

## SECTION 8

### NIGHT LIGHTING

#### 8.1 Introduction

**8.1.1** The purpose of this report is to assess the impacts of lighting, associated with the proposed new community at An Camas Mòr, on the landscape character and the visual amenity of the study area at night. The report will also assess the impacts of lighting associated with the new community on designated landscapes and other landscapes of recognised value. Recommendations for mitigation measures are made for the reduction of adverse impacts and the increase of beneficial impacts of the proposed lighting scheme.

**8.1.2** This report includes:

- A baseline description of the study area and its planning context, in terms of night-time landscape character, night-time visual amenity, topography, land use and existing light levels;
- A description of the proposed lighting strategy;
- An assessment of predicted night-time impacts of the proposed lighting strategy on the landscape character and visual amenity of the study area, for both the construction and operation of the proposed development;
- Proposed mitigation measures to reduce predicted adverse impacts; and
- An assessment of residual impacts of the proposed scheme after mitigation measures have been taken into account.

#### Definitions

**8.1.3** For the purpose of the assessment process, a distinction is drawn between night-time landscape character and night-time visual amenity. Since the greatest impact of the lighting associated with the development would be at night, there is no definition of day-time landscape character or day-time visual amenity in this chapter. The definition for day-time landscape character or day-time visual amenity can be found in Volume 2, Chapter 9, Sections 2 & 3.

- *Night-time*. For the purposes of the assessment, night-time includes day-time periods when it is dark;
- *Night-time Landscape Character*. Landscape character is the distinct and recognisable pattern of visual elements that occur consistently in a particular type of landscape and how this pattern is perceived by people. It reflects particular combinations of landform, vegetation, land use and human settlement. Even at night, these elements still form defining characteristics, as light is reflected differently by different landscape elements;
- *Night-time Visual Amenity*. Visual amenity is the value of a particular area or view in terms of what is seen. Visual receptors are the people who can see this view. Night-time visual amenity is influenced by topography, vegetation, land use,

human settlement and the night sky. The weather, though not a consistent element in the landscape, can have an important influence on the night-time landscape. For example, clouds and moisture in the air can reflect light from towns and roads to create 'sky glow' in the night sky. This can be seen high in the sky far from any light source;

- *Night-time landscape impacts*: the impacts of changes arising from development on the physical characteristics or components of the landscape which combine to form the landscape character of that landscape at night;
- *Night-time visual impacts*: the impacts of changes arising from development to visual receptors' view of that landscape at night;
- *The study area*: the area of land from which there would be a view of the proposed development or the night-time landscape character area(s) affected by the proposed development;
- *Dark skies*: found above rural and upland areas where there is no light pollution from development or lit transport infrastructure;
- *Glare*: direct light from any light source or reflected light from surfaces including glass or moisture. For example, street lights reflecting off a wet road;
- *Glow*: any light that is directed or reflected into the sky which then reflects off clouds, causing an orange/pink/white 'glow' in the sky above a settlement or lit road; and
- *Light Spill*: direct light falling outside the area required to be lit. For example: the verge of a road.

#### 8.2 Methodology

**8.2.1** The following principal sources of information were consulted while undertaking this assessment:

- Anon (2003). Night Blight, Campaign to Protect Rural England, London;
- Institute of Environmental Assessment and the Landscape Institute (2002). Guidelines for landscape and Visual Impact Assessment, Second Edition, Spon Press, London;
- Larice, M et al (2007). The Urban Design Reader, Routledge, Abingdon, Oxon
- Matthew, P., et al (1997). Lighting in the Countryside: Towards Good Practice, Countryside Commission/DOE, Norwich;
- Morris, P. and Therivel, R. (2001). Methods of Environmental Impact Assessment 2nd Edition, Spon Press, Abingdon, Oxon;
- Narboni, R (2004). Lighting the Landscape, Birkhäuser, Basel, Switzerland;
- Gehl Architects (2006). An Camas Mòr: A Sustainable Community in the Highlands, Gehl Architects, Copenhagen;

- Turnbull, M. (2008). Indicative Land Use Plan Reviews 2 and updates (9.06.2008 and 16.09.2008), 3 and updates (21.01.2009 and 8.04.2009), Mark Turnbull Landscape Architects, Perthshire;
- Turnbull Jeffrey Partnership (1996). Cairngorms Landscape Assessment. Scottish Natural Heritage Review, No 75;
- Ordnance Survey (2007). Cairn Gorm and Aviemore, Explorer Series, Sheet 403, 1:25000, Southampton: Ordnance Survey; and
- Anon (2007). What are Dark Skies? [Internet] Dark Sky Scotland, Online at: [www.darkskyscotland.org.uk](http://www.darkskyscotland.org.uk) Accessed on 19/10/08.

8.2.2 Through desk top study, the likely night-time landscape character areas and likely visual receptors were identified.

### Consultation

8.2.3 Letters and a Note of Scope were sent to the Cairngorms National Park Authority (CNPA) and the Highlands Council (THC) on 23 October 2008. Brief telephone discussion of the lighting aspects of the scheme took place.

8.2.4 CNPA's main concern is the pollution of the dark skies above the Cairngorms National Park. CNPA pointed out that night-hikers and astronomers value the dark skies and the 'wild land' quality of the park by night. Forestry Commission has in the past organised dark skies evenings in the Park. The view from Lairig Ghru is highly valued by CNPA and its visitors. CNPA hope that the quality of lighting in the proposed scheme would be high enough to act as an exemplar for improving the existing street lighting in Aviemore which has currently has a deleterious effect on the CNPA.

8.2.5 THC is concerned about any impact of light pollution on residents of Aviemore and any interaction between lighting and wet, cloudy or misty weather conditions which might increase 'glow'.

### Site Survey

8.2.6 A site survey was undertaken between 29<sup>th</sup> September and 1<sup>st</sup> October 2008, both during the day and the evenings. The weather conditions were clear, with good visibility throughout the site visits. Viewpoints and visual receptors, identified in the desktop study, were verified on site. Where possible, a photograph was taken to illustrate the each potential visual receptor's view of the site. Where this was not possible (at locations 3 and 4), a photograph was taken from the site looking towards the potential receptors. Potential viewpoints were then identified. Photographs were taken by day and by night. In some cases, the view was too dark for light to register in the photograph, though light was still faintly discernible by eye. In this case, the photographs are not illustrated. Figure 8.1 shows the study area and the photograph viewpoint locations. Figures 8.3, 8.4, 8.5, 8.6 and 8.7 show the photographs.

8.2.7 The site survey at night verified the areas of night-time landscape character identified in the desk top study and assessed the lightness or darkness of these areas. Figure 8.2 shows the night-time landscape character areas. Both nights of the assessment were clear and windy with little cloud and no mist. Light sources were clearly visible but the expected night-time glow from Aviemore was not visible, as there was little moisture in the air to reflect the light sources.

## 8.3 Significance Criteria

8.3.1 The value of the landscape, the sensitivity of the visual receptors and the magnitude of impacts of the changes resulting from the proposed development were assessed. By combining value / sensitivity and the magnitude of impacts (as illustrated in the following section) the significance of effects can be determined. For this assessment, impacts determined as moderate and major will be considered significant.

## 8.4 Night-time Landscape Assessment

### Night-time Landscape Value

8.4.1 Night-time Landscape value is the relative value or importance attached to a landscape, which expresses national or local consensus, because of its unique qualities, including perceptual aspects such as scenic beauty, tranquillity or wildness, cultural associations or other conservation issues. For this assessment, the quality of the study area was analysed on the basis of the following table (Table 8.1):

**Table 8.1: Night-time Landscape Value**

Value	Typical Criteria	Typical Scale	Typical Examples/ Features
Very High	Dark night-time landscape with starry sky and Milky Way visible on clear nights. No artificial light or glow visible	International or National	National Park, National Scenic Area or key elements within them.
High	Dark night-time landscape with starry sky on clear nights. Milky Way visible on clear nights. Light visible from distant settlement, road or transport infrastructure. Glow visible on cloudy/misty nights.	National, Regional, District or Local	National Park, National Scenic Area, or key elements within them.
Medium	Generally dark night-time landscape with starry sky and Milky Way sometimes visible on clear nights. Light visible from nearby settlement, road or transport infrastructure. Glow visible on cloudy/misty	Regional, District or Local	Undesignated area but valued for being largely unaffected by light pollution.

	nights.		
Low	Stars usually not prominent in night sky. High levels of glow, light spillage and glare from settlement and transport infrastructure	District or Local	Towns, large villages and major transport corridors.

