulmar; Species information for marine SPA consultations"

[15] Natural England TIN123 "Guillemot; Species information for marine SPA consultations"

[16] Natural England TIN128 "Black Legged Kittiwake; Species information for marine SPA consultations"

[17] Natural England TIN124 "Razorbill; Species information for marine SPA consultations"

[18] Natural England TIN136 "Roseate Tern; Species information for marine SPA consultations"

[19] Natural England TIN135 "Sandwich Tern; Species information for marine SPA consultations"

[20] Natural England TIN134 "European Shag; Species information for marine SPA consultations"

[21] http://www.rspb.org.uk/wildlife/birdguide/name/h/herringgull/index.aspx

	some cases the same area) it is probable that usage is similarly low and impacts of windfarm development on the species and consequently on the seabird assemblage would be insignificant.	
Mobile Species – River Tweed SAC	Mobile species for this site are atlantic salmon, brook lamprey, otter, river lamprey and sea lamprey. The threat to the fish species and otter is from pollution reaching the SAC itself is noted in The Aquatic Environment – River Tweed above. There could also potentially be an impact from pollution on fish species using the area draining into the SAC being affected by pollution. The risk is mainly from silt, but could also come from accidental spillage of oil or chemicals. This risk would be mitigated at project level such that it is very unlikely to occur, as described above (as pollution reaching the SAC is likely to do so via its tributaries). Otters which use the site may also be affected. The area provides extensive suitable habitat for all the necessary aspects of otter's life cycle. The APC/AS is at its closest point about ¾km from the SAC (at Monynut Water). Otters could be affected by[22] - Habitat destruction - Damage to shelters - Drainage changes - Disturbance. The amount of land take for a windfarm is a small part of the area. The impact of this on the otters using the SAC is likely to be negligible. Works that can be expected to cause disturbance to otters or may damage or destroy their places of shelter are subject to licensing, so it can be assumed that if the conditions for a license are not met, then a particular development would not be able to go ahead. In some cases mitigation in the form of an agreed Construction Method Statement, supported by surveys, which is normal practice where there are otters present, can obviate the need for a license. There may be a small increase in human use of the area post-construction, but this would not be of a level likely to disturb the otters overall. Drainage changes which could alter the hydrology of the area would also be controlled at a project level. It is therefore not likely that there would be a significant effect on the mobile species of the SAC.	Yes, however significant effects can be avoided by specifying appropriate mitigation at the project level.
Mobile Species – St Abbs Head to Fastcastle SPA	The site is 6km from East Lothian and around 10km from the APC/AS. Most of the qualifying species are entirely	No, due to habitat needs of most

[22] http://www.snh.org.uk/publications/on-line/wildlife/otters/effects.asp

	seabirds/coastal, namely: Guillemot, Kittiwake, Razorbill, Shag. The remaining bird is the Herring Gull (see conclusions under Mobile Species; Forth Islands, which also apply here).	qualifying species and adaptability and success of Herring Gull.
Increase in Recreational Pressure – River Tweed SAC	See 'the Aquatic Environment' above. Increase in visitor pressure could potentially impact on the qualifying habitat through siltation, and so also the structure and function of the habitat. There is extensive windfarm development in the Lammermuirs at Crystal Rig and Aikengall. This has not led to a noticeable increase in visitor numbers. Increasing visitor numbers is not he intended outcome of this plan, though development here might enable an increase in numbers of people exercising access rights. Use of this area is currently low, and there are tracks through already for walkers. It is unlikely that there will be a large increase in numbers. Good practice mitigation is likely to be put in place at a project level for development supported by this plan. Any increase siltation that might occur from increased visitor pressure is likely to be negligible in comparison to that from the operation and maintenance of the windfarm, for which mitigation will be in place.	No – increase in visitor pressure is likely to be negligible
Increase in Development – River Tweed	Discharge from waste streams and dust from construction could occur though it would be unusual. It would be managed by good practice in construction through a Construction Method Statement. This mitigation is normal for windfarms and pollution is unlikely to have a significant impact on the SAC.	Yes – however significant effects can be avoided by specifying appropriate mitigation at the project level.

