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Client

Matt Staplehurst

Report

External lighting design at Oaklands, Sayers Common.

Rev

Date 11 April 2025

Author of this Report

Alan Tulla, FSLL, FILP, is a Fellow and Past President of the Society of Light and Lighting and has been awarded the CIBSE/SLL Lighting Diploma. He is also a Fellow of the Institution of Lighting Professionals, ILP and lectures for them on the topic of exterior and amenity lighting. He is author of the Society of Light and Lighting "Guide to the Exterior Environment", LG06.

Issue date: as front cover.

Background

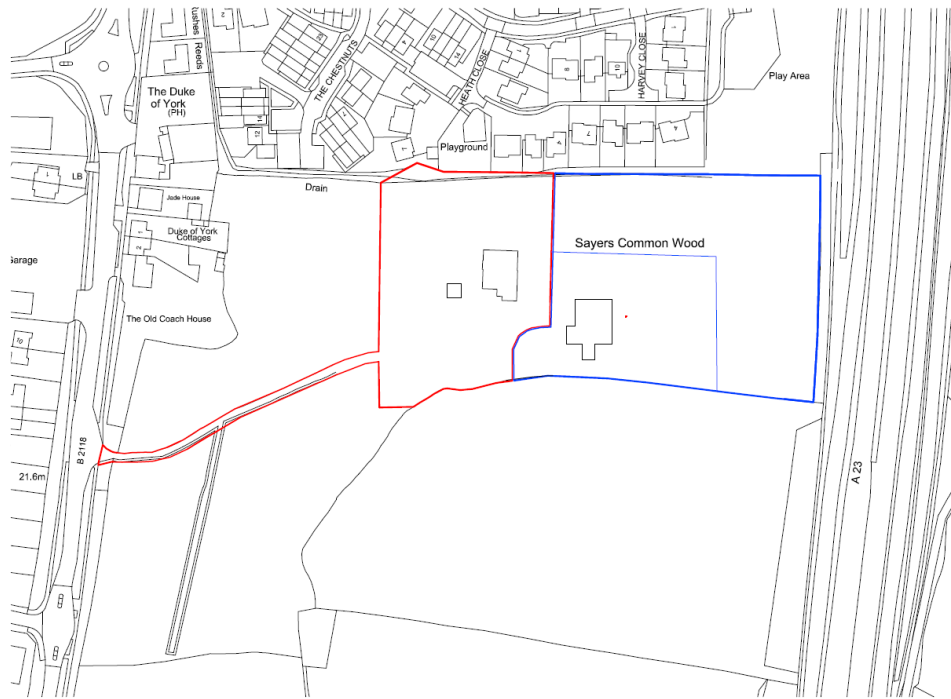
Work by Here is working with their client, Matt Staplehurst, for a retrospective planning application for the retention of an existing dwelling house plus new ancillary areas such as a garage, swimming pool and hardstanding.

The location is land just east of the B2118 at Sayers Common.

