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Our Ref: P14/14

27th July 2015

Mr Shaun Harkin
Bellway Homes (Wessex)

By Email only: shaun.harkin@bellway.co.uk

Dear Shaun,

Goldring Close, Hayling Island – Ecological Comments with Respect to the Lighting Strategy (Updated 27th July 2015)

Thank-you for sending over the information regarding the lighting strategy for the above scheme. I have reviewed the documents and this letter provides ecological comments to this topic, with the aim to assist with the discharge of the related condition.

Potential Sensitive Receptors

The Site lies close to Chichester and Langstone Harbours Special Protection Area (SPA), at a distance of approximately 210m. The SPA is also a Ramsar site being an internationally recognised wetland habitat for birds. These sites are of international importance, being a rich intertidal system supporting high densities of intertidal invertebrates and large populations of migrant and overwintering waders and wildfowl. The main bird species of concern for this proposed scheme are Brent Geese

PV Ecology were instructed in 2011 to complete a Brent Goose and Wader Survey of three sites to assess any potential impacts upon this species group as a result of the proposed scheme. The surveys recorded Brent Geese using the adjacent field to the east of the site. The potential impacts highlighted were in relation to noise pollution, with which mitigation was proposed. The mitigation measures focused on timing restrictions of construction related activities to avoid the sensitive period for these birds. A planning condition was imposed that specifically relates to this matter, however, an assessment of the lighting in terms of impact to the Brent Geese had not been addressed.

An assessment of the impact of the nearby Brent Geese population with the respect to lighting has been specifically requested by HCC, along with measures to minimise the risk of light spill. Any adverse impact upon these Amber listed Bird of Conservation Concern (BoCC) species could negatively affect their feeding and breeding behaviour and thus affect the population.

Although Brent Geese have been specifically highlighted as requiring an impact assessment with respect to the lighting strategy this letter also identifies any issues with other species, for example bats

and invertebrates. Although the more common bat species have been noted on Site and the activity levels were not particularly high, it is essential that the lighting strategy for this Site follows best practice with regards to minimising disturbance of bats by lighting, so that the Site continues to be used by bats for roosting, foraging and commuting.

Overview of Lighting Strategy

General recommendations regarding the lighting strategy for the Site was provided in the 'Biodiversity, Mitigation & Enhancement Plan' (EPR, 2014). This stipulated that site-wide measures to minimise light pollution should be employed, including the use of baffles and low level lighting. This was to ensure that features considered important for wildlife were not subjected to high levels of light pollution and certain species were not adversely affected in the long-term.

Measures to minimise light spill

Since the submission of the 'Biodiversity, Mitigation & Enhancement Plan' more detailed guidance on ways to minimise light spill was provided to Bellway Homes. This is given in **Appendix 2**. In summary, the lighting strategy for the proposed development should aim to reduce overall lighting levels and avoid direct and ambient lighting of important ecological features, including mature trees and their associated invertebrate fauna, by considering a range of options including: the type of light used; lighting levels, including dimming street lighting which would alter lighting levels based upon usage; light placement; column height; and luminaire design to minimise light spill and skyglow

Proposed Lighting Strategy

I understand that lighting scheme consists of street lighting using the Phillips Libra range, which I believe has been specially chosen due to its energy-efficient compact fluorescent lamps. These lamps ultimately combine high-performance optics with a major reduction in light pollution and glare. The location of each street light is provided in **Appendix 1**.

The houses will contain either a porch soffit mounted PIR light (model SLFM360L 360° Flush Mount Ceiling PIR Presence Detector) or recessed soffit light (model EN-FD103). Houses will also contain a wall mounted lantern light on all rear elevations (and some with front elevations as well).

Ecological Comments

Proposed Lighting Strategy

The lighting strategy is of a general standard for this type and scale of development. The lighting has been designed and models chosen to accord with recommendations outlined in the 'Biodiversity, Mitigation & Enhancement Plan', whereby site-wide measures will be employed to minimise light pollution, including baffles and low level lighting.

Brent Geese

Brent Geese arrive in the UK from mid-September, but the majority arrive in October to early November with numbers reaching their peak in January. Birds usually depart from late February/early March, but this can vary each season.

Brent Geese used to be a strictly coastal bird in winter, seldom leaving tidal estuaries, where it feeds on Eel-grass (*Zostera marina*) and the seaweed, sea lettuce (*Ulva*). In recent decades, Brent Geese have started using agricultural land a short distance inland, feeding extensively on grass and winter-sown cereals. This is the case with the Brent Geese population that exists near the Site, with grazing taking place on the adjacent arable field to the east.

Brent Geese feed in daylight and the use of terrestrial feeding sites is greatest at high tide. Although families may choose to graze nutrient-rich grassland for their young, there is a compromise with the increased risks associated with exposure to predators and disturbance compared to feeding on the intertidal.

In view of the above, the Geese will be in the adjacent field during the day and will move to safer locations nearer the shore at night. This means that the Geese will not be impacted by the lighting that will occur at night as they will be along the intertidal areas.