Source: Modification of criteria contained in the *Guidelines for Landscape and Visual Impact Assessment (2002)*

### Magnitude of Impacts on the Night-time Landscape Character

8.4.2 The magnitude of impacts on the night-time landscape character is based on the interpretation of a combination of largely quantifiable parameters including: the scale of the impact, whether the impact would affect key characteristics of the night-time landscape character for which it is valued, the nature of the impact in relation to landscape character and the duration of the impact and whether this is temporary or permanent. (See Table 8.2).

**Table 8.2: Magnitude of Impacts on the Night-time Landscape Character**

Magnitude	Night-time Landscape Magnitude of Change
High	Fundamental change to the night-time landscape character
Medium	Considerable change to the night-time landscape character
Low	Noticeable change to the night-time landscape character
Negligible	Discernable change, but usually only in atypical circumstances, for example exceptional weather conditions. These changes are thus classified as the 'no change' situation
None	No impact on the night-time landscape character

Source: Modification of criteria contained in the *Guidelines for Landscape and Visual Impact Assessment (2002)*

### Night-time Visual Amenity Assessment

8.4.3 The night-time visual sensitivity of a receptor describes the extent to which they are exposed to the potential impacts of the development, as set out in Table 8.3 below.

**Table 8.3: Sensitivity of Night-time Visual Receptors**

Sensitivity	Typical Criteria
High	Visual receptor groups with a long period and high degree of exposure to the visual impact such as night hikers and observers of the night skies.
Medium	Visual receptor groups with a medium period and medium degree of exposure to the visual impact such as local residents and visitors outdoors in the dark or looking out of upstairs windows in dark rooms. (Light is reflected by glass in lit rooms.)
Low	Visual receptor groups with a short period and short degree of exposure to the visual impact such as road users.

Source: Modification of criteria contained in the *Guidelines for Landscape and Visual Impact Assessment (2002)*

### Magnitude of Impacts on Night-time Visual Amenity

8.4.4 The magnitude of impacts on night-time visual amenity of receptors describes the extent to which a receptors' visual amenity is affected by potential impacts of the development, as set out in Table 8.4.

**Table 8.4: Magnitude of Impacts on Night-time Visual Receptors**

Magnitude	Night-time Visual Impact
Very high	Where the development would be the dominant feature, markedly changing the overall appearance of the night-time scene
High	Where the development would form a major and immediately apparent part of the night-time scene that changes its overall character
Medium	Where the development may form a recognizable new element within the night-time scene and that may be readily noticed by the observer
Low	Where the development may form a minor new element within the night-time scene that may not readily noticed by the observer
Negligible	Where the development would be scarcely appreciated and would have little impact on the night-time scene

Source: Modification of criteria contained in the *Guidelines for Landscape and Visual Impact Assessment (2002)*

### Significance of Effects on Night-time Landscape Character and Visual Amenity

8.4.5 The following table (Table 8.5) is used to define the significance of predicted impacts. Effects defined as moderate, major or substantial are classified as significant.

**Table 8.5: Significance of Effects**

Magnitude of Impact	Value/Sensitivity				
	Very High	High	Medium	Low	Negligible
Very High	Substantial	Substantial	Major	Major-Moderate	Moderate
High	Substantial	Major	Major-Moderate	Moderate	Slight
Medium	Major	Major-Moderate	Moderate	Moderate-Slight	Slight
Low	Moderate-Slight	Moderate-Slight	Moderate-Slight	Slight	Slight
Negligible	Negligible				
None	None				

**8.5 Planning Policy**

**8.5.1** The review of current planning policy for this report is limited to the policies which are relevant to lighting impacts. For other impacts on landscape and visual amenity refer to Volume 2, Chapter 9, Section 2, Effect on the Landscape Resource and Volume 2, Chapter 9, Section 3, Effect on Visual Amenity.

**8.5.2** The Badenoch & Strathspey Local Plan, The Highlands Council (THC), 1997, outlines the An Camas Mòr project, but does not include any information on the lighting requirements.

**The Park Plan, Cairngorms National Park Authority (CNPA), 2007**

**8.5.3** Chapter 5, *Conserving and Enhancing*, has some relevant details for lighting new developments:

**Strategic Objectives for Landscape, Built and Historic Environment – 5.1.2**

**8.5.4** “Ensure development complements and enhances the landscape character of the Park. All new development and infrastructure, necessary to meet the needs of those living and working in the Park, should be designed to complement and enhance the landscape character of its setting. The potential impacts of public and private roads, masts, utilities, renewable energy developments (in and where relevant beyond the Park), road signs and all other man made artefacts will be assessed to ensure that designs and locations do not detract from the landscape character,” (CNPA, 2007).

**Strategic Objectives for Air – 5.1.3**

**8.5.5** “Retain dark night skies and minimise light and noise pollution. As well as the physical quality of the air, the low level of light pollution means the Park is one of the best areas in the

UK for dark night skies. The tranquillity of the area is also a particular quality that should be retained and enhanced. The low noise and light pollution contributes significantly to the sense of wildness and to people’s enjoyment and perceptions of the National Park. Transport and settlement planning in particular should seek to maintain and enhance these qualities,” (CNPA, 2007).

**Designing Places – A Policy Document for Scotland, by Scottish Government, 2006 - Opportunities for creating a sense of welcome**

**8.5.6** “Places where new landmarks could create or improve views and help people find their way around; places where views need to be opened up; opportunities to mark places that act as gateways to particular areas; places where better lighting is needed to improve safety, help people find their way around, highlight landmarks, show off attractive buildings or disguise eyesores; opportunities for creating distinctive works or art and craft; and places where better signs are needed” (Scottish Government, 2006).

**8.6 Proposed Development**

**The Lighting Strategy**

**8.6.1** The external lighting would be consistent with the overarching An Camas Mòr sustainable design philosophy (set out in the report by Gehl Architects, *Cambusmore A Sustainable Community in the Highlands*, 2006) and would aim to be sympathetic to the Cairngorms National Park setting. The draft lighting proposals for lighting the site and access roads are described in Volume 1, Chapter 5 and Supporting Document, Indicative Land Use Plan Strategies, Lighting Strategy.

**8.6.2** The lighting strategy proposes that light levels would be as low as possible. Street lighting and light fittings would be selected to prevent any light spillage upwards (fully cut-off). Best practice for reducing night-time sky glow would be adopted, which requires the use of SON Cut Off (white) street lights. Luminaries would be mainly fixed to buildings. Where they are column mounted, the height of light columns would be 5 - 6m in height. Columns would be painted a colour to reduce visibility by day. A soft, even light effect would be achieved using well designed light fittings, such as those used outside Aviemore Station.

**8.6.3** Dimming or turning off a proportion of the lights at 22:00 hrs (as indicated in Supporting Documents, ILUP Strategies, Lighting Strategy) could also have a beneficial effect on both the night-time landscape character and visual amenity. This might not be acceptable to local residents but it has been trialled successfully elsewhere in the UK .

**8.6.4** Roads junctions, roundabouts and pedestrian crossings would be lit according to an ‘S4’ Lighting Classification:

- Maintained Average Horizontal Illuminance: 5 Lux; and
- Maintained Minimum Horizontal Illuminance:1 Lux.

**8.6.5** Main Street and High Street would be lit according to an ‘S4’ Lighting Classification:

- Maintained Average Horizontal Illuminance: 5 Lux; and
- Maintained Minimum Horizontal Illuminance:1 Lux.

**8.6.6** To put these Lux levels in context, the following extract from Lyons (1980) sets out man-made and natural lighting levels (Table 8.6).

**Table 8.6: Lighting Levels**

Lighting Conditions	Illuminance Value (lu8)
Scottish June sunshine	80 000
Overcast day	5000
Bad light stops play	1000
Well lit office	500
Well lit domestic room	200
Working area, building site	50
Good main road lighting in city	15
Typical side road lighting	5
Minimum design illuminance, security	1
Clear moonlight	0.2
Starlight on clear night	0.01

**Taken from 'Exterior lighting for industry and security', Lyons, 1980.**

**8.6.7** More details on the specific requirements of the different areas in the Lighting Strategy is outlined below;

### **Proposals for New B970 Road ( Sub-station route) and Improved Coylumbridge Road**

**8.6.8** Road junctions, new roundabouts and pedestrian crossings would be lit with approximately 6 m high, column mounted luminaries (the B970 from Aviemore, as far as Inverdrue, is already brightly lit with street lights).

