Appendix 6 Current Environmental Issues and Problems affecting Shetland

Topic	Strategic Context	LDP Context - Issues and Problems	Opportunities or Mitigation
Biodiversity, Flora and Fauna	• Protected species by their nature are mobile and frequently rely on areas of land and sea that lie outside of the SPA or SAC boundary. Seabirds nesting within SPAs are dependent on sea areas outwith the sites while raptors, wading birds and otters often rely on the use of land outwith designated sites. Therefore these animals may be particularly sensitive to development. • Owing to changes in sea temperature and the predicted effects of climate change populations of some species, for example sand eels (*Ammodytes marinus*), may migrate away from the Shetland Islands. This would have many knock-on effects for protected species (under national and international legislation). • Population decline and loss of biodiversity is a global problem, and this extends to the Shetland Islands.	• The risk of direct and indirect impacts on designated sites (European, national and local), European Protected Species and nationally important species, caused by developments. • Loss of habitat and species (particularly those identified within the Local Biodiversity Action Plan - LBAP) associated with development. • Changes in land use (such as housing development) resulting in changes to habitat composition (as well as landscape change). • Habitat fragmentation and severance associated with new developments. • Increasing pressure for medium to large scale renewables development, both on land and in the marine environment, and the potential impacts of these on habitats and species. • Disturbance of species from construction works, operational works and traffic. • Species loss and road kill. • Population drift towards Lerwick and the aging populations in remote rural areas is likely to contribute to a decline in traditional crofting practices. This will have implications for those croft land habitats which depend on active management, such as arable fields and species rich hay meadows, and the species which benefit from them.	• Ensure new development does not affect designated sites or important species (use can be made of Habitats Regulations Assessment (HRA) to determine the likelihood of significant effects on Shetland's Natura 2000 sites once detailed land allocations have been made and where a risk has been identified. • Planning development to avoid severance and fragmentation. • Supporting where possible Local Biodiversity Action Plan targets.
Population and Health	• The way of life for many people in the Shetland Islands is changing and the move away from small-scale fishing and	• Accessibility can be an issue in the remote areas especially for people with mobility issues.	• The LDP has the opportunity to promote development that will address the barriers to access, build on public

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	crofting and towards more commercial ventures has coincided with a shift in population from rural areas to urban areas. Because of this 'rural drift' over-centralisation around Lerwick is a possibility along with the migration of some of the population to mainland Scotland. • The large numbers of small, isolated communities that exist in Shetland mean that providing access to employment and essential services is challenging and costly.	• Potential impacts on cycling and walking routes and any other access issues caused by inappropriate development. • Nuisance caused by noise, shadow flicker from wind turbines and other development related nuisances that can affect public health and well-being. • Community severance effects e.g. safety of road crossings in vicinity of new developments. • Loss of visual amenity and recreational space caused by development on open spaces. • Air pollution from transport or new industrial developments could be a potential problem with regard to health although the high wind speed and climate on Shetland mitigates against this.	transport opportunities and address issues of social inclusion. • Planning activities offer opportunities for minimising community severance effects. • Good design offers opportunities to avoid nuisance impacts from renewable energy devices and also development that impinges on outdoor privacy, open or greenspace. • Good operational practice offers the opportunity to minimise nuisance impacts and impacts on human health from construction.
Soils (including Peat and Geology)	• Shetland has a unique geology and as such, this must be protected. Shetland is a UNESCO European Geopark (with 94 Geosites), which will use its exceptional geological heritage to promote sustainable development, particularly in the field of tourism and education. Shetland's earth heritage is therefore potentially of economic importance as well as academic interest. Inappropriate development can be damaging to earth heritage if it destroys or obscures geological features, however if development is appropriate and sympathetic to its surroundings it can also be beneficial in restoring those sites that have been damaged in the past. • Peat deposits on the Shetland Islands can pose a serious landslip hazard if	• Direct and indirect impact on statutory and non-statutory designated sites (these include geological Sites of Special Scientific Important (SSSI), and Geological Conservation Review (GCR) Sites. Shetland does not have any Regionally Important Geological Sites (RIGS). • Pressure on soil resources from inappropriate development, particularly those supporting prime agricultural land. • Pressure on the peat resource from inappropriate development including the exacerbation of land slip and erosion risks.	• The LDP should encourage the appropriate use of previously developed land that may be vacant or derelict, minimising the pressure on land that may be valued for other reasons (agriculture, peat, geology, biodiversity, cultural interests). • Following advice on avoidance of soil and peat instability. • Avoidance of areas where peat at risk. • Promoting land management that seeks to maintain or enhance the ability of peat soils to act as a carbon sink. • Protecting areas of geological and geomorphological interest. • Good operational practice with new developments offers the opportunity to minimise impact on soils and geology.

