

Tornagrain

A Planned Town for the Highlands

Environmental Statement

Technical Annex 10

**Sustainability
Appraisal Report**

MORAY ESTATES DEVELOPMENT COMPANY LTD.
PROPOSED NEW TOWN AT TORNAGRAIN
ENVIRONMENTAL STATEMENT TECHNICAL ANNEX 10
SUSTAINABILITY APPRAISAL REPORT
DECEMBER 2008

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1.0 **INTRODUCTION**

1.1 **Overview**

The A96 Growth Corridor Development Framework identifies an opportunity for development of a new community near Inverness Airport, as part of the wider strategy for balanced development between Inverness and Nairn. Moray Estates Development Company (MEDCO) are now seeking outline planning permission for this new community.

An environmental impact assessment (EIA) has been carried out in accordance with the Environmental Impact Assessment (Scotland) Regulations, 1999, the findings of which are presented in the form of an Environmental Statement (ES). The ES comprises the following documents:

- a Non-Technical Summary;
- a Main Report;
- 12 Technical Annexes; and
- a Construction Environmental Management Plan (CEMP).

The technical annexes are as follows:

1. Agricultural Land
2. Air Quality
3. Cultural Heritage
4. Ecology
5. Geo-Environment
6. Landscape and Visual Amenity
7. Noise and Vibration
8. Socio-Economics
9. Surfacewater Drainage and Flood Risk
10. Sustainability
11. Transport
12. Waste

This report comprises ES Technical Annex 10 - Sustainability Appraisal Report.

1.2 **Tornagrain New Town Proposals**

The Tornagrain site is located approximately 8km north east of edge of Inverness above the southern shore of the Inner Moray Firth. The site is located within the Highland Council area. It is approximately 259 hectares in area.

The proposals are for development of a New Town, comprising up to 4,960 homes, supporting community facilities, retail, hotels, four primary schools, a secondary school, employment, leisure and associated landscaping, open space, infrastructure and services.

The development of the Tornagrain New Town is split into seven Development Phases and will be constructed over a 35 year period.

1.3 **Report Format**

This report has the following format:

- Section 1: Introduction**
- Section 2: Sustainability Appraisal Methodology**
- Section 3: Sustainability Appraisal Results**
- Section 4: Conclusion**

This report has been produced solely for the use of MEDCO. Report conditions are provided in Appendix 1.

2.0 SUSTAINABILITY APPRAISAL METHODOLOGY

2.1 Sustainable Development

Sustainable development is essentially about finding a way to improve quality of life for present and future generations by breaking the link between economic growth and environmental degradation or social exclusion.

A commonly used definition for sustainable development is that of the Brundtland Report (Our Common Future, 1987):

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Economic growth remains an important component for improving quality of life. However, it can also lead to an increase in environmental pollution and depletion of natural resources. There can be social costs too as many individuals remain excluded from the benefits of increased wealth or in some cases actually suffer as a consequence of economic growth.

Sustainable development therefore means developing our economy in ways that minimise environmental pollution / protect natural habitats / make efficient use of resources / tackle social inequalities.

2.2 Sustainability Appraisal

Sustainability Appraisal is a process that identifies how successfully a plan or project meets a set of sustainability aims / objectives (sustainability framework) by determining if it moves towards or away from achievement of each sustainability aim / objective.

The results of the process show how the plan or project is likely to contribute to sustainable development and where improvements could be made. No priority is given to any one sustainability aim / objective as the role of the Sustainability Appraisal is to highlight the sustainability implications of the plan or project to decision makers as opposed to determining if it should be implemented.

The Sustainability Appraisal for the Tornagrain New Town has been undertaken using the topics set out in the 'Designing for Sustainability in the Highlands' guidance document published by the Highland Council (November 2006).

2.3 Sustainability Appraisal Framework

The Highland Council has produced the 'Designing for Sustainability in the Highlands' guidance document to assist developers in producing Sustainable Design Statements for new developments. The document sets out nine sustainability topics (objectives) each with a number of key themes as shown in Table 2.1.