### **Proposals for Pedestrian Footpath/Cyclepath (parallel to the Sub Station Route)**

**8.6.9** The pedestrian / cyclepath would be lit with column lighting at a height of no more than 5m, positioned along the route of the pedestrian footpath / cycle path in a single-sided arrangement to provide optimum light distribution, maximum efficiency and low glare. Appropriate shields and louvres would be used to direct light downwards and minimise glare. Dark surfacing colouration would also help to reduce upwards glare.

### **Proposals for Residential Development**

**8.6.10** The Main Street and High Street lighting would be column-mounted and wall-mounted luminaries at 5 m height; and

**8.6.11** The other areas are likely to lit by bollard lighting or not lit at all.

### **Proposals for Road Signage**

**8.6.12** The lighting of signage would be the minimum allowed under the Traffic Signs and Road Markings Regulations and General Directions 2002.

### **Retention of Existing Woodland**

**8.6.13** Screen planting can be very effective in screening light pollution in the form of glare from surrounding viewpoints. An existing example of this can be seen from Upper Tullochgrue (viewpoint location 10) where the Coylumbridge Hotel Complex is not visible by night even, though the roofs of the hotel are visible by day.

**8.6.14** The development includes the retention of a substantial and mature, existing conifer plantation on the southern boundary of the site. Existing woodland belts of varying depths and age range around the perimeter of the development would also be retained. Existing woodland and groups of trees within the site would also be retained. The planting to be retained would be protected during the construction period and managed thereafter.

### **8.7 Baseline Conditions**

**8.7.1** This section concentrates on the day and night-time landscape character and the visual amenity of areas which potentially might be affected by the proposed lighting scheme. For a more detailed landscape character and visual impact assessment of the site and surrounding area Volume 2, Chapter 9, Section 2 & 3.

**8.7.2** The study area for this chapter comprises the area of land from which there would be a view of the proposed development at night. The boundaries to the study area (where the lighting scheme no longer affects the night-time landscape character or visual amenity) are largely defined by the varied topography and the dense forests and plantations of the area. However, the boundaries would vary according to weather conditions. On cloudy nights street lighting could be reflected from high cloud and be visible from a wider area. For this reason the ZVI (Zone of Visual Influence) has not been defined.

**8.7.3** The study area is shown on Figure 8.1, together with the viewpoints described in the text.

### **Land Cover and Topography**

**8.7.4** The proposed development site itself has a locally undulating topography. The site slopes gently towards the west but is mainly at around 220m above ordnance datum (AOD). The land slopes steeply west of the site down to the River Spey Valley. This bank interrupts the view of the site from much of the Dalfaber Golf Course complex.

**8.7.5** The site is surrounded by substantial tree belts and plantations. These are largely planted with conifers, with some birch, which range from 10 to nearly 60 years old. On the east side of the site itself, parallel with the B970, there is a woodland buffer strip which has recently been planted. The trees, including Scots pine and silver birch, range between two and five metres high. Across the rest of the site there are plantations, mainly of Scots pine and birch, with an understorey, in places, of broom and gorse. The plantations vary in age and height; the oldest was planted in 1970 and the youngest in 2002 (An Camas Mòr Indicative Land Use Plan Review 2, 04/07/08). The coniferous plantations form a dense screen round the site throughout the year. Where the depth of the woodland belt is greater than 50m the screening effect is almost total; however, the clear stems of the trees allow filtered views of the site where the plantations are less than 50m wide.

- 8.7.6** Areas of scrub (largely broom and gorse) outside the western boundary side of the site form an effective year round screen below canopy level to views from the west into the site.

### Landscape Context

- 8.7.7** To the west of the Proposed Development site is the River Spey floodplain. The land use here includes pasture and woodland. There are belts of densely growing mature tree and shrub vegetation running the length of the river. Aviemore lies on the west of the Spey. South of the site, the land use is mainly mixed-age woodland, with some arable fields and two settlements (Inverdrue and Coylumbridge), a hotel complex, isolated farms and a fish farm: they are all over 1km from the site. East of the site, the landscape gently rises for about 500 metres but then rises steeply to the peak of Creag a' Ghreusaiche, at 435m AOD. The land is marshy between the B970 and Guislich and Achnahatnich Farms where the Kinchyles Burn flows northwards to Loch Pityoulish. The wider context of the study area and beyond is predominately highland, including the Cairngorm Mountains to the south and east and the Monadhliath Mountains to the west. Wide U-shaped valleys allow long views from upland areas.

## 8.8 Night-time Landscape Character and Quality

- 8.8.1** The proposed new community at An Camas Mòr is located within the Strathspey Landscape Character Area within the Cairngorms SNH LCA. Adjacent Landscape Character Areas within the study area are 'Badenoch', 'Rothiemurchus/Abernethy', 'The North-Eastern Hills' and 'The Central Massif'. These are illustrated on Figure 2.4 'Wider Setting: Landscape Character Areas' and described in the Landscape Resource chapter (see Volume 2. Chapter 9, Section 2).
- 8.8.2** The study area has been broken down into six localised night-time landscape character areas. Aviemore town is assessed as a night-time landscape character area rather than a night-time *townscape* character area to simplify the assessment. These are illustrated on Figure 2.3 'Character Areas'.
- 8.8.3 Aviemore Town:** Aviemore is lit at night, by a wide variety of styles of street light and private security light. The approach to lighting is different for each area of the town. The B9152 and many of the buildings along it are brightly lit. Light levels are much lower in the housing areas in the north east of the town (including the Dalfaber Golf Complex) with some parts lit only by light bollards. The railway station has recently been restored and light levels here are fairly bright but the light is spread evenly by the light fittings selected. The B970/B9152 roundabout is very brightly lit with a combination of light bollards, up-lighting and sign lighting but no standard lights on poles. The restaurant adjacent is decorated by many fairy lights. The street lighting design for the town has not been coordinated and there is light spill and glare from the existing light infrastructure visible from the surrounding landscape character areas. The landscape value of the night-time landscape character is low.
- 8.8.4 River Spey and Immediate Surroundings:** The night-time landscape character of the river valley and the open fields on higher ground east of the river is currently largely dark. These areas are screened from the lights of Aviemore by the belts of mature trees along field boundaries and the river valley. The landscape value of the night-time landscape character is medium.
- 8.8.5 The B970 road corridor (from the B970 / B9152 roundabout, as far as Coylumbridge):** This road is brightly lit from the roundabout to the east end of Inverdrue. Further east along the road, the Coylumbridge hotel complex sits amongst dense trees which block light

spillage and substantially reduce glow from the low level lighting on the site. There is minimal glare from Coylumbridge village itself and from other residences along the road. The night-time character from east of Coylumbridge is determined by the dense woodland and dark fields which line this corridor. The dense woodland, to the north of the road, defines the boundary of this area. The landscape value of the night-time landscape character is medium.

- 8.8.6 Loch Morlich and the Cairngorm Mountains:** Loch Morlich is surrounded by dense woodland which means that the environs of the loch are dark throughout the year. There is very limited man-made light in this area emitted from the isolated buildings along the road up to the ski car park or associated with outdoor activities in the Cairngorm Mountains. The night skies above Loch Morlich and the treeless slopes of the Cairngorms, north, east and south of Loch Morlich are dark and the Milky Way is visible on clear nights. The CNP is an important area of a diminishing resource of dark skies in Scotland. The landscape value of the night-time landscape character is high.
- 8.8.7 Fields between Creag a' Ghreusaiche and the Site:** this is an area of gently sloping open fields and isolated farms. There are no streetlights and the Milky Way is visible on clear nights in the dark sky above. There are potential sources of light from the farms in the area but light levels, if light is visible, are low, due to the domestic nature of the lighting. The landscape value of the night-time landscape character is high.
- 8.8.8 The Development Site:** the skies are dark above the development site. No light from the Aviemore, Coylumbridge, the Coylumbridge Hotel or the B970 was noticeable due to the extensive woodland planting in the area. No glow was observed in the night skies during the night surveys (despite Aviemore and the B970 being brightly lit) but the weather was clear on both nights. It is likely that on a wet or misty night glow would be visible in the sky from the direction of Aviemore. The landscape value of the night-time landscape character is medium.