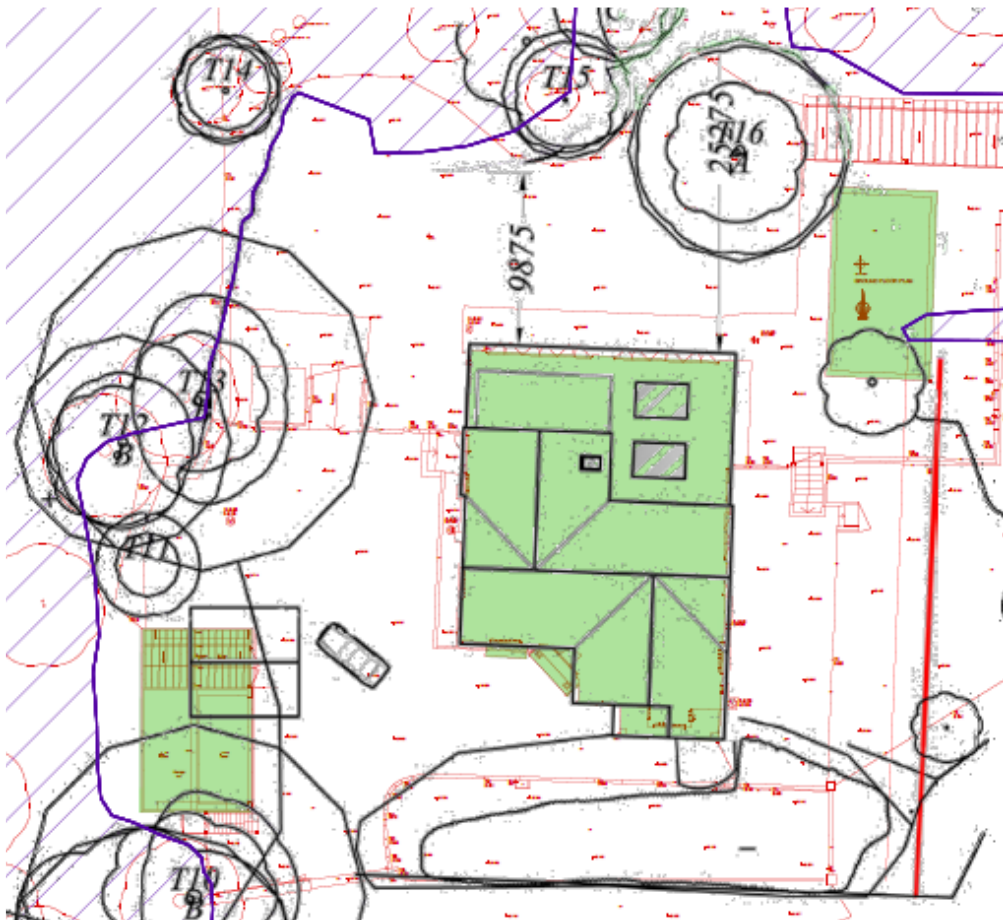
Condition 3 from Mid Sussex DC asks for details of any external lighting scheme and control system before planning approval can be given.

Alan Tulla Lighting is an independent lighting consultancy specialising in the outdoor environment and has been asked to provide a suitable design.

Location



Red line indicates application area and lane from B2118



Assumptions underlying this report

The location is rural, close to the village of Sayers Common. However, there is streetlighting on the B2118 nearby. As such, we consider that the location falls under the criteria for an E2 classification. This is described as below. The E2 classification determines the allowable amount of spill and that there should be very little upward light emitted from the light fittings. The light fittings we are proposing emit no upward light.

The Institution of Lighting Professionals, ILP, Environmental Zones are described below:

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity

Table taken from ILP Guidance Note, GN01/2021

Exterior lighting

We understand that lighting is only required for the outside of the house and not for the lane leading to it from the B2118. Lighting is also not required for any parking or turning areas. For these reasons, we have only used wall mounted downlights on the house itself.

The guidance in the ILP document GN09/19 “Domestic Exterior lighting: getting it right!” recommends that porch lights should emit no more than 600 – 900 lumens. The wall mounted units that we propose emit only 64 lumens. An illustration is shown at the end of this report.

There are some existing security lights but these are controlled by PIR movement sensors but are only ON for short periods of time and are, thus, not included in our calculations.

The LED light sources are a Warm 3000K as recommended by the Bat Conservation Trust.

House lighting

These downlights have a tightly controlled beam and the illumination effectively cuts off at 0.2 lux (in effect, total darkness) 3.5m – 4m away from the house in all directions.

We show illumination levels from a single 3.7W wall-mounted downlight mounted typically at 1.8m above the ground.

Steps

These should be illuminated using eyelid type pavers which emit no upward light. A paver for each step (rather than alternate steps) is preferable.