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	there is a period of drought followed by heavy rain. This particular issue has implications for soil and geological resources, biodiversity, water quality, flooding and the safety of property and life. • Blanket bog is an important and internationally rare habitat and also provides a significant sink for carbon dioxide. Developments which disturb the hydrology or physical structure of bogs can affect the stability of peat land over a much wider area, with implications for both its ecology and the release of CO_2. Peat bogs also emit methane and research is ongoing to further understand the sink/emission balance. • Land available for agriculture on the Shetland Islands has traditionally been of poor quality. This, added to the fact that there is an economic demand for the Islands' farming products (e.g. Shetland lamb) means that pressure to 'improve' land for agriculture needs to be balanced against conservation interests and other land uses such as housing and other development.		

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Water	• Because of the scarcity of areas available for water storage, Shetland has a finite water resource and so this must be carefully managed and protected. This is especially relevant to the Out Skerries, a small group of Shetland islands which have in the past experienced drought. • The ratio of coast to area of land in Shetland is high and the marine and coastal environment this creates is key to the prosperity of natural species and to economic activities such as fishing. Maintaining a high marine water quality is therefore of paramount importance.	**Freshwater Environment** • Flooding associated with insufficient drainage maintenance and capacity. • Pressure on private abstractions. • Water abstraction can affect important habitats. • Potential impacts from private foul drainage. • Surface discharges contaminated during construction or operation of developments **Marine Environment** • Direct and indirect impacts on coastal waters. • Flooding and sea level rise. • Pollution from construction related activities or from spills once development sites operational.	• Good site construction and operational practice offers the opportunity to minimise impact on freshwater and marine environment. • Ensuring new development connects to public sewer or promoting first time public sewerage infrastructure in areas where it is currently absent. • Adopting other examples of good practice in waste water management including the use of sustainable urban drainage schemes (SUDS).
Air	• Shetland has an outstandingly high air quality, due to its exposed position and lack of air polluting developments. Maintaining this high level of air quality must be a priority as any degradation would have effects on sensitive species and on the human population. • Although issues of air quality are diminished on the Shetland Islands (because of their isolated location and steady, windy, conditions) large developments do have the potential to adversely affect air quality. Quarrying, energy production and activities relating to the fishing industry all have the	• Levels of NO_2 and PM_{10} associated with plant, equipment and traffic flows associated with new developments. • Noise and dust emissions from plant, equipment and traffic. • Increasing traffic flows (especially the car) associated with new developments. • Possible cumulative impacts from traffic from various developments.	• Promotion of sustainable transport (tie in with cycleway and footpath design as well as access to public transport where possible). • Improvement to plant, equipment and vehicles (e.g. greener equipment and cleaner fuels and vehicles used during construction). • Raising awareness of best site management practices.