## Night-time Visual Amenity

- 8.8.9** The assessment of the sensitivity of visual receptors takes into account the importance of the view, the location and context of the viewpoint and the occupation and activity of the visual receptor. Visual receptors are usually considered to be less receptive to changes in the night-time view than visual receptors are to changes in the day-time view since the majority of visual receptors would be inside buildings, often with the curtains drawn. Exceptions are visual receptors such as night hikers and star gazers who are considered equally sensitive as day-time receptors. The number of night-hikers and star gazers in locations surrounding the site are very small in comparison to the number of people who visit the same landscapes by day. However, night hikers and star gazers visit the landscape at night precisely because the skies are very dark and there is little light intrusion from man-made sources. They can therefore experience the 'wildness' of the mountains and other locations. Important visual receptors and the locations of their viewpoints are shown on Figure 8.1 'Study Area and Photo Locations'. The photographs of the views by day and by night where possible are shown on Figures 8.3, 8.4, 8.5, 8.6 and 8.7.
- 8.8.10** The majority of visual receptors in the study area are residents of Aviemore. There could be views of the proposed development from: the new development north of Dalfaber Drive, the development around Croftside, upper windows of buildings along B9152 as it passes through Aviemore and the MacDonald Highland Resort area. Photo Location 4 on Figure 4 shows a number of potential visual receptors as seen from the western boundary of the development site. This indicates that there could be views of the site at night from these locations in Aviemore. However these might be filtered views or screened completely by the existing tree cover on the western side of the site. In addition, receptors in areas of

Aviemore which are brightly lit would not perceive the much lower light levels of the development.

**8.8.11** Dell Farm, close to the southern boundary of the site, could possibly have views of the development and the Link Road. Guislich Farm and Drumintoul Lodge, located east of the site, are likely to be visual receptors. There could be views from Upper Tullochgrue which is, at 300 AOD, higher than the development site. Aviemore is clearly visible from Upper Tullochgrue as a narrow linear band of light, surrounded by areas of darkness. The roofs of the Coylumbridge Hotel and timeshare complex are visible by day from Upper Tullochgrue but the development is not visible at night. This is because the hotel and complex are sensitively lit with mainly low level bollard lighting. What light spillage is emitted by the development is screened by the dense coniferous woodland around the site. The residents of the villages of Coylumbridge and Inverdrue and guests of the Coylumbridge Hotel could possibly experience increased glow on overcast nights in the sky above the development but would probably not be affected by glare or light spill due to the dense coniferous woodland surrounding them.

**8.8.12** Tourists in the landscape of the study area would have views of the site. By day the lighting infrastructure would only be visible from approximately 800 m away. There are far fewer walkers and visitors in the landscape by night, but organised night hikes do take place and people might drive up into the Cairngorm Mountains at night to watch wildlife and look at the night sky. It is possible to see Aviemore, the dominant feature on the valley floor from the Ski Road as a band of orange lights running north – south along the valley. There are also barely visible pinpricks of light from the small settlements and farms across the valley. Loch Morlich is visible by eye as a soft blue glow (the water body reflects all available light), but this is not recorded by the camera in the view from this location. The landscape east of Coylumbridge, within the study area, is predominantly dark, but two tones of blue are evident; the highlands and open moorland landscape is dark blue compared with the woodland areas, which are very dark blue. This is a result of the different reflectivity of the vegetation in these areas; the woodland is dominated by coniferous trees and thus absorbs most of the available light. The moorland and grassland in the more open landscape, by contrast, are much lighter in colour and so reflect more light.

**8.8.13** Passengers on the railway to Inverness, which runs parallel with the site (approximately 1 km away from the centre of the site), and on the A9 situated above Aviemore, might also be visual receptors but internal reflection from the carriage windows would probably result in travellers being unaware of any glare emanating from the development.

## 8.9 Assessment of Construction Impacts

**8.9.1** This section sets out the assessment of impacts in terms of night-time direct and indirect (glow) lighting, on night-time landscape character and visual amenity during the construction period. These impacts would be of a temporary nature. Lighting would be required to enable afternoon working in the winter and it might be required as a security measure at night, when the site is closed. Light levels to enable safe working would be higher than they would be on the completed scheme. However areas lit by the brighter construction lighting would be limited to the zone under construction – not the whole development site. Lighting levels could be lower for night-time security. Since the construction period is to be phased, initial zones of the An Camas Mòr development would be occupied by residents while later zones are being built.

### Predicted Impacts on Night-time Landscape Character During Construction

**8.9.2** The night-time landscape character areas are illustrated on Figure 8.2. The impacts are described below and summarised in Table 8.7.

#### Aviemore Town

**8.9.3** Due to the existing light infrastructure in Aviemore, light levels are high in the town. Consequently site lighting during construction of the new development might not have a perceptible impact on the night-time landscape character of Aviemore.

Night-time landscape value: **Low**;  
Magnitude of impact: **Negligible**; and  
Significance of effects: **Negligible**.

#### River Spey and Immediate Surroundings

**8.9.4** There might be light spill from construction site lighting into the floodplain, currently a fairly dark area. Glow reflected from the site could add slightly to any existing glow from Aviemore.

Night-time landscape value: **Medium**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate-Slight Adverse**.

#### The B970 road corridor (from the B970/B9152 roundabout, as far as Coylumbridge)

**8.9.5** The road as far as Inverdrue is already brightly lit and there are conifer plantations on both sides of the road. The landscape character elements would be unaffected.

Night-time landscape value: **Medium**;  
Magnitude of impact: **Negligible**; and  
Significance of effects: **Negligible**.

#### Loch Morlich and the Cairngorm Mountains

**8.9.6** Construction light levels would be higher than light levels on the completed scheme. This means that the site lighting would add to the existing bright lighting in Aviemore. However this would be limited as only the zone being built would be lit at this level. The lights of Aviemore are visible as a bright orange band when viewed from the Ski Lift Road (see Figure 6 photographs) and the construction site lighting may merge into this existing light effect. The dense woodland around the site would reduce light spillage into the character area.

Night-time landscape value: **High**;  
Magnitude of impact: **Negligible**. and  
Significance of effects: **Negligible**.

#### Fields between Creag a' Ghreusaiche and the Site

**8.9.7** The character area which is currently dark, would experience light spillage as well as glow during misty or cloudy conditions from the site lighting. The lighting at the B970 / site entrance roundabout would increase light levels noticeably. The lighting of the construction areas however would be limited to the zone under construction – not the whole site.

Night-timer landscape value: **High**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Major-moderate adverse**.

**The Development Site**

**8.19.8** Construction lighting would be brighter than the permanent lighting scheme in completed areas of the development.

Night-timer landscape value: **Medium**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Moderate adverse**.

**Table 8.7: Summary of Impacts on Night-time Landscape Character during Construction**

Landscape Character	Value	Magnitude of Impacts	Significance of Effects
Aviemore Town	Low	Negligible	Negligible
River Spey and Immediate Surroundings	Medium	Low	Moderate-slight adverse
The B970 road corridor (from the B970/B9152 roundabout, as far as Coylumbridge	Medium	Negligible	Negligible
Loch Morlich and The Cairngorm Mountains	High	Negligible	Negligible
Fields between Creag a' Ghreusaiche and the Site:	High	Medium	Major-moderate adverse
The Development Site	Medium	Medium	Moderate adverse

**Predicted Night-time Visual Impact During Construction**

**8.9.9** The locations of Visual Receptors are shown in Figure 8.1. At location 3 and 4 the receptors were identified by looking from the site to the receptor. However the views *from* the receptors are assessed in the following sections. Construction impacts are temporary and the construction sites would only affect discrete areas of the site at any one time - not the whole site. In addition the substantial existing planting on the site would be retained until the area it occupies is required for construction, helping to screen the site, especially from the south and west for much of the construction period. Refer to Table 8.3 for description of Night-time Visual Sensitivity and Table 8.4 for the description of Night-time Visual Magnitude of Impacts. The impacts are described and summarised in Table 8.8.

**Looking from North East Corner of the Site (Location 1)**

**8.9.10** Drivers on the B970 would probably see the higher lux levels of the construction site lighting although the existing woodland screen would reduce the magnitude of the impact.

Visual Sensitivity: **Low**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Moderate – slight adverse**.