Ecology

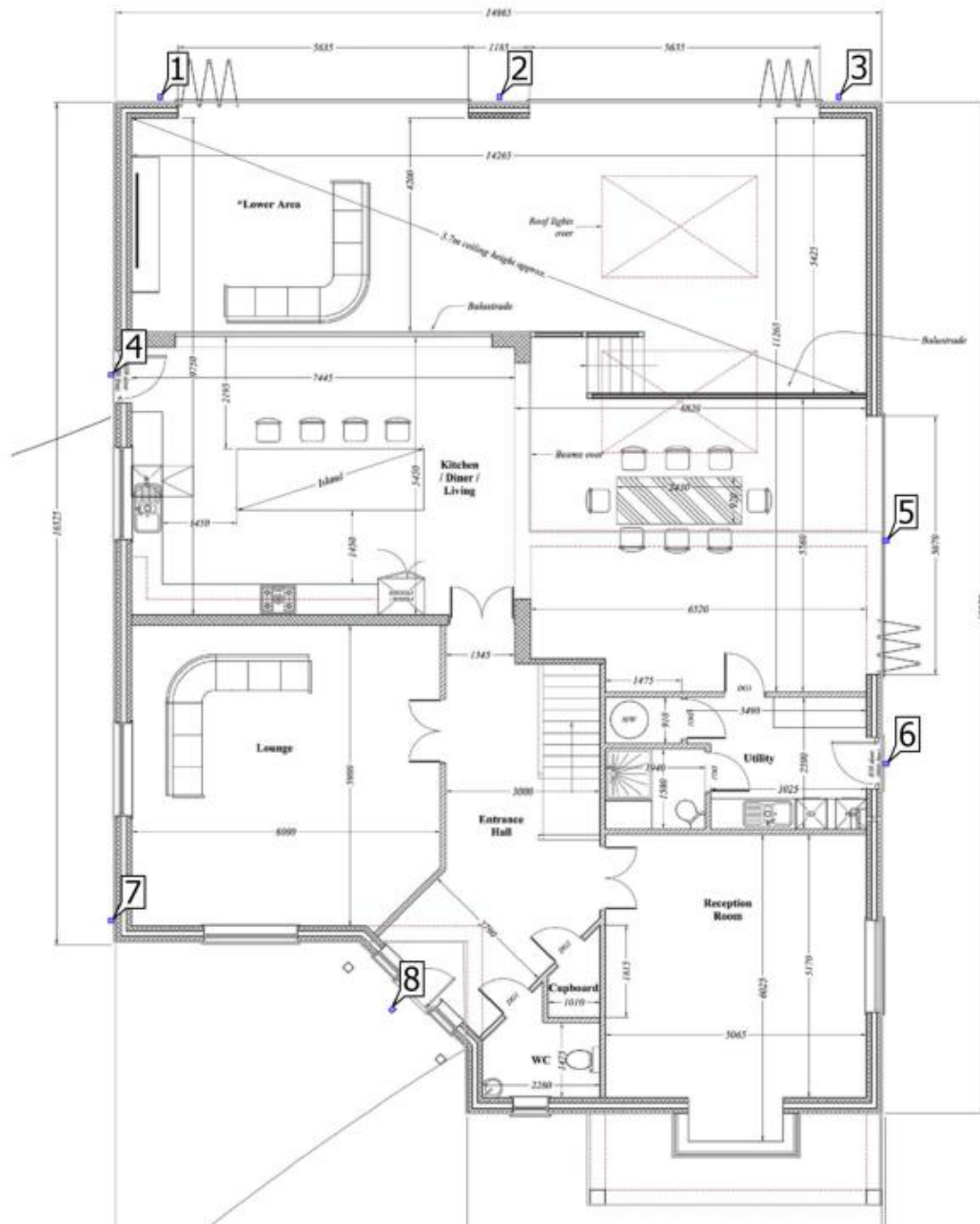
The Retrospective Ecological Appraisal, 4 April 2024, by Libby Morris states that due to the close proximity of the development to the ancient woodland habitat, that artificial light sources should be kept to a minimum on all aspects of the property overlooking this habitat.

Google maps show that the closest area is on the northern elevation. The Ellisdon Architectural Associates drawing 502/02 Rev O shows this to be 9.875m away from the house.

As such, even spill from the north elevation falls well short of the sensitive woodland habitat.