Table 2.1 'Designing for Sustainability in the Highlands' Topics and Key Themes

1. Enhance the Highlands economy and communities
1.1 Strengthen the local economy. 1.2 Support social inclusion. 1.3 Design healthy, safe and secure environments.
2. Make best use of site
2.1 Chose an appropriate site with good access to existing services and resources. 2.2 Reuse buildings where possible, taking care to preserve and enhance any historic and culturally significant features. 2.3 Reuse land, ensuring any contamination is identified and dealt with sustainably. 2.4 Make efficient use of the site to conserve resources and space. 2.5 Align buildings for shelter and solar gain to maximise energy efficiency.

3. Design within the Highland context
<p>3.1 Respect existing landscape character, designing new buildings and structure that complement and enhance the surrounding landscape.</p> <p>3.2 Protect cultural heritage by ensuring that archaeological and historical sites and settings, including cultural landscapes, are preserved.</p> <p>3.3 Respect the character of towns and villages, ensuring that new developments fit and enhance their settings.</p> <p>3.4 Design for durability in a changing climate, taking account of the likelihood of warmer, wetter conditions and more frequent extreme weather events.</p>
4. Conserve and enhance the biodiversity of the Highlands
<p>4.1 Identify wildlife habitats and species on or near the site</p> <p>4.2 Minimise disturbance to wildlife and plants</p> <p>4.3 Enhance biodiversity by designing landscape features to provide habitats for a variety of locally occurring wildlife and plant species.</p>
5. Minimise energy use
<p>5.1 Use natural shelter and passive solar techniques when designing and siting buildings, taking advantage of the site's landform and orientation.</p> <p>5.2 Insulate well, incorporating optimum levels of insulation to reduce heat loss.</p> <p>5.3 Use efficient heat, lighting and ventilation systems that work with the building fabric.</p> <p>5.4 Make control systems easy to use and locate them in readily accessible places.</p> <p>5.5 Consider alternative energy sources to fossil fuels such as biomass (e.g. woodfuel), or off-grid electricity from wind, hydro or solar power.</p>
6. Design to conserve water
<p>6.1 Reduce demand for water.</p> <p>6.2 Consider reusing greywater and collecting rainwater.</p> <p>6.3 Install sustainable drainage systems.</p>
7. Design in sustainable waste and sewage facilities
<p>7.1 Design for effective waste management.</p> <p>7.2 Treat sewage sustainably.</p>
8. Use sustainable materials
<p>8.1 Specify materials that cause minimal harm to the environment and have a positive social impact.</p> <p>8.2 Choose materials that are non-toxic in manufacture, construction and use.</p> <p>8.3 Select components that can be maintained and recycled.</p>
9. Encourage sustainable transport choices
<p>9.1 Plan how people will travel to and from the development, for instance, by preparing a Travel Plan and where appropriate, a Safer Routes to School Travel Plan.</p> <p>9.2 Create high quality pedestrian and cycle routes, to conveniently connect the places people want to access – particularly local schools and large workplaces.</p> <p>9.3 Provide facilities for cyclists to use roads safely and park bicycles securely.</p> <p>9.4 Link into public transport networks to ensure that sites are accessible.</p> <p>9.5 Reduce the impact of road traffic by designing road layouts and car parks so that vehicle traffic does not inconvenience users of other forms of transport.</p>

These objectives have been used to form the Sustainability Appraisal Framework against which the Tornagrain proposals have been appraised.

2.4 Sustainability Appraisal Methodology

The Tornagrain New Town proposals have been appraised using the Sustainability Appraisal Framework. It has been determined whether the proposals move towards or away from achievement of each sustainability objective. The further guidance provided within the 'Designing for Sustainability in the Highlands' document has been used to assist in identifying the contribution of the proposals towards each objective.

It is important to note that in some cases the proposals have no influence on a sustainability objective, or it depends on how the proposals are implemented as to whether they will move towards or away from achievement of a sustainability objective.

Because the proposals are at outline planning stage a number of details are still to be finalised. There are a significant number of sustainability objectives which may or may not be fulfilled at outline stage that can be detailed upon submission of reserved matters applications. There is potential for the Sustainability Appraisal to be reviewed at reserved matters stage and this will allow a number of currently unknown effects to be confirmed.

Appropriate recommendations have been developed to reduce potential adverse effects and maximise beneficial effects.