**Looking from Eastern Site Entrance (Location 2)**

**8.9.11** Drivers on the B970 would probably see the higher lux levels of the construction site lighting although the existing woodland screen would reduce the magnitude of the impact.

Visual Sensitivity: **Low**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Moderate – slight adverse**.

**Views from the direction of Creag a' Ghreusaiche (Location 3)**

**8.9.12** There would be direct views of the site from Guislich Farm, and Drumintoul Lodge east of the B970. Glare and glow in damp weather from the entrance roundabout lighting and the development street lighting would probably be apparent to receptors, although the retained existing woodland screen would reduce the magnitude of the impact.

Visual Sensitivity: **Medium**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Moderate Adverse**.

**Potential views from Highland Resort (Location 4)**

**8.9.13** Lighting from the site could be visible from the floors above ground floor level in the Highland Resort and other east facing buildings in Aviemore. The general level of glow in the area of the town might increase but the change probably would not be perceptible as Aviemore is the main source of any existing glow.

Visual Sensitivity: **Medium** (homes, guesthouses and hotel) **Low** (Police Station);  
 Magnitude of impact: **Low**; and  
 Significance of effects: **Moderate–slight adverse** (homes, guesthouses and hotel); **Slight adverse** (Police Station).

**Looking from Aviemore Railway Station (Location 5)**

**8.9.14** Rail passengers might experience indirect glow from the site but as the station is well lit and the site is well screened by tree belts between the railway and An Camas Mòr, additional lighting might not be discernable or it might be interpreted as part of the existing light emanating from Aviemore.

Visual Sensitivity: **Low**;  
 Magnitude of impact: **Low**; and  
 Significance of effects: **Slight adverse**.

**Looking from Aviemore Railway Sidings (Location 6)**

- 8.9.15** Rail workers, police officers and local residents walking in the area might experience indirect glow from the construction site, but as the site is well screened by tree belts between the railway and the site, this might not be discernable or it might be interpreted as part of the existing light emanating from Aviemore.

Visual Sensitivity: **Low**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Slight adverse**.

### Looking from the Black Park Water Treatment Works (Location 7)

- 8.9.16** Local residents walking in the area might experience indirect glow but no direct light from the development site. The area is currently dark, so glow could be more apparent from here than in other areas of Aviemore.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate - slight adverse**.

### Looking from Craigellachie National Nature Reserve (Location 8)

- 8.9.17** Low numbers of night hikers and observers of the night skies could experience direct views of light sources of the construction zones, as there are open views across the whole site from this location. However, these would be in discrete areas and, for much of the construction period, the existing vegetation would screen the view. The general level of glow in the area of the town might increase but the change probably would not be perceptible as Aviemore is the main source of any existing glow.

Visual Sensitivity: **High**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate - slight adverse**.

### Looking from Dalfaber Golf Course Complex (Location 9)

- 8.9.18** Local residents and holiday makers walking around the complex would not have direct views of light sources on the development site as there is a tree lined bank 10 m high on the east side of the river which screens the view of the site. The general level of glow in the area might increase but the change probably would not be perceptible as Aviemore is the main source of any existing glow.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Negligible**; and  
Significance of effects: **Negligible**.

### Looking from Upper Tullochgrue (Location 10)

- 8.9.19** Local residents could experience direct views of light sources in the development since Upper Tullochgrue is 90m above the highest point of the site. However, between the location viewpoint and the centre of the site, the existing mixed mature woodland would screen much of the view in the same way that light emitted from the Coylumbridge Hilton Hotel complex is screened by surrounding woodland and is invisible from Tullochgrue at night. Indirect glow could appear separate from the glow above Aviemore because the currently dark river valley separates the town from the proposed development.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate – slight adverse**.

### Looking from Craiggowrie Summit (Location 11)

- 8.9.20** Low numbers of night walkers and observers of the night skies would experience direct views of light sources on the development because the location is 420 m above the highest point on the site. The site is 4.5 km from the viewpoint which would reduce the impact on visual receptors. The construction sites could be visible. However, these would be in discrete areas and for much of the construction period the existing on site vegetation would help to screen the view. Some of the site (low density development with bollard lighting) is screened from view behind Creag Phitiùlais. Indirect glow could be apparent; it might appear separate from the Aviemore glow, due to the angle of view and the dark gap of the River Spey valley.

Visual Sensitivity: **High**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate-slight adverse**.

### Looking from Ski Lift Road (Location 12)

- 8.9.21** Low numbers of night hikers, observers of the night skies, skiers and local workers returning home would experience direct views of light sources from here, due to the elevated location 360 m above the highest point of the site. The development site is 7km away and from this location the development lighting would be directly in front of and therefore would probably merge into the existing lighting in Aviemore. The construction sites could be visible. However, these would be in discrete areas and for much of the construction period the existing on site vegetation would help to screen the view. The dark gap of the River Spey between An Camas Mòr and Aviemore would probably not be noticeable. Indirect glow would be viewed against the existing Aviemore light pollution.

Visual Sensitivity: **High** (Night hikers, observers of the night skies) (**Medium** (skiers and local workers));  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate-slight** (Night hikers, observers of the night skies); **Moderate-slight adverse** (skiers and local workers).

### Residents of Completed Phases of the An Camas Mòr development

- 8.9.22** Residents are likely to have a view of the construction site lighting. However since they are living in an area with street lighting the magnitude of the impact is less than it would be if the site were dark at night.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Medium**; and  
Significance of effects: **Moderate adverse**.

### Table 8.8: Summary of Predicted Night-time Impacts on Visual Receptors during Construction

Visual Receptor	Visual Sensitivity	Magnitude of Visual impact	Significance of Effects
<b>1. Looking from North East Corner of the site:</b>			
Drivers on the B970 road	Low	Medium	Moderate-slight adverse
<b>2. Looking from East Site Entrance</b>			
Drivers on the B970 road	Low	Medium	Moderate-slight adverse
<b>3. Views from the direction of Creag a' Ghreusaiche Summit</b>			
Guislich Farm, and Drumintoul Lodge	Medium	Medium	Moderate adverse
<b>4. Potential views from Highland Resort</b>			
Police Station and surrounding buildings	Low	Low	Slight adverse
MacDonald Highland Resort	Medium	Low	Moderate - slight adverse
Guesthouses on Grampian Road	Medium	Low	Moderate - slight adverse
Houses on Craig Gresich	Medium	Low	Moderate - slight adverse
<b>5. Looking from Aviemore Rail Station</b>			
Rail travellers	Low	Low	Slight adverse
<b>6. Looking from Aviemore Railway Sidings</b>			
Rail workers, police officers	Low	Low	Slight adverse
<b>7. Looking from Water Treatment Works</b>			
Local residents	Medium	Low	Moderate-slight adverse
<b>8. Looking from Craigellachie National Nature Reserve</b>			
Night hikers and observers of the night skies	High	Low	Moderate - slight adverse
<b>9 Looking from Dalfaber Golf Course</b>			
Local residents and visitors staying on the complex	Medium	Negligible	Negligible
<b>10. Looking from Upper Tullochgrue</b>			
Residents of Upper Tullochgrue	Medium	Low	Moderate - slight adverse
<b>11. Looking from Craiggowrie Summit</b>			
Night hikers and observers of the night skies	High	Low	Moderate - slight adverse
<b>12. Looking from Ski Lift Road</b>			
Night hikers, observers of the night skies and workers in winter	High	Low	Moderate-slight adverse
Local workers in winter	Medium	Low	Moderate – slight adverse
<b>13. Residents of completed phases of the An Camas Mòr development</b>			
	Medium	Medium	Moderate adverse

## 8.10 Assessment of Operational Impacts

### Introduction

**8.10.1** This section sets out the assessment of impacts in terms of night-time direct (glare) and indirect (glow) lighting, on night-time landscape character and visual amenity at completion in 2027. The night lighting impacts may vary over the duration of the development, but the increase in area of the built form and consequent loss of existing vegetation, would be offset by the increase in height and density of retained and newly planted woodland. In the early stages of the proposed development, much of it would be screened by retained woodland. By the end of the development, the young and newly planted woodland would have grown to the extent that it would provide an effective screen to any light emanating from the development. It would be difficult to predict the changes in night light impacts between the different phases of the development with any accuracy, since yearly planting growth rates are likely to vary. The impacts are described and summarised in Tables 8.9 and 8.10.