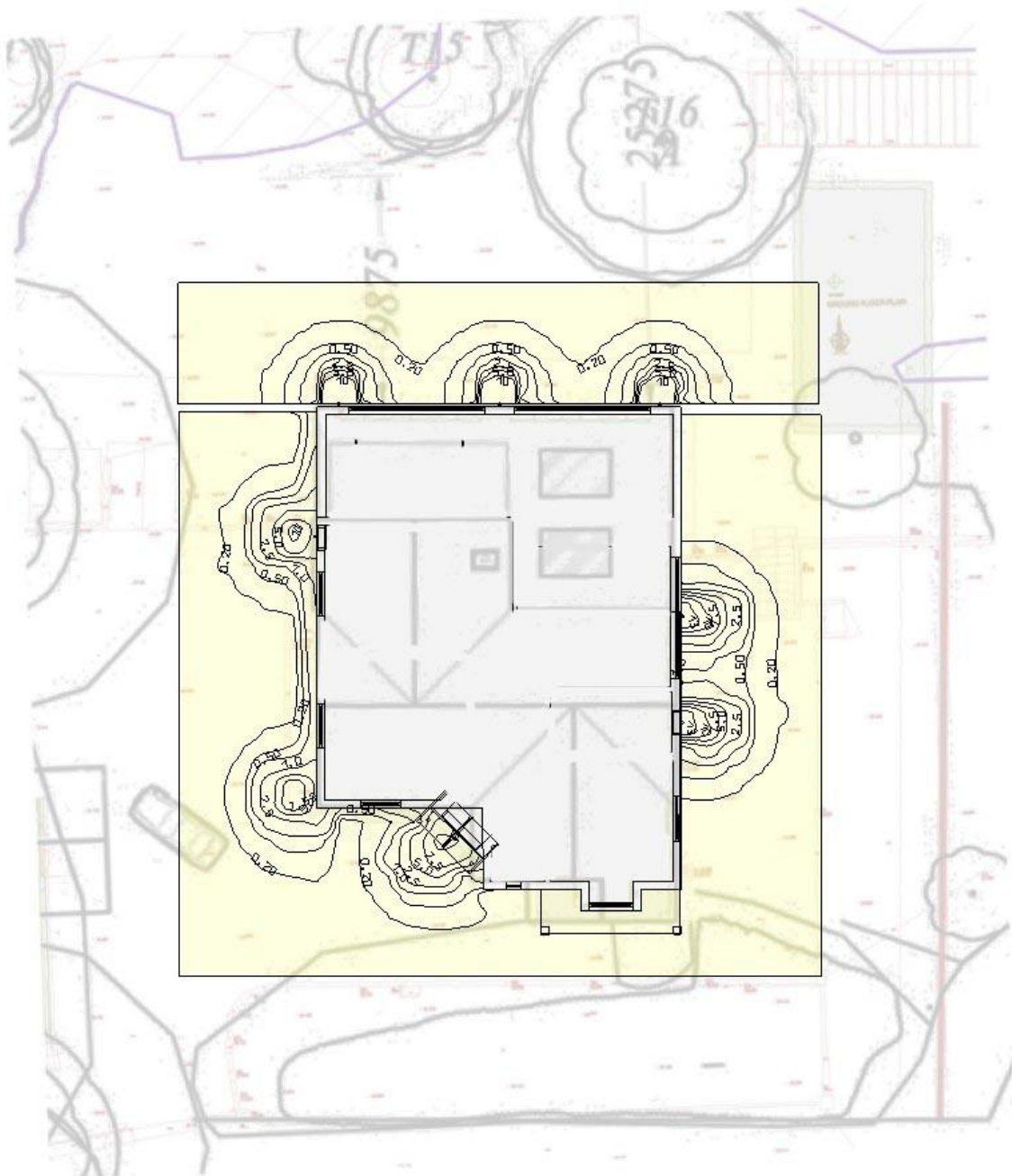
Fitting positions

GROUND FLOOR PLAN

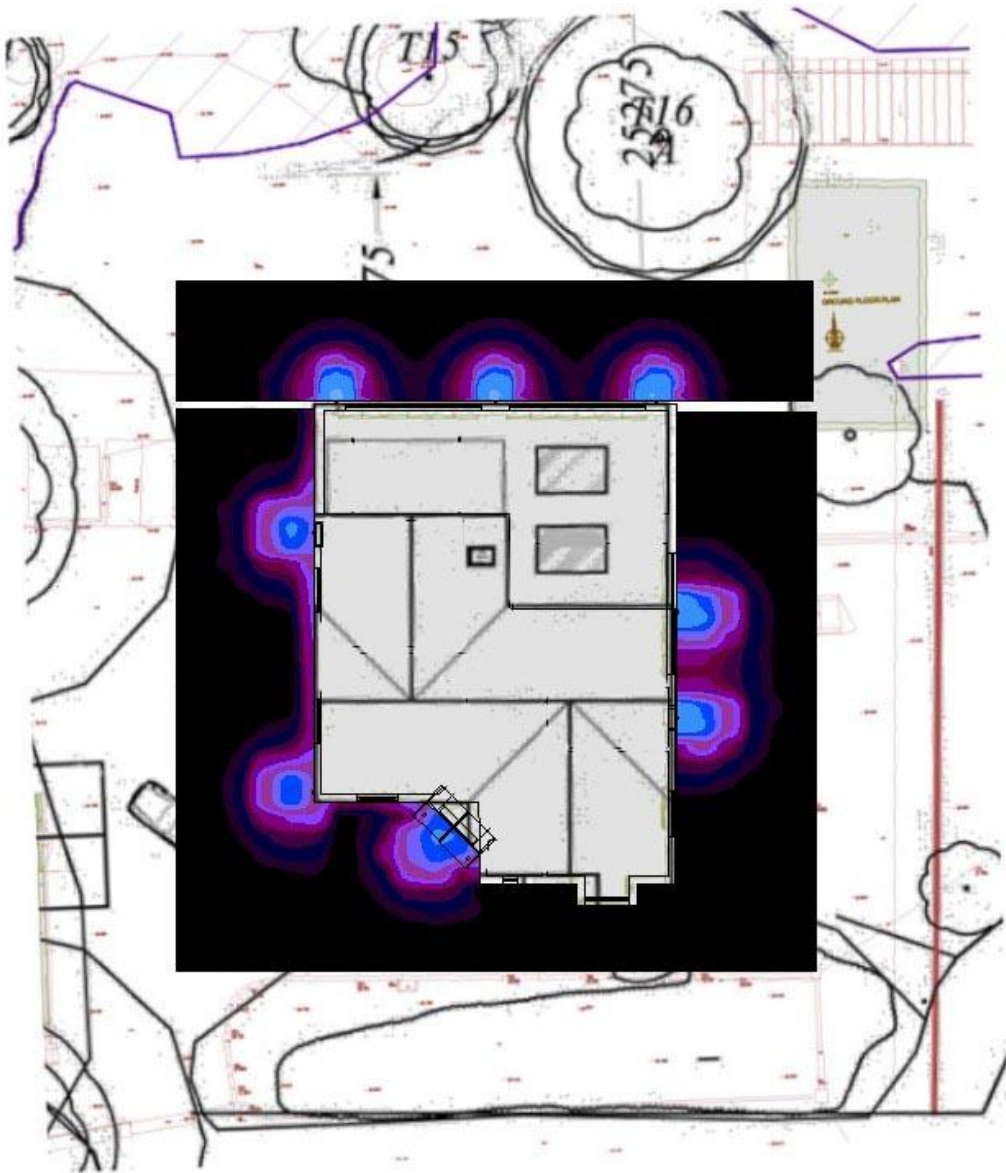