The following hierarchy is used when determining mitigation measures to reduce potential adverse effects:

- **Prevent impacts** as far as possible by designing out or using preventative measures during the construction process
- **Reduce impacts** as far as possible by using preventative measures to minimise effects
- **Offset impacts** to compensate for unavoidable effects that cannot be further reduced







Recommended measures can be incorporated at three stages of the development:

- During preparation of detailed planning applications in order to design out or minimise adverse impacts and to maximise beneficial impacts.
- During construction in order to minimise adverse impacts / maximise beneficial impacts arising during the construction process.
- Following development in order to minimise adverse impacts / maximise beneficial impacts arising during the post implementation phase.

3.0 **RESULTS OF SUSTAINABILITY APPRAISAL**

The sustainability of the proposals for the Tornagrain New Town has been appraised using the Sustainability Appraisal Framework as detailed in Section 2. The results of this process in relation to each of the nine sustainability objectives are detailed in Table 3.1.

Table 3.1 uses a key to demonstrate the extent to which the proposals are moving towards or away from achievement of the sustainability objectives:

	Proposals likely to contribute significantly towards the objective
	Proposals likely to contribute towards the objective
	Proposals anticipated to have no significant effect on the objective
	Proposals likely to detract from the objective
	Proposals likely to detract significantly from the objective
	Effect of proposals is unknown at this stage

It should be noted that the Sustainability Appraisal has been based precisely upon the information provided in the technical annexes making up the ES and other key documents submitted for the outline planning application (Masterplan, Design Statement and Energy Strategy). If any of this information changes, the outcomes of the Sustainability Appraisal may also change. In this event the proposals may need to be re-assessed.

Table 3.1 Sustainability Appraisal Table

SA Objectives	Effect	Description	Additional Considerations
1. Enhance the Highlands economy and communities	1.1 Strengthen the local economy		
	↑ ↑	<p>A number of employment opportunities will be provided as part of the Tornagrain development, particularly within the town centre and commercial centre and also, on a smaller scale within the neighbourhood centres. The new community will also have good access to employment opportunities associated with the nearby Inverness Airport and the Inverness Airport Business Park (IABP), and also opportunities in Inverness via the proposed Rail Halt and Park and Ride facility at Dalcross.</p> <p>This large scale development will also have knock-on effects for local employment, both during construction and following operation.</p>	<ul style="list-style-type: none"> • Use local workforce and suppliers during construction phase and implement a Local Labour in Construction scheme. • Ensure the local bus service linking homes within the community to the Rail Halt is reliable and frequent. • Ensure a reliable, efficient and frequent service is provided from the new Rail Halt at Tornagrain into surrounding areas.
	1.2 Support social inclusion		
	↑ ↑	<p>Community facilities, including four schools, a community hall, a place of worship, libraries, adult education and healthcare facilities will also be provided for the new residents. This will help to ensure the new town becomes a sustainable community.</p> <p>The Tornagrain development will include a range of types, sizes and tenures to ensure that all needs are met, including 25% affordable housing, which will be integrated throughout the development to avoid housing segregation.</p>	<ul style="list-style-type: none"> • Incorporate multi-use facilities that serve a variety of activities e.g. community meetings, youth groups, sports clubs etc. • Ensure all community facilities are designed to be accessible to all members of the community. • Consider adaptability of new housing to allow for changes in the needs of residents. • Where appropriate incorporate lifetime design principles.
1.3 Design healthy, safe and secure environments			
↑	<p>All new buildings will be well heated and ventilated, and designed to high standards of energy efficiency.</p> <p>The structure of the town has been designed to encourage residents to walk and cycle, helping to promote healthy lifestyles.</p> <p>Open space has been provided in areas overlooked by pedestrian through routes, which will help to prevent crime and the fear of crime.</p>	<ul style="list-style-type: none"> • Specify non-toxic materials and products. • Seek advice form the Northern Constabulary on crime prevention through design. • Ensure all pedestrian routes are well-lit and safe. • Ensure all new buildings are fitted with fire safety systems (e.g. fire sprinkler systems, smoke detectors). 	