### Predicted Impacts on Night-time Landscape Character

#### Aviemore Town

**8.10.2** Due to the existing light infrastructure in Aviemore, light levels are high. Consequently the far lower light levels of the new development would not be discernible from Aviemore. The night-time landscape character would not change.

Night-timer landscape value: **Low**;  
 Magnitude of impact: **None**; and  
 Significance of effects: **None**.

#### River Spey and Immediate Surroundings

**8.10.3** The main impact would be the potential light spill into a currently fairly dark area from the proposed high street into the floodplain and from the cycle path from the B970. Glow reflected from the development could add slightly to any existing glow from Aviemore.

Night-timer landscape value: **Medium**;  
 Magnitude of impact: **Low**; and  
 Significance of effects: **Moderate-Slight Adverse**.

#### The B970 road corridor (from the B970/B9152 roundabout, as far as Coylumbridge

**8.10.4** The new road junctions would be lit but as the road as far as Inverdrue is already brightly lit and there are conifer plantations on both sides of the road, the landscape character elements would be unaffected.

Night-timer landscape value: **Medium**;  
 Magnitude of impact: **Negligible**; and  
 Significance of effects: **Negligible**.

### Loch Morlich and the Cairngorm Mountains

**8.10.5** In the proposed Lighting Strategy for An Camas Mòr development, lux levels are to be kept below 7.5 lux. This is a far lower level of lighting than currently exists in Aviemore. The lights of Aviemore are visible as a bright orange band when viewed from the Ski Lift Road (see Figure 8.7). The softer lighting of An Camas Mòr would, if noticeable, merge into the general lighting of Aviemore. Any glow (light reflected by clouds or moisture in the air) would largely be caused by the existing light levels in Aviemore. Glow from the proposed development would not be discernible against the much brighter lights of Aviemore. The dense woodland around the site would screen light spillage into the character area.

Night-timer landscape value: **High**;  
 Magnitude of impact: **Low**; and  
 Significance of effects: **Moderate-slight adverse**.

### Fields between Creag a' Ghreusaiche and the Site

**8.10.6** There would probably be some light spillage from the development and the lit roundabout at the entrance to the site into this currently dark area. Glow above the area would probably increase also. However, lighting levels would be kept to a minimum and retained existing vegetation and the irregular High Street arrangement would minimise this.

Night-timer landscape value: **High**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Major-moderate Adverse**.

**Table 8.9: Summary of Impacts on Night-time Landscape Character during Operation**

Landscape Character	Value	Magnitude of Impacts	Significance
Aviemore Town	Low	None	None
River Spey and Immediate Surroundings	Medium	Low	Moderate-slight adverse
The B970 road corridor (from the B970/B9152 roundabout, as far as Coylumbridge	Medium	Negligible	Negligible
Loch Morlich and The Cairngorm Mountains	High	Low	Moderate-slight adverse.
Fields between Creag a' Ghreusaiche and the Site:	High	Medium	Major-moderate adverse

### Predicted Night-time Visual Impact

**8.10.7** The impacts are described and summarised in Table 8.10. The locations of Visual Receptors are shown in Figure 8.1. Refer to Table 8.3 for description of Night-time Visual Sensitivity and Table 8.4 for the description of Night-time Visual Magnitude of Impacts. Table 8.10 shows a summary of predicted night-time visual impacts.

### Looking from North East Corner of the Site (Location 1)

**8.10.8** Drivers on the B970 might experience an indirect glow from the site in damp/cloudy weather. Direct light might not be as visible, due to the dense tree buffer. The proposed lighting would be concentrated in and around the High Street and there would be limited lighting on the outskirts around the low density development.

Visual Sensitivity: **Low**;  
 Magnitude of impact: **Medium**.; and  
 Significance of effects: **Moderate – slight adverse**.

### Looking from Eastern Site Entrance (Location 2)

**8.10.9** Drivers on the B970 might experience an indirect glow from the site in damp/cloudy weather. Direct light sources along the eastern section of the proposed High Street and the lit entrance roundabout would be visible from this location.

Visual Sensitivity: **Low**;  
 Magnitude of impact: **High**; and  
 Significance of effects: **Moderate adverse**.

### Views from the direction of Creag a' Ghreusaiche (Location 3)

**8.10.10** There would be direct views of the site from the farms and lodge east of the B970. Glare and glow in damp weather from the lit entrance roundabout and the development street lighting would be apparent to receptors as the area is currently dark.

Visual Sensitivity: **Medium**;  
 Magnitude of impact: **High**; and  
 Significance of effects: **Major-moderate Adverse**.

### Views from Highland Resort (Location 4)

**8.10.11** Lighting from the proposed development could be visible from the floors above ground floor level in the Highland Resort and other east facing buildings in Aviemore. Glare might be apparent from the High Street which could extend into the River Spey floodplain. Any additional indirect glow in the night sky would not be discernible as receptors are already located in the well-lit Aviemore area. The tree buffer would shield much of the lighting in the outer, less dense housing areas, reducing likely light intrusion on these particular receptors.

Visual Sensitivity: **Medium** (homes, guesthouses and hotel) **Low** (Police Station);  
 Magnitude of impact: **Low**; and  
 Significance of effects: **Moderate-slight adverse** (homes, guesthouses and hotel); **Slight adverse** (Police Station).

### Looking from Aviemore Rail Station (Location 5)

**8.10.12** Rail passengers might experience indirect glow from the development but as the station is well lit and the site is well screened by tree belts between the railway and the site this might not be discernable or be interpreted as part of the light pollution from Aviemore.

Visual Sensitivity: **Low**;

Magnitude of impact: **Low**; and  
Significance of effects: **Slight adverse**.

### Looking from Aviemore Railway Sidings (Location 6)

**8.10.13** Rail workers, police officers and local residents walking in the area might experience indirect glow from the development, but as the site is well screened by tree belts between the railway and the site, this might not be discernable or be interpreted as part of the light pollution from Aviemore.

Visual Sensitivity: **Low**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Slight adverse**.

### Looking from the Black Park Water Treatment Works (Location 7)

**8.10.14** Local residents walking in the area might experience indirect glow but no direct light from the development. The area is currently dark, so glow could be more apparent from here than in other areas of Aviemore.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate-slight adverse**.

### Looking from Craigellachie National Nature Reserve (Location 8)

**8.10.15** Low numbers of night hikers and observers of the night skies would experience direct views of light sources from street lighting and upstairs windows on the development, as there are open views across the whole site from this location. The low light levels across the development and the growth of planting within the development would break up lit areas and screen much lighting from this viewpoint. There is a defined gap between the existing and the proposed built-up areas, which would be visible from this vantage point, making it clearer for night walkers to distinguish between the two settlements. Indirect glow might not be apparent, due to the proximity of brightly lit Aviemore: the glow would merge.

Visual Sensitivity: **High**;  
Magnitude of impact: **Medium**; and  
Significance of effects: **Major-Moderate adverse**.

### Looking from Dalfaber Golf Course Complex (Location 9)

**8.10.16** Local residents and holiday makers walking around the complex would not have direct views of light sources on the development site as there is a tree lined bank 10 m high on the east side of the river which screens the view of the site. Indirect glow might be visually intrusive, as light levels on the complex are low with only low-level bollard lighting.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Negligible**; and  
Significance of effects: **Negligible**.

### Looking from Upper Tullochgrue (Location 10)

**8.10.17** Local residents could experience direct views of light sources in the development since Upper Tullochgrue is 90m above the highest point of the site. Glare from the lighting around the roundabout at the entrance to the site would be visible from this location. However, between the location viewpoint and the centre of the site, the existing mixed mature woodland would screen much of the lighting emitted from the development in the same way that light emitted from the Coylumbridge Hilton Hotel complex is screened by surrounding woodland and is invisible from Tullochgrue at night. Indirect glow could possibly appear separate from the glow above Aviemore because the currently dark river valley separates the town from the proposed development.

Visual Sensitivity: **Medium**;  
Magnitude of impact: **Medium**; and  
Significance of effects: **Moderate adverse**.

### Looking from Craiggowrie Summit (Location 11)

**8.10.18** Low numbers of night walkers and observers of the night skies would experience direct views of light sources on the development because the location is 420 m above the highest point on the site. The site is 4.5 km from the viewpoint which would reduce the impact on visual receptors. The low light levels across the development and the growth of planting within the development would break up lit areas and screen much lighting from this viewpoint. Some of the site is screened from view behind Creag Phitiùlais. Indirect glow could be apparent; it might appear separate from the Aviemore glow, due to the angle of view and the dark gap of the River Spey valley.