Other Wildlife

Although I do not consider that there is an issue with regards to Brent Geese I do believe the lighting along the central hedgerow is not compliant with the recommendations outlined in the 'Biodiversity, Mitigation & Enhancement Plan', which stipulates that sensitive lighting will be used to avoid illuminating important features such as mature trees and hedgerows. The current strategy sets to illuminate the entire central hedgerow, including two mature Oak trees in the western end. I would suggest that this line be modified to ensure the hedgerow is not subjected to high levels of light pollution and consequently the features remains useable by bats and invertebrates.

Summary & Recommendations

The eastern boundary is to be retained, enhanced with supplementary hedgerow planting and maintained. Therefore, the hedgerow will continue to be a natural barrier between the development site and the field to the east that supports the Brent Geese population over the winter months.

The street lighting locations are along the access roads, set back from the eastern boundary and as such the illumination contours do not project beyond the mature hedgerow. With light spill not extending beyond the site boundary and into the adjacent field to the east, combined with the fact that Brent Geese are only present in the UK between October and March and when present are highly unlikely to be in the field overnight when the lighting will be utilised, I do not consider that the Brent Geese will be negatively impacted upon as a result of the lighting strategy associated with this scheme. However, I would suggest that you impose restrictions for residents installing additional external lighting (particularly for the houses along the eastern boundary) to avoid any potential light spill issues in the future.

I would also recommend that the lighting along the central hedgerow be modified to ensure that bats and invertebrates are not adversely affected in the long-term.

Completed Actions

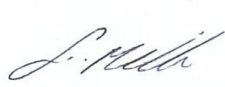
Following consultation with yourself on Monday 27th July 2015 regarding the central hedgerow I consider that the revised lighting approach of replacing street lighting columns 1B, 11B and 18B with low level bollard lighting will alleviate the potential issue of light spill on the hedgerow and mature trees.

I am also pleased to hear that Bellway Homes will be adding a note in the conveyance transfer for plots 127-131 to restrict the type of lighting in the rear gardens.

Confirmation of the above means that there are no outstanding ecological actions with regards to the lighting strategy.

I trust that the above provides you with the information that you require, but please do not hesitate to contact me if you require any further information.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'S. Melhuish', written in a cursive style.

Suzanne Melhuish BSc (Hons) ACIEEM
Senior Ecologist, EPR Ltd.

Appendix 1

Street Lighting Layout

(Plan courtesy of Cole Easdon, 2015)

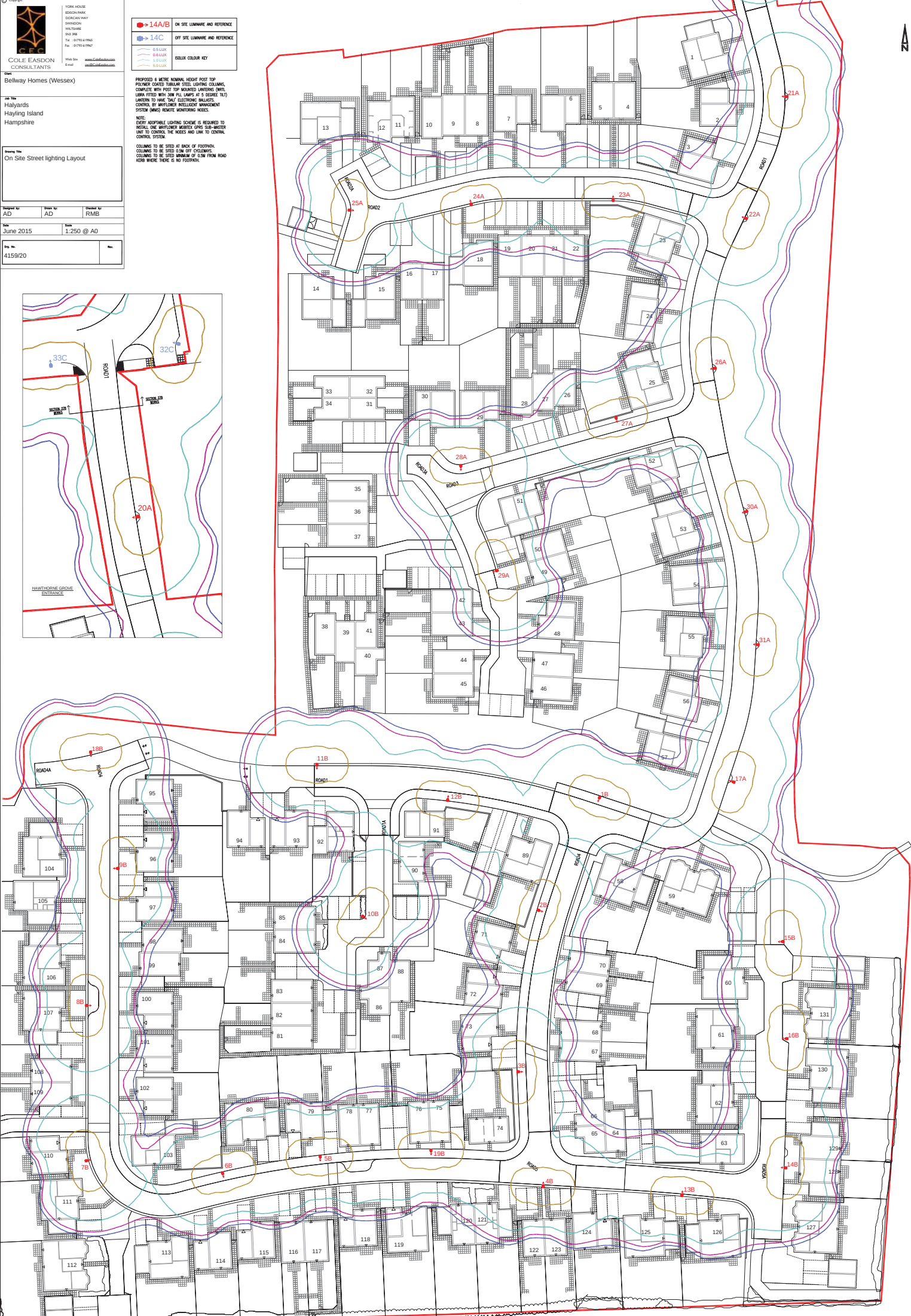
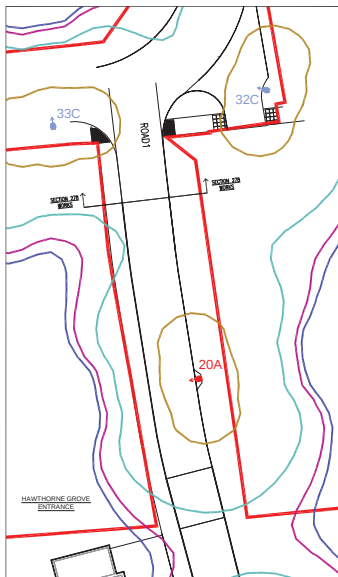
Drawing Title
On Site Street lighting Layout