SA Objectives	Effect	Description	Additional Considerations
2. Make best use of site	2.1 Choose an appropriate site		
	↑	The A69 Growth Corridor Development Framework identifies Tornagrain as a key component of the proposals for growth of Inverness. The site is well located in terms of transport infrastructure as it is close to the A96 corridor and Inverness Airport. In addition, it is adjacent to the IABP, potentially reducing commuting distances. The site is of a suitable size required for a development of this scale.	
	2.2 Re-use buildings where possible		
	↑	The site comprises mainly agricultural land, however there are a small number of residential properties within or adjacent to the site. Existing buildings on the site will be incorporated into the development wherever possible.	<ul style="list-style-type: none"> Where existing buildings are to be retained, consider opportunities to improve the sustainability of these, and ensure construction methods and materials are compatible with the existing fabric.
	2.3 Re-use land		
	↑	The site also presents opportunities for re-use of previously developed land in the form of the former quarry located within the site.	
	2.4 Make efficient use of the site		
↑ ↑	<p>The site layout has been designed in accordance with a Landscape Framework so as to make the most efficient use of the site. The street structure and positioning of neighbourhood centres and the town centre have been designed to encourage residents to walk and cycle, instead of relying upon the private car. Linkages are to be provided into a network of paths/minor roads in the wider landscape. Extensive areas of open space are also to be provided throughout the development.</p> <p>The site is compact given the number of housing units to be provided and thus minimises land take.</p>		

SA Objectives	Effect	Description	Additional Considerations
		2.5 Align buildings for shelter and solar gain	
	↑	Opportunities to make use of natural shelter and passive solar techniques have been exploited where possible within the context of the wider urban design framework.	
3. Design within the Highland context		3.1 Respect existing landscape character	
	↑	<p>A development of this scale will clearly have an impact upon the natural landscape. However, the masterplan has been designed to follow the contours of the site and preserve elements of the landscape. This includes retaining woodland, preserving current long range views and introducing additional vegetation for amenity and nature conservation benefits. The Landscape Framework also seeks to tie landscape on site into surrounding woodland, including woodland links coming into the community.</p> <p>A strong framework of structural landscape is to be provided to control views to and from the A96, airport and areas to the north and north west. The masterplan aims to limit views towards Norboard factory and maximise long range views to Moray Firth and Black Isle.</p>	<ul style="list-style-type: none"> • Make use of native species in planting wherever possible.
		3.2 Protect cultural heritage	
	↓	There are a number of features of historic interest within the site which may be affected by the Tornagrain development. The Cultural Heritage Technical Annex identifies that several sites will be preserved within the development area. However, four features of local importance will be substantially or wholly removed as part of the development. While there are also a number of cultural heritage features outside the site which could also be affected by the development, none of these effects are considered to be significant. The proposed development could also have a direct and permanent adverse effect on any buried archaeological remains, not yet currently discovered. A written scheme of investigation will be agreed with the Highland Council.	<ul style="list-style-type: none"> • Undertake monitoring to ensure that all necessary archaeological mitigation measures are implemented and that no unnecessary damage is caused to archaeological sites.





SA Objectives	Effect	Description	Additional Considerations
	↑ ↑	<p>3.3 Respect the character of towns and villages</p> <p>While Tornagrain is a brand new settlement, it will be designed to build upon Scottish architecture and planning traditions. Many of the towns in close proximity to the sites, including Forres and Nairn have informed the design of the masterplan. Tornagrain will incorporate a range of building types, including houses, flats, cottages and terraces, intended to mirror those present in these local precedents.</p>	
		<p>3.4 Design for durability in a changing climate</p> <p>Climate change may affect the new town in various ways. There are certain corridors and overflow paths through the site which are potentially at risk of flooding from fluvial sources. The most significant flood risk to the site is posed by the Mid Coul Burn and its unnamed tributary. There are also two localised low points which are potentially at risk from groundwater flooding. The risk of flooding could be exacerbated with climate change. However, sustainable drainage systems (SuDS) will be implemented for the site to manage surface water run-off and thus reduce the risk of flooding. These will include infiltration systems and downstream dry detention basins/swales.</p> <p>Green spaces are to be provided throughout the new town which will have a cooling effect and may help to mitigate against increased temperatures associated with climate change.</p> <p>The New Town has been designed so as to reduce reliance on the private car (e.g. services and jobs provided within walking distance, network of pedestrian links, access to public transport) which will be increasingly important in a changing climate.</p>	<ul style="list-style-type: none"> • Ensure appropriate ownership and management arrangements are in place for SuDS systems on site. • Make use of plant species able to cope with changes in precipitation patterns and water availability. • Arrange primary access roads to optimise opportunities to catch breezes. • Orientate buildings to minimise excessive solar gain. • Where appropriate, utilise cool, light coloured building materials, to optimise the reflection of light and minimise heat absorption while avoiding glare. Cool roofing systems are most effective on buildings with a high roof-to-volume ratio, i.e. multi-storey buildings. • Where appropriate consider green roofs and walls. These can have a similar effect to the provision of green spaces, as well as providing additional insulating effects (keeping building warmer in winter and cooler in summer). • Where appropriate use materials which have a high thermal mass (i.e. concrete), absorbing heat during hot periods and releasing it slowly during cooler periods.