Visual Sensitivity: **High**;  
Magnitude of impact: **Medium**; and  
Significance of effects: **Major-moderate adverse**.

### Looking from Ski Lift Road (Location 12)

**8.10.19** Night hikers, observers of the night skies, skiers and local workers returning home would experience direct views of light sources from here, due to the elevated location 360 m above the highest point of the site. The development site is 7 km away and from this location the development lighting would be directly in front of and therefore would merge with the lighting in Aviemore. Furthermore the lighting in Aviemore would be much brighter than the lighting on the development. The dark gap of the river would not be noticeable. Indirect glow would be viewed against the existing Aviemore light pollution.

Visual Sensitivity: **High** (Night hikers, observers of the night skies); **Medium** (workers and skiers);  
Magnitude of impact: **Low**; and  
Significance of effects: **Moderate-slight adverse** (Night hikers, observers of the night skies); **Moderate-Slight Adverse** (workers and skiers).

**Table 8.10: Summary of Predicted Night-time Impacts on Visual Receptors during Operation**

Visual Receptor	Visual Sensitivity	Magnitude of Visual impact	Significance of Effects
<b>1. Looking from North East Corner of the site:</b>			
Drivers on the B970 road	Low	Medium	Moderate-slight adverse
<b>2. Looking from East Site Entrance</b>			
Drivers on the B970 road	Low	High	Moderate adverse
<b>3. Potential views from the direction of Creag a' Ghreusaiche Summit</b>			
Guislich Farm, and Drumintoul Lodge	Medium	High	Major –moderate adverse
<b>4. Potential views from Highland Resort</b>			
Police Station and surrounding buildings	Low	Low	Slight adverse
MacDonald Highland Resort	Medium	Low	Moderate-slight adverse
Guesthouses on Grampian Road	Medium	Low	Moderate-slight adverse
Craig Gresich Houses	Medium	Low	Moderate-slight adverse
<b>5. Looking from Aviemore Railway Station</b>			
Rail travellers	Low	Low	Slight adverse
<b>6. Looking from Aviemore Railway Sidings</b>			
Police officers, rail workers	Low	Low	Slight adverse
<b>7. Looking from Water Treatment Works</b>			
Local residents	Medium	Low	Moderate-slight adverse
<b>8. Looking from Craigellachie National Nature Reserve</b>			
Night hikers and observers of the night skies	High	Medium	Major–moderate adverse
<b>9 Looking from Dalfaber Golf Course</b>			
Local residents and visitors staying on the complex	Medium	Negligible	Negligible
<b>10. Looking from Upper Tullochgrue</b>			
Residents of Upper Tullochgrue	Medium	Medium	Moderate adverse
<b>11. Looking from Craiggowrie Summit</b>			
Night hikers and observers of the night skies	High	Medium	Major-moderate adverse
<b>12. Looking from Ski Lift Road</b>			
Night hikers and observers of the night skies	High	Low	Moderate -slight adverse
Skiers and local workers in winter	Medium	Low	Moderate – slight adverse

## 8.11 Mitigations Measures

**8.11.1** The scheme design aims to prevent or reduce significant adverse effects of the development on night-time landscape character and night-time visual receptors. It does this through careful planning of the general layout of the site, the built form, the phasing of the development, the retention of existing trees and woodland belts, the creation of open space, the treatment of boundaries and the lighting strategy for the development.

### Significant Effects during Construction

**8.11.2** The only significant effect (moderate, major or substantial), of the development on night-time landscape character during construction would be on the development site itself.

**8.11.3** There would be significant effects on the following night-time visual receptors:

- Guislich Farm (location 3); and
- Residents of completed phases of An Camas Mòr development.

**8.11.4** In practice, the effect would vary according to which zone was developed and might not be significant at all times. Existing woodland to be retained and new woodland planting would, in many cases, screen the light emitted from construction zones. It is assumed that good construction practice such as the Considerate Constructors Scheme would be adhered to. No further mitigation measures would therefore be applied.

### Significant Effects during Operation

**8.11.5** The only significant effect (moderate, major or substantial), of the development on night-time landscape character during operation would be on the fields between Creag a' Ghreusaiche and the site. This would be caused mainly by glare from the lighting of the roundabout at the site entrance and the eastern end of the High Street.

**8.11.6** There would also be significant effects on the following night-time visual receptors:

- Eastern Site Entrance (Location 2);
- From the direction of Creag a' Ghreusaiche (Location 3);
- Craigellachie National Nature Reserve (Location 8);
- Upper Tullochgrue (Location 10); and
- Craiggowrie Summit (Location 11).

**8.11.7** To reduce the effects on night-time, landscape character and visual receptors, mitigation measures have been proposed.

## Design Changes and Additional Planting on the Development Site

**8.11.8** During the assessment process, consideration by An Camas Mòr LLP and the masterplan architects led to a reconsideration of the proposed layout and relationship of the buildings at the east end of the High Street in relation to the B970 as shown in Volume 2 Annex A Figure 10. Consequently, a revised Indicative Land Use Plan 'Woodland Trees and Open Space' 8-04-2009 (Volume 1 Chapter 5 Figure 5.7 and Volume 2 Annex A Figure 9) by Gehl Architects/Ben Tindall Architects (GABTA) was developed for this area relocating the proposed buildings further from the B970, allowing a 30m width of existing tree planting adjacent to the B970 to be retained, as well as reducing the overall building heights in this area to 2.5 storeys for the proposed hotel and 1.5 storeys for the information centre. Trees would be retained in what would become the centre of the roundabout - which is wholly within the development site. The modifications are indicated on the Indicative Land Use Plan figures in Volume 1, Chapter 5, Figures 5.2 to 5.5 and Volume 2, Annex A, Figures 4 to 7.

### Additional Planting

**8.11.9** In order to mitigate significant adverse effects on locations to the east of the development site, a belt of woodland planting east of the entrance roundabout and the B970 is proposed which would reduce glare and light spill from the roundabout lighting. New woodland edge shrub planting along the west side of the B970, within the retained woodland belt is proposed to increase the screening effect of the existing woodland. The locations of these areas of additional planting are shown in Figure 8.8.

## 8.12 Residual Landscape and Visual Amenity Effects

**8.12.1** The following section addresses the significant residual landscape and visual amenity effects, assuming that the mitigation measures set out in Section 8.16 above would be implemented. Only character impacts and visual impacts rated moderate or above would be deemed as significantly affected and so analysed here.

### Residual Effect on Night-time Landscape Character During Construction and Operation

**8.12.2** The residual effects during construction and operation are described and summarised in Table 8.11. The effects after mitigation measures have been taken into account (where applicable) are listed below.

### The Development Site (During Construction)

**8.12.3** Construction lighting would be managed to minimise light spill beyond the construction site boundary. Light levels would be brighter than the permanent lighting scheme in completed areas of the development but this is only a temporary effect.

Landscape value: **Medium**;  
Magnitude of impact: **Medium**; and  
Significance of effects: **Moderate adverse**.

### Fields between Creag a' Ghreusaiche and the Site (During Operation)

8.12.4 The 30 m wide retained tree belt would reduce glare and light spill into the bordering fields. The proposed additional tree belt east of the roundabout would reduce glare and light spill from the roundabout at the entrance to the site.

Landscape Value: **High**.  
 Magnitude of impact: **Low**.  
 Significance of Effects: **Moderate-slight adverse**.

**Table 8.11: Residual Night-time Landscape Character Impacts: Construction and Operation**

Landscape Character	Value	Magnitude of Potential Impacts	Magnitude of Potential Impacts with mitigation	Residual Significant Effects
The Development Site	Medium	Medium (Construction)	No mitigation proposed	Moderate adverse
Fields between Creag a' Ghreusaiche and the Site	High	Medium (Operation)	Low (Operation)	Moderate – slight adverse (Operation)

### Residual Effects on Night-time Visual Amenity during Operation

8.12.5 The effects are described and summarised in Table 8.12.

### Looking from Eastern Site Entrance (Location 2)

8.12.6 This location is at the entrance to the development and consequently there would be some light spill from the High Street and the roundabout. However the additional mitigation of the 30 m wide strip of retained planting along the eastern boundary of the site would reduce glare and glow, thus reducing visual impacts.