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	potential to adversely affect air quality and noise levels.		
Climatic Factors	• A large proportion of the houses, roads and economic infrastructure on Shetland are located at the coast so the properties may, therefore be more susceptible to coastal flooding than other places in Scotland. • Strong westerly storms are a feature of the weather and as a result of this storm management measures may be needed to avoid coastal flooding. • Meeting targets for reducing greenhouse gases poses a challenge as there is a lack of infrastructure that will be needed to deliver this. For example, most transportation in and around the islands is either by road or by boat, and the particularly isolated nature of many communities means that public transport may not be a viable option.	• Emissions of greenhouse gases from operational plant, equipment and traffic and transport. • Predicted increases in storm event frequency and severity from climate change in future. • Rising sea levels. • Dependency on oil. • Increase in overall energy usage resulting from development.	• Promoting a land use strategy that would enable a reduction in fossil fuel usage and opportunities to exploit the potential for alternative fuels and renewables. • Opportunities to promote use of more sustainable modes of transport. • Developing sustainable settlement patterns as a means of addressing transport related carbon emissions. • Education about sustainable transport and promotion of the benefits to the environment and health. • Checking new developments do not give rise to significant new emissions. • Sustainable design and location of new developments creating opportunities for energy efficiency and micro-renewables. • Directing development away from areas that are at significant risk of flooding and where this is not possible, particularly if there is pressure to reuse previously developed land at risk, then identifying needs to improve strategic flood infrastructure.
Material Assets	• Allowing for future development of oil and gas must be taken into account as these commodities already form a large proportion of the local economy. • The drive for sustainable energy sources on the Shetland Islands means that a number of renewable energy options are being taken forward. The environmental impact of such schemes may have the	• Pressure for aggregates to be used in development construction, and associated effects of extraction and transport to sites. • Development on brownfield sites. • Development on greenfield sites. • Dealing with waste and sustainable waste management. • Plant, equipment and transport related fuel and energy use.	• Re-use of existing developed land and buildings. • Promote wise use of existing road and other transport infrastructure. • Promote reduction of non-renewable resources. • Promote re-use of aggregates and other road materials. • Optimise cut and fill balance in

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	potential to cause significant environmental effects. • Shetland has few options available for waste disposal with either waste sent to landfill or incineration at the waste to energy plant in Lerwick. • A great deal of food, goods and materials are imported from outside the community. This means that transportation by sea is vital and the environmental effects of such activities are difficult to mitigate. • As a result of the heightened coastal flood risk on Shetland, a large amount of material resources are used to build coastal defences. Locally quarried rock armour is often used for this purpose.		developments in order to reduce the need for imported fill material or excess waste material and re-use of materials on site. • Recycling of construction and demolition wastes. • Promote further the recovery and recycling of household waste. • Opportunities to exploit the potential for alternative fuels and renewables.
Cultural Heritage	• Due to its unique remoteness the Shetland Islands have a strong identity and 'sense of place' and maintaining this into the future should be recognised as an important challenge. • There is also a wealth of archaeological resources on the Islands that date back to prehistory, encroachment of development could have the potential to threaten the setting or the integrity of such sites if unmitigated.	• Direct and indirect impacts on statutory and non-statutory designated sites and the impact on their settings (Scheduled Ancient Monuments (SAMs), Listed Buildings (LBs), Designed Landscapes and Conservation Areas), and locally designated sites. • Need to take account of and conserve important historic landscapes. • Risks of impact to unknown and as yet undiscovered resources. • Variety of locally important sites which should be safeguarded.	• There is an opportunity to enhance the setting and potentially the physical form of cultural heritage sites where this is appropriate (and in discussion with Historic Scotland for features of national importance). • There is an opportunity to improve accessibility to the cultural heritage resource. • Potential to enhance interpretation of the cultural resource.
Landscape / Seascape and Built Environment	• Scenic areas in the Shetland Islands are predominantly coastal and a large part of the islands is designated as a National Scenic Area (NSA). Any large-scale developments or quarries which are conspicuous in nature are likely to have an adverse effect on the landscape	• Direct and indirect impact on designated sites (such as NSAs, Historic Gardens and Designed Landscapes). • Inappropriate development, and capacity of the landscape to absorb new infrastructure. • Large-scale renewable developments,	• Encouragement of the appropriate siting, design and scale of development in relation to Shetland's unique landscape and seascape. • Landscape/seascape enhancements with new and revised infrastructure and landscaping, particularly in areas of

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	wherever they are located, but their scenic impact will be greatest in coastal areas since Shetland's coastal landscapes are generally the most valued. • The Shetland Islands are quite flat in contour and there are very few trees on the islands. This means that there is very little opportunity to screen any large developments or quarries and so they are more at risk of creating an adverse effect on the landscape if not carefully sited and planned.	such as wind farms and the capacity of the landscape to absorb these. • Impact of micro-generation equipment. • Gradual erosion of landscape character (cumulative development effects). This can become a problem with multiple wind farm developments even if relatively small-scale. • Construction of new infrastructure may affect the wider landscape setting of particular sites or sensitive historic landscapes. • Some of the houses built in recent decades have been unsympathetic to existing settlement patterns and to the design of existing buildings.	lower landscape and seascape value. • New housing and other developments to create surrounding landscapes that are congruent with the local setting and enhance the general landscape particularly in urban situations around the main settlements.