SA Objectives	Effect	Description	Additional Considerations
4. Conserve and enhance the biodiversity of the Highlands	4.1 Identify wildlife habitats on or near the site		
	↑ ↑	<p>Statutorily protected sites which could be affected by the development have been identified and include the Inner Moray Firth SPA, the Moray Firth SAC, the Loch Flemington SPA, the Longman and Castle Stuart Bays SSSI, the Whiteness Head SSSI and the Kildrummie Kames SSSI. The Ecology Report confirms that the development of the New Town will have no direct effects upon these designated sites.</p> <p>Extensive ecological surveys have been undertaken for the site by qualified surveyors to establish habitats and species on or near the site. These included a Phase 1 Habitat Survey and surveys for great crested newts, otter, water voles, red squirrels, bats, birds and badgers.</p>	
	4.2 Minimise disturbance to habitats and species		
↓	<p>Much of the development site is intensively farmed and therefore of low ecological value. However, site clearance and construction of new buildings and other hard infrastructure associated with the Tornagrain development will inevitably result in the permanent loss of some habitats within the site, as identified within the Ecology Report. Where appropriate throughout the site, existing habitats are to be retained and maintained.</p> <p>Once operational, increased recreational pressure may result in disturbance on the Loch Flemington SPA. However, a commitment has been made to develop specific proposals to avoid / minimise human disturbance in consultation with SNH.</p>	<ul style="list-style-type: none"> • Ensure the Access Management Plan identifies proposals to avoid disturbance of the SPA. • Identify an individual responsible for ensuring measures set out in the Landscape and Ecological Management Plan are implemented and undertake monitoring to ensure measures are effective. 	


SA Objectives	Effect	Description	Additional Considerations
	4.3 Enhance biodiversity		
	↑	<p>Habitat creation and enhancement of existing habitat is proposed as part of the development and is likely to result in beneficial impacts upon biodiversity. Measures include: enhancement of the former Mill pond and made ground at Hillhead for the benefit of otter and other wildlife; creation of large mixed woodland; creation of a new area of standing open waterbody within the former quarry site; and enhanced ecological management of select woodland areas within the Moray Estates ownership.</p> <p>In addition, wildlife will be accommodated in the development through the erection, maintenance and monitoring of nest boxes for birds and bat bricks, tubes, and boxes on new buildings.</p>	<ul style="list-style-type: none"> • Use locally native species for landscaping. • Incorporate habitat mosaics into buildings and communal spaces.
5. Minimise energy use	5.1 Use natural shelter and passive solar techniques		
	↑	<p>Opportunities to make use of natural shelter and passive solar techniques have been exploited where possible within the context of the wider urban design framework.</p>	<ul style="list-style-type: none"> • Make further use of natural shelter and passive solar techniques to minimise the need to heat and light buildings within the development (e.g. place rooms needing less heat on the north side of the building, make use of external shutters / internal blinds, position trees and planting so as to protect from excessive solar gain and reduce wind cooling).
	5.2 Insulate well		
	↑	<p>An Energy Strategy has been produced for Tornagrain which identifies the need for all dwellings and buildings to be as energy efficient as practical. The Energy Strategy identifies possible building specification standards in terms of u values, thermal bridging and air tightness. It is anticipated that this will be addressed in more detail at detailed design stage.</p>	<ul style="list-style-type: none"> • Ensure all new buildings are well insulated beyond Building Regulations requirements, and consider designing homes to passiv-haus standards, whereby very little energy is required for heating.
5.3 Use efficient heat, lighting and ventilation systems			
↑	<p>An Energy Strategy has been produced for Tornagrain which considers potential for use of District Heating and Combined Heat and Power (CHP) systems to meet the energy demand of the new town.</p>	<ul style="list-style-type: none"> • Incorporate highly efficient heating, lighting and ventilation into new homes and building (e.g. consider the use of highly efficient boilers, low energy lamps). • Ensure all street lights are low energy (high pressure sodium high intensity discharge lights) or are run off renewable energy. 	