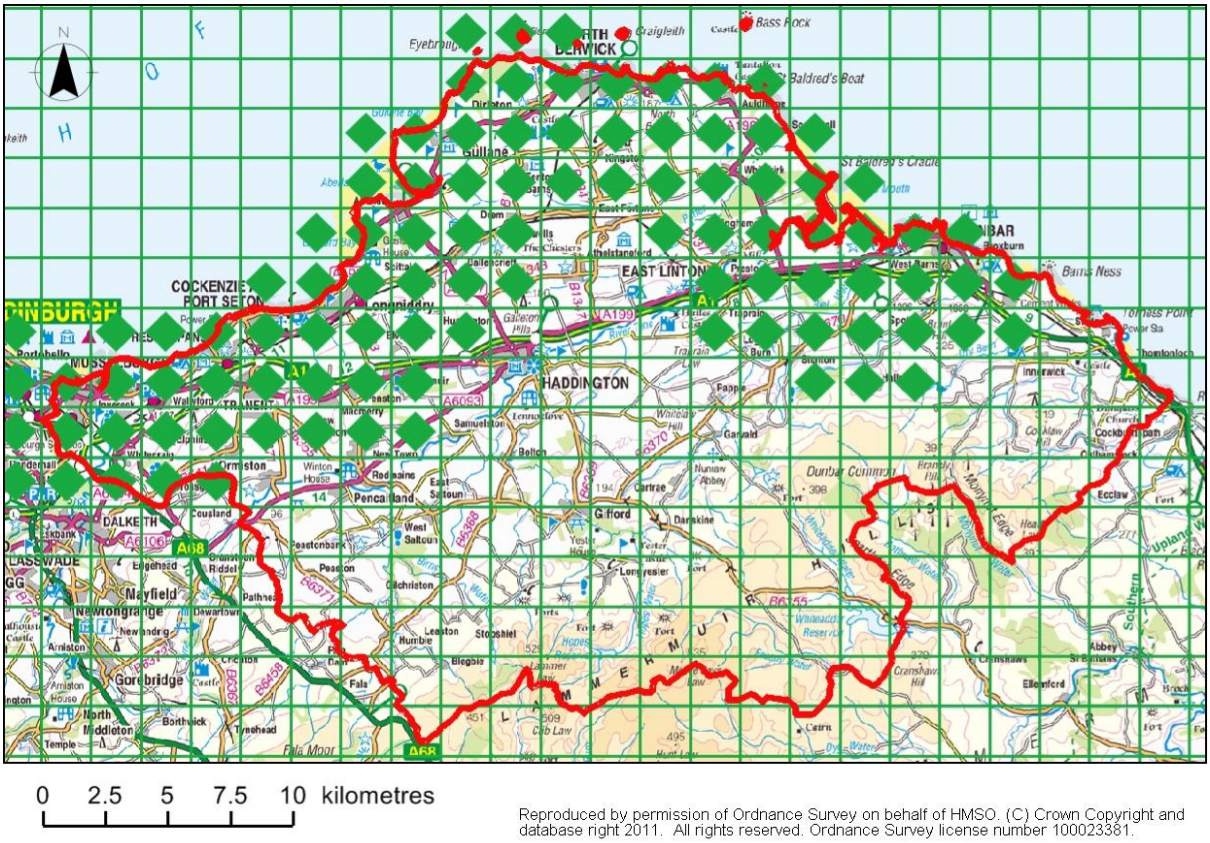

Figure 4 Main areas to check for impact on Golden Plover, Grey Plover, Lapwing, Curlew, Oyster Catcher and Redshank with regard to Firth of Forth SPA (based on data from SNH)

16. The GWTOM is therefore not likely to have a significant impact on a European Site on its own.

17. The GWOTM, in combination with other plans and policies, is not likely to raise additional significant impact upon Natura 2000 Sites beyond those described above. The most relevant plans and policies are the following:

    - SESPLAN1, the Strategic Development Plan for the area
    - East Lothian Local Development Plan 2008
    - Scottish Borders Council SDP
    - Scottish Borders Council Local Plan
    - Scottish Borders Council Wind Energy SPG 2011

    Policy contained with SESPLAN1 and the East Lothian Local Plan in general guides most types of development away from the undeveloped countryside. Development within the countryside has to meet criteria including of being of a suitable scale. There are no development proposals in plan for this area. The Scottish Borders Council development plan also aims to steer most types of development towards already developed areas. The APC/AS is within countryside containing only sparse development. In addition the Scottish Borders Council wind SPG has the area closest to the APC/AS as an area of moderate constraint.

18. These plans do not envisage large scale development in this area. It is therefore unlikely that there will be impacts which would occur in combination with any impacts from the GWOTM. If

development does come forward under these plans it is likely to be small scale, so the impact of that in combination with any residual impacts from development envisaged under the GWOTM would not be likely to be significant.

19. The impact of the GWOTM on Natura 2000 sites is therefore not likely to be significant either on its own, or in combination with other plans.