8 No wall mounted units are used, typically mounted 1.8m above ground.

Calculation areas

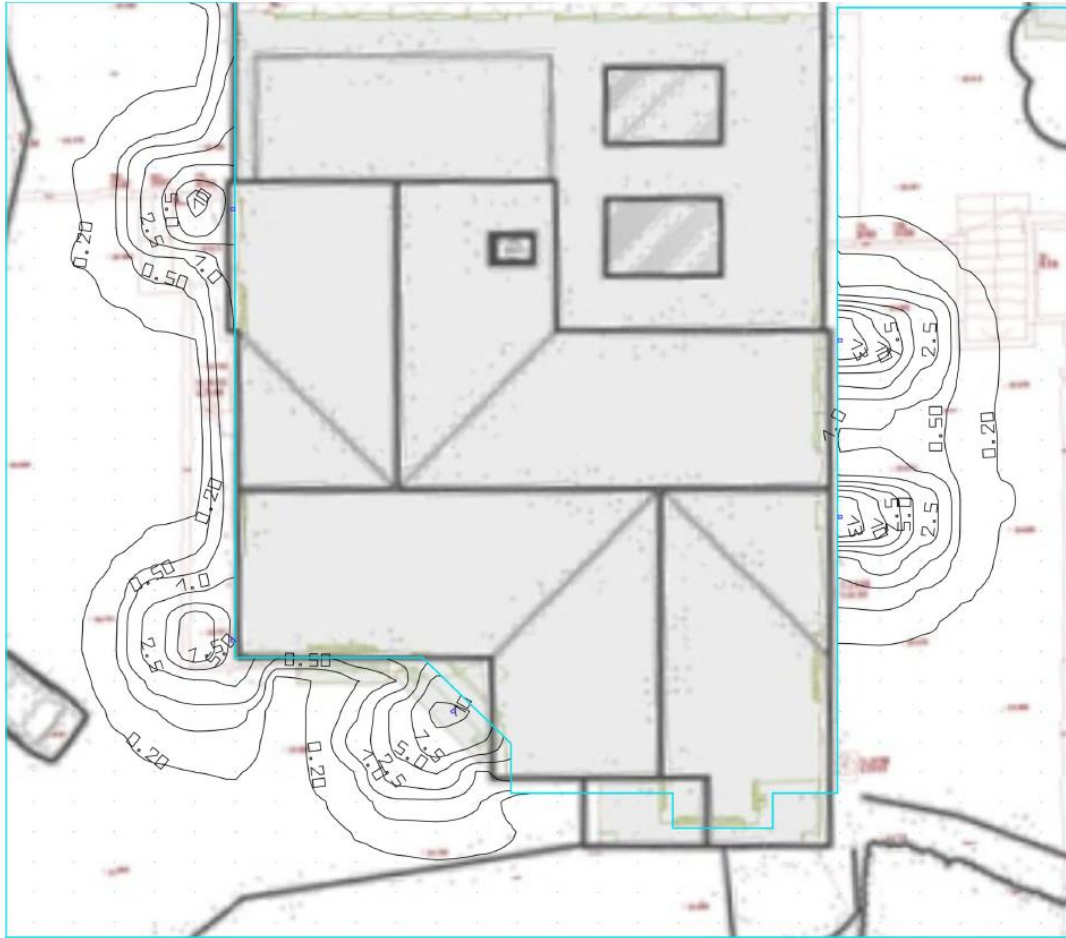


Spill showing lux values down to 0.2 lux. North is at the top of the drawing.