Visual Sensitivity: **Low**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Moderate – slight adverse**.

### Views from the direction of Creag a' Ghreusaiche (Location 3)

8.12.7 Receptors would be aware of some light spill from the development and the roundabout. The additional planting mitigation (the 30 m wide strip of retained vegetation along the eastern boundary of the site and the proposed belt of woodland planting east of the new roundabout) would reduce lighting impacts.

Visual Sensitivity: **Medium**;  
 Magnitude of impact: **Medium – low**; and  
 Significance of effects: **Moderate – moderate-slight adverse**.

### Looking from Craigellachie National Nature Reserve (Location 8)

8.12.8 The retention of existing planting on the east side of the development site together with the additional proposed planting east of the B970 would not mitigate the levels of impact from this viewpoint. Switching off / dimming lights after 22:00 hrs would reduce the level of effect but only during this period.

Visual Sensitivity: **High**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Major - moderate adverse**.

### Looking from Upper Tullochgrue (Location 10)

8.12.9 The retention of existing planting on the east side of the development site together with the additional proposed planting east of the B970 would reduce glare emitting from the roundabout lights at the entrance to the site.

Visual Sensitivity: **Medium**;  
 Magnitude of impact: **Low**; and  
 Significance of effects: **Moderate – slight adverse**.

### Looking from Craiggowrie Summit (Location 11)

8.12.10 The additional planting mitigation (the 30 m wide strip) of retained vegetation along the eastern boundary of the site and the proposed belt of woodland planting east of the new roundabout) would reduce lighting impacts from this location.

Visual Sensitivity: **High**;  
 Magnitude of impact: **Medium**; and  
 Significance of effects: **Major-moderate adverse**.

**Table 8.12: Residual Visual Impacts**

Visual Receptor	Visual Sensitivity	Potential Operational Impacts without Mitigation	Potential Operational Impacts with Mitigation	Residual Significant Effects
<b>2. Looking from East Site Entrance</b>				
Cars on the road	Low	High	Medium	Moderate– slight adverse
<b>3. Views from the direction of Creag a' Ghreusaiche Summit</b>				
Guislich Farm	Medium	High	Medium-	Moderate -

			low	Moderate-slight adverse
Drumintoul Lodge	Medium	High	Medium-low	Moderate - Moderate-slight adverse
<b>8. Looking from Craigellachie National Nature Reserve</b>				
Night hikers and observers of the night skies	High	Medium	Medium	Major-moderate adverse
<b>10. Looking from Upper Tullochgrue</b>				
Residents of Upper Tullochgrue	Medium	Medium	Low	Moderate – slight adverse
<b>11. Looking from Craiggowrie Summit</b>				
Night hikers and observers of the night skies	High	Medium	Medium	Major-moderate – adverse

### 8.13 Cumulative Effect

8.13.1 The Badenoch & Strathspey Local Plan (1997) and the Cairngorms Deposit Local Plan were examined in terms of proposals that would along with An Camas Mòr have the potential to have cumulative affect on Night Lighting. It was concluded that an assessment of cumulative effect was not applicable.

### 8.14 Summary

#### Purpose of the Assessment

8.14.1 The purpose of this report is to assess the impacts of lighting, associated with the proposed new community at An Camas Mòr, on the landscape character and the visual amenity of the area around the proposed development at night, with recommendations for mitigation measures to reduce adverse impacts and increase beneficial impacts of the lighting scheme. The development would lie in the Cairngorms National Park, an area of 'Dark Skies' where the Milky Way can be seen on clear nights. Night hikers and observers of the night sky go on organised and independent visits to the Park to appreciate the darkness and wildness of the area. Dark skies are a diminishing resource in Europe.

#### Retention of Woodland

8.14.2 Screen planting can be very effective in screening light pollution in the form of glare from surrounding viewpoints. The development includes the retention of a substantial and mature, existing conifer plantation (within the site boundary). Existing woodland belts of varying depths and age range around the perimeter of the development would also be retained.

#### Baseline Assessment

8.14.3 The site is around 220 above ordnance datum (AOD) and is surrounded by substantial tree belts and plantations ranging from 10 to nearly 60 years old. Landuse around the site includes:

- The River Spey and Aviemore in the Spey valley in the west;
- Mixed woodland, arable fields, settlements (Inverdrue and Coylumbridge), a hotel, isolated farms and a fish farm in the south;
- Steeply rising land to the east covered with dense coniferous woodland and treeless heathland rising to the peak of Creag a' Ghreusaiche, at 435 m AOD in the east; and
- Woodland and the River Spey flood plain to the north.

8.14.4 The study area lies in the Cairngorms National Park.

#### Night-time Landscape Character and Quality

8.14.5 The proposed new community at An Camas Mòr is located within the Strathspey Landscape Character Area. The study area has been broken down into six localised night-time landscape character areas:

- Aviemore, which is brightly lit in the town centre;
- The River Spey flood plain which is mainly dark;
- The B970 road corridor which is lit from the B970 / B9152 roundabout, as far as Inverdrue;
- Loch Morlich and The Cairngorm Mountains which are dark throughout the year;
- The fields between Creag a' Ghreusaiche and the Site which are largely dark; and
- The Development Site which is largely dark, though might receive reflected glow from Aviemore on wet nights.

#### Night-time Visual Amenity

8.14.6 Night-time visual receptors of the development were identified. They include:

- Drivers on the B970 east of the site;
- Guislich Farm and Drumintoul Lodge east of the B970;

- Residents, visitors, rail travellers and workers in Aviemore;
- Residents in Upper Tullochgrue; and
- A small number of night hikers on the Craigellachie National Nature Reserve, the Summit of Craiggowrie and the Ski Lift Road.

### Lighting Strategy

- The lighting levels would be far lower than currently used in the centre of Aviemore and similar to the existing lighting levels around the Coylumbridge Hotel Complex;
- Road junctions, new roundabouts and pedestrian crossings would be lit with 6 m high luminaries;
- Cycle paths would be lit with luminaires fixed to 5 m high columns on one side of the cycle path;
- The paths would be lit with bollard lighting on a single side, so that they provide an even spread of light and minimise light pollution;
- The Main Street and High Street lighting would be column-mounted and wall-mounted luminaries at 5 m height;
- The other areas are likely to lit by bollard lighting or not lit at all; and
- Lights may be dimmed or a number turned off after 22:00hrs.

### Impacts on Night-time Landscape Character and Visual Amenity

**8.14.7** The existing dense woodland vegetation of the study area, the low lux levels of the proposed Lighting Strategy and the topography of the area combine to reduce the impact of the development on surrounding character areas and visual receptors. The greatest impacts are on receptors close to the development site and on high ground such as Craiggowrie. However, the impact diminishes with distance from the site and from the Ski Road it would be difficult to distinguish the new development from the existing lights of Aviemore.

### Significant Effects during Construction

**8.14.8** The only significant effect (moderate, major or substantial), of the development on night-time landscape character during construction would be on:

- The development site.

**8.14.9** There would be significant effects on the following night-time visual receptors:

- Guislich Farm (location 3); and

- Residents of completed phases of An Camas Mòr development

### Significant Effects during Operation

**8.14.10** There would be significant effects on the following night-time visual receptors:

- Eastern Site Entrance (Location 2);
- From the direction of Creag a' Ghreusaiche (Location 3);
- Craigellachie National Nature Reserve (Location 8);
- Upper Tullochgrue (Location 10); and
- Craiggowrie Summit (Location 11)

### Further Mitigation

**8.14.11** To reduce the effects on night-time landscape character and visual receptors during operation, further mitigation has been proposed.

- The proposed buildings were relocated further from the B970, allowing a 30m width of existing tree planting, with additional woodland edge planting adjacent to the B970 to be retained. The overall building heights in this area were also reduced; and
- In addition to these changes, a belt of new woodland east of the entrance to the development would be planted to reduce the impact of the roundabout lighting on the landscape character of the area.

### Residual Significant Effects

**8.14.12** As mitigation planting becomes established, the impacts of the scheme would gradually diminish and the only significant residual impacts on landscape character would be on the development site during construction and on visual receptors looking from location 8 (Craigellachie National Nature Reserve) and from location 11 (Craiggowrie Summit). In both cases receptors would be a small number of night-hikers and observers of the night skies.