Designed by: AD	Drawn by: AD	Checked by: RMB
Date June 2015		Scale 1:250 @ A0
Dwg. No. 4159/20		Rev.

PROPOSED 8 METRE NOMINAL HEIGHT POST TOP
POLYMER COATED TUBULAR STEEL LIGHTING COLUMNS
COMPLETE WITH POST TOP MOUNTED LANTERNS (WRTL
LANTA FITTED WITH 30W PLP LAMPS AT 5 DEGREE TILT)
TO HAVE "TAIL" ELECTRONIC BALLASTS
COLUMN WITHFLOWER INTELLIGENT MANAGEMENT
SYSTEM (MIMS) REMOTE MONITORING MODES.

NOTE:
EVERY ADAPTABLE LIGHTING SCHEME IS REQUIRED TO
INSTALL ONE WATFLOWER M0DEX GPS SUB-MASTER UNIT
TO CONTROL THE M0DEX AND LINK TO CENTRAL
CONTROL SYSTEM.

COLUMNS TO BE SITED AT BACK OF FOOTPATH.
COLUMNS TO BE SITED 0.5M OFF CYCLEWAYS.
COLUMNS TO BE SITED MINIMUM OF 0.5M FROM ROAD



Appendix 2

Measures to Minimise Light Spill

The sensitive lighting strategy prescribes the following:

- Aim to reduce light spillage and sky-glow to a minimum through the use of appropriate luminaires and lamps;
- All proposed luminaires will be IP65 or above and comply with all relevant British and European standards. All new lighting designs and installation work shall be carried out in accordance with BS 5489:2013. The lighting columns will comply with BS EN 40;
- Avoid use of SON (High pressure sodium) lamp source due to its higher Ultra Violet (UV) and radiation values;
- A LED light source is recommended. The characteristics for most LED luminaires do not emit any UV or Infra-red (IR) and are a sharp cut off in the photometric output and minimal backward light spill. LED units are also the equivalent to a convention flat glass luminaire, which minimises any upward light so reducing sky glow and light spill;
- White light source to be used to provide a lower lighting level;
- If security lights are to be provided on houses these should be of a full horizontal cut-off design with appropriate accessories to prevent light spill. They should also be fitted with motion sensors with timers set to the minimum value;
- Lighting should aim away from other newly established hedgerows or planting areas not mentioned elsewhere in this document to enable their use by bats and retain or enhance the nocturnal permeability of the Site;
- New lighting will not spill onto the hedgerow and there should be zero upward lighting waste into the night sky. The selected luminarie and any columns near the hedgerows will have shields;
- No lighting will be provided within the hedgerow. Columns are not to be located near the hedgerows unless there are overriding needs of public health and safety which cannot otherwise be addressed; and
- Where it is deemed essential on grounds of health and safety to provide lighting close to the hedgerows the following guidelines are provided: Lighting should be to the minimum level necessary to provide the required level of illumination; Low pressure sodium lights only to be used or lights which provide no UV output; Luminaires should be designed & oriented to restrict light directionality only to the areas necessary. This should include double asymmetrical luminaires and full horizontal cut-off designs to prevent light spill; and in pedestrian or cycleway areas lights should be low-level cowled lighting design.