SA Objectives	Effect	Description	Additional Considerations
	5.4 Make control systems easy to use		
		There are opportunities to incorporate easy to use energy systems to ensure the most efficient performance. It is anticipated that this will be addressed at detailed design stage.	<ul style="list-style-type: none"> Controls and meters for energy systems should be visible, accessible and user friendly. Consider providing all new residents and building users with a non-technical guide to ensure energy systems are used correctly.
	5.5 Consider alternative energy sources		
		An Energy Strategy has been produced for Tornagrain which considers opportunities for incorporating alternative energy sources into the development. It is anticipated that this will be addressed in more detail at detailed design stage.	<ul style="list-style-type: none"> Consider opportunities to incorporate renewable energy sources into the development (e.g. solar water heating, wind turbines, ground source heat pumps etc.). Monitor, report and set targets for energy consumption from construction activities. Minimise embodied energy used in building construction.
6. Design to conserve water	6.1 Reduce demand for water		
		The Tornagrain development will increase water consumption both during construction and once operational. However, there are significant opportunities to incorporate water efficient design to minimise water consumption. It is anticipated that this will be addressed at detailed design stage.	<ul style="list-style-type: none"> Monitor, report and set targets for water consumption from construction activities. Make use of low water using sanitary ware (e.g. low flush toilets, water efficient taps). Ensure all new homes and other buildings are fitted with a water meter.
	6.2 Consider reusing greywater and collecting rainwater		
		There are opportunities to incorporate rainwater collection and / or greywater recycling systems within new buildings on site. It is anticipated that this will be addressed at detailed design stage.	<ul style="list-style-type: none"> Incorporate rainwater harvesting and / or greywater recycling systems where appropriate.
	6.3 Install sustainable drainage systems		
		SuDS will be implemented across the site to manage surface water run-off and thus reduce the risk of flooding. These will include infiltration systems and downstream dry detention basins/swales. The site is well placed in terms of soils and geology to make use of SuDS.	<ul style="list-style-type: none"> Ensure appropriate ownership and management arrangements are in place for SuDS systems on site.

SA Objectives	Effect	Description	Additional Considerations
7. Design in sustainable waste and sewage facilities	7.1 Design for effective waste management		
	↕	Due to the large scale nature of the proposals, significant levels of waste will be produced during construction and operation. However, there are significant opportunities to encourage effective waste management across the site. It is anticipated that this will be addressed at detailed design stage.	<ul style="list-style-type: none"> • Where possible, re-use aggregates in construction. • Develop a site waste management plan, including procedures and commitments to monitor, sort and recycle construction waste and set targets to minimise the proportion sent to landfill. • Utilise wherever possible materials with a high recycled content. • Provide where appropriate comprehensive and convenient facilities for residents to recycle their waste. • Consider provision of composting facilities for food and green waste (e.g. community composting scheme).
	7.2 Treat sewage sustainably		
	↑	Scottish Water and the Highland Council have identified the need for expansion of water service and sewerage resulting from development of the proposed project. It is proposed that sewage from the development will discharge into the Scottish Water system, for treatment at the existing Ardersier works. It is understood that these works are to be upgraded to accommodate increased demand from the A96 Corridor.	<ul style="list-style-type: none"> • Provide a sustainable sewage treatment system through consultation with SEPA.
8. Use sustainable materials	8.1 Specify materials that cause minimal harm to the environment and have a positive social impact		
	↑	There are opportunities to make use of sustainable materials throughout the development. The Design Code places emphasis on using materials which are native to the Highlands which will help to reduce the environmental effects associated with transporting materials. These materials also tend to be more durable reducing the need for replacement. It is anticipated that this will be addressed in more detail at detailed design stage.	<ul style="list-style-type: none"> • Where possible, re-use aggregates in construction. • Specify locally-produced materials wherever possible. • Specify materials with a low environmental impact • Utilise wherever possible materials with a high recycled content. • Use timber from recognised sustainable sources e.g. Forest Stewardship Council (FSC). • Where possible, consider the use of suppliers and contractors which adopt good practice in terms of corporate social and environmental responsibility.