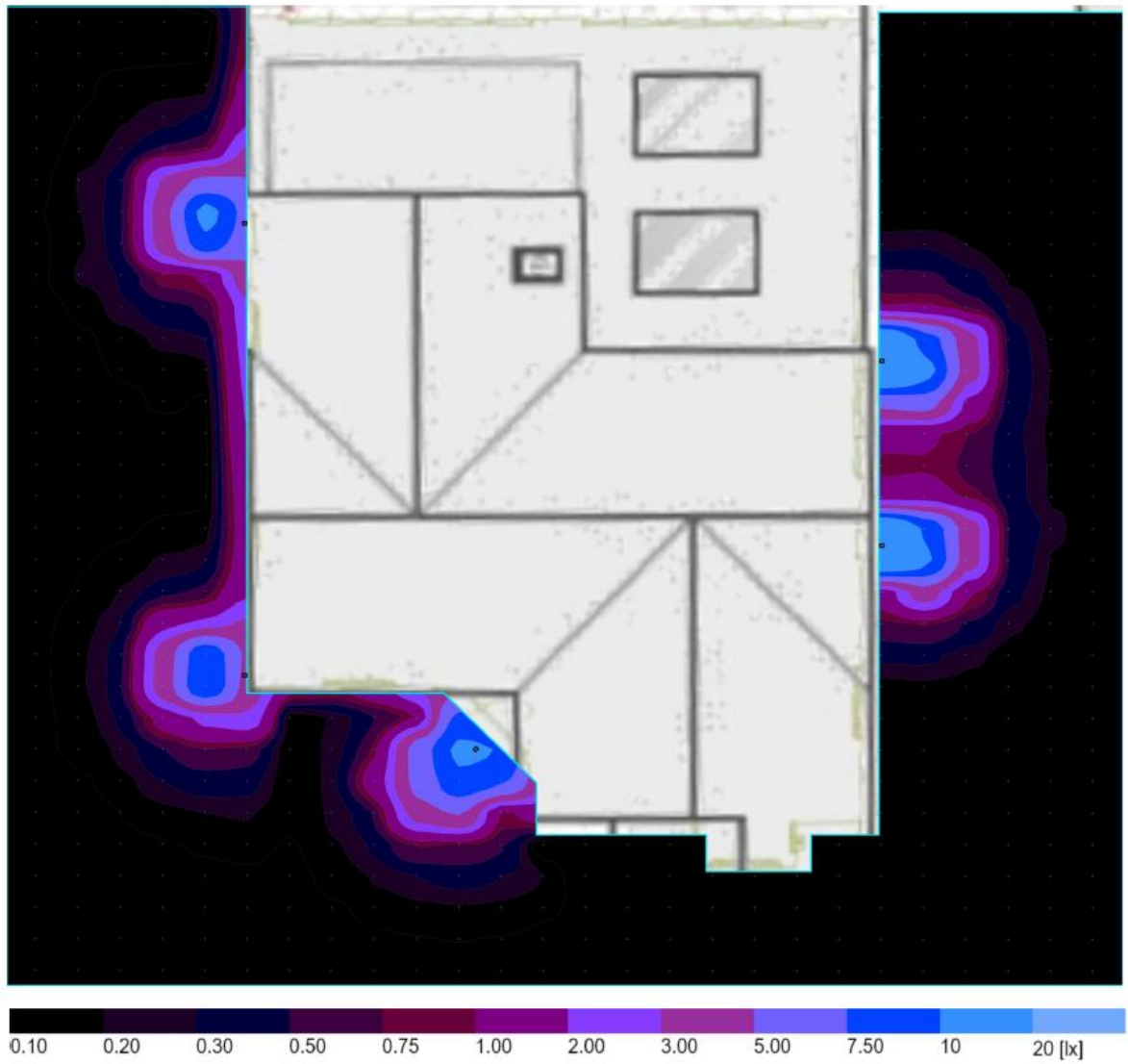


Main area

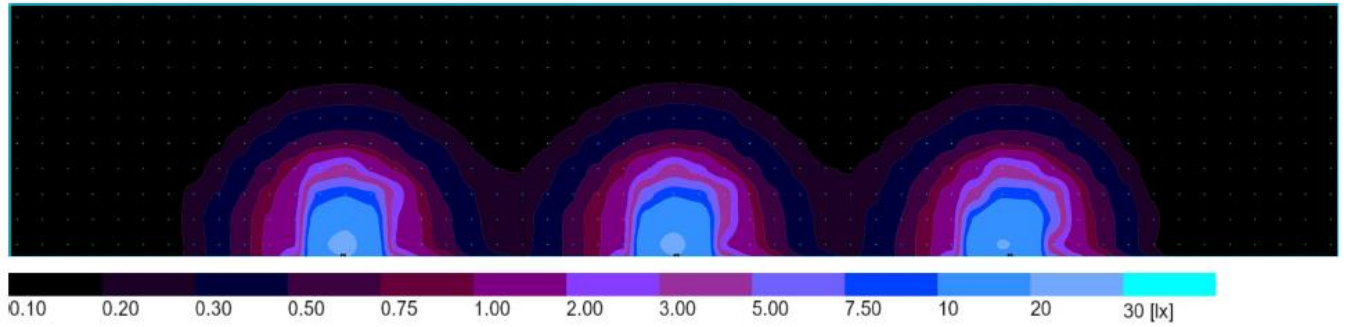