SA Objectives	Effect	Description	Additional Considerations
	8.2 Choose materials that are non-toxic in manufacture, construction and use		
		There are opportunities to make use of non-toxic materials throughout the development. It is anticipated that this will be addressed at detailed design stage.	<ul style="list-style-type: none"> Avoid toxic materials wherever possible (e.g. paints and solvents that give off VOCs).
	8.3 Select components that can be maintained and recycled		
		The Design Code seeks to ensure the life cycle of materials is taken into consideration when selecting products. This will include both ensuring materials can be maintained and easily repaired, and that building materials can be disassembled for re-use / recycling.	<ul style="list-style-type: none"> Design buildings for a longer life span where appropriate (e.g. consider durability, adaptability and recyclability of buildings).
9. Encourage sustainable transport choices	9.1 Plan how people will travel to and from the development		
		A Transport Assessment has been undertaken which includes a prediction of the numbers of trips to and from the site and the anticipated mode people will use for their journeys. The Transport Assessment sets out proposals for a Travel Plan Framework. This will set out the guiding principles for development within Tornagrain, including parking provision across the site, public transport services and facilities and pedestrian / cycle routes and facilities across the site. In addition, it will establish measures such as appointment of a Travel Plan Coordinator, provision of public transport information and introduction of a car club, car sharing scheme and car free zone.	<ul style="list-style-type: none"> Develop a Travel Plan Framework for the development in accordance with the proposals set out in the Transport Assessment. Provide residents (as well as employees) with information on public transport services and walking / cycling routes.
	9.2 Create high quality pedestrian and cycle routes		
	An important part of the proposals for Tornagrain is ensuring the New Town is pedestrian and cycle friendly in its entirety. This will include a network of pedestrian and cycle friendly routes linking houses with the commercial zone and the town centre and a shared pedestrian and cycle link between Tornagrain and IABP via the proposed Dalcross Rail Halt, Park and Ride facility and Inverness Airport.	<ul style="list-style-type: none"> Ensure pedestrian and cycle routes are safe, attractive, well lit and well signposted. 	

SA Objectives	Effect	Description	Additional Considerations
9.3 Provide facilities for cyclists			
	↑	<p>Cycle storage will be provided throughout the scheme, so that people can commute to work (if they work within Tornagrain or the IABP) and also when they visit local facilities. This includes provision of cycle stands at the proposed Dalcross Rail Halt, so that the catchment area of the Rail Halt is maximised.</p>	<ul style="list-style-type: none"> • Provide secure and well lit cycle storage space within all dwellings and the central square. • In workplaces, provide showers and locker space for cyclists.
9.4 Link to public transport networks			
	↑ ↑	<p>Public transport to Inverness and Narin will be provided via the proposed Dalcross Rail Halt and Park and Ride facility. In addition to providing high quality public transport for residents of the new town, this new link would also improve access for people from Inverness and Nairn to Inverness Airport and the IABP. In addition, it will allow the frequency of services on the line to increase. This will help to reduce the currently high level of car use in the area.</p> <p>The proposed Rail Halt will be a 10 minute walk away from the proposed town centre. The Rail Halt will also be within a 2km walking distance of most residents. A local bus service is also proposed to connect all neighbourhoods with the town centre and Rail Halt. The local bus route will be design so as to maximise the number of households accessible to the bus route within a 5 minute (400m) walk.</p> <p>There are also opportunities to link Tornagrain to the long distance bus services between Inverness and Nairn by diverting the services though Tornagrain.</p>	<ul style="list-style-type: none"> • Ensure the local bus service linking homes within the community to the Rail Halt is reliable and frequent. • Ensure a reliable, efficient and frequent service is provided from the new Rail Halt at Tornagrain into surrounding areas.

SA Objectives	Effect	Description	Additional Considerations
	9.5 Reduce the impact of road traffic		
		<p>Provision of a mixed-use community with employment, shops and community facilities onsite and a network of footpaths will help to reduce the need for people to travel outside of the development and encourage people to walk / cycle instead of using the car. This will help to reduce any adverse effects associated with road traffic.</p> <p>Streets throughout Tornagrain will be designed so as to reduce vehicle speed and increase driver awareness of hazards, and to increase attractiveness of streets to pedestrians and cyclists. Parking in residential areas will generally be provided to the rear of properties so as not to dominate the area.</p>	

4.0 **CONCLUSION**

4.1 **Current Sustainability Commitments**

The proposals for the Tornagrain New Town will contribute significantly towards sustainability in a number of ways:

- Provision of a range of high quality housing with a variety and mix of housing types. This will include significant numbers of affordable units to meet housing needs.
- Provision of a range of community facilities onsite, including five schools and a health centre, which will help to reduce the need for people to travel.
- Provision of employment opportunities through commercial and retail space enabling opportunities for people to both live and work within the new development. The new community will also have good access to employment opportunities at the IABP.
- Provision of good access to and from the new town via the proposed Rail Halt and park and ride facility at Dalcross. This will help to encourage the use of public transport and minimise car use.
- Provision of a pedestrian and cycle friendly street network throughout the New Town, between the New Town, the IABP and the proposed Rail Halt. This will help to encourage walking and cycling, with benefits both in terms of health and minimising car use.
- Provision of a high quality built environment, drawing upon traditional Scottish architecture and use of materials native to the Highlands.
- Provision of extensive areas of open space throughout the new town which will enhance the built environment and contribute towards health and wellbeing of residents.
- Creation of high quality habitat to enhance the biodiversity of the site.
- Provision of SuDS throughout the site to manage surface water run off and reduce the risk of flooding.
- Development of a CEMP to ensure impacts upon the environment are minimised.
- Use of energy efficient design and incorporation of District Heating / CHP / low carbon / renewable technologies in accordance with the Energy Strategy produced for the development.

4.2 **Additional Sustainability Considerations**

Tornagrain presents significant opportunities to develop a highly sustainable new community. A number of additional considerations for enhancing the sustainability of the proposals have been identified within Table 3.1. These considerations may be implemented during the detailed design of the site, procurement of materials and contractors or implemented once construction is complete. It should be noted that some of these considerations may not be under the direct influence of MEDCO (e.g. frequency of services at the Rail Halt).

Key recommendations for further enhancing the sustainability of the Tornagrain scheme include:

Detailed Design Considerations

- Adopt sustainable design standards (e.g. BREEAM / EcoHomes, CEEQUAL) where appropriate.
- Consider adaptability of new housing to allow for changes in the needs of residents.
- Provide cycle storage space within dwellings and the central square.
- Ensure all energy efficiency measures set out in the Energy Strategy are taken forward in the detailed design of dwellings.
- Specify materials with low environmental impact.
- Utilise materials with a high recycled content wherever possible.
- Design buildings for a longer life span and to mitigate against the effects of climate change.
- Incorporate measures to reduce water consumption (e.g. through installation of rainwater collection systems / greywater recycling / water meters).
- Ensure the design of the development considers life cycle impacts (environmental) and whole life costs.
- Incorporate multi-use community facilities that serve a variety of activities.
- Ensure all community facilities are designed to be accessible to all members of the

community.

Procurement / Construction

- Monitor, report and set targets for energy and water consumption from construction activities.
- Monitor, sort and recycle construction waste and set targets to minimise the proportion sent to landfill.
- Use recycled aggregates in construction.
- Use timber from Government recognised sustainable sources such as the FSC.
- Use local workforce and suppliers (particularly SMEs where possible) during construction phase and implement a Local Labour in Construction scheme.
- Where possible, use suppliers and contractors which adopt good practice in terms of environmental responsibility (e.g. companies with a certified Environmental Management System).

Operational

- Provide residents with a Homes Users Guide with information on public transport services, walking / cycling routes, local facilities, energy efficiency, crime prevention, water conservation and refuse collection and composting.

APPENDIX 1
REPORT CONDITIONS

WYG ENVIRONMENT PLANNING TRANSPORT LTD

REPORT CONDITIONS

PROPOSED NEW TOWN AT TORNAGRAIN

SUSTAINABILITY APPRAISAL REPORT

*This report is produced solely for the benefit of **Moray Estates Development Company Ltd** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.*

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors

Sustainability performance is influenced by many factors over prolonged periods, including the degree to

which advice on assessed sustainability measures is incorporated into detailed designs and specifications, then implemented and operated. WYG accept no liability for issues with performance arising from such factors. In particular, WYG accept no liability for the outcome of BREEAM, EcoHomes, CEEQUAL and other assessments. It is noted these assessments typically depend on the degree to which measures are implemented and on good evidence being supplied to demonstrate compliance. It is assumed that proposed sustainability measures will be assessed by others within the project team (e.g. in terms of likely energy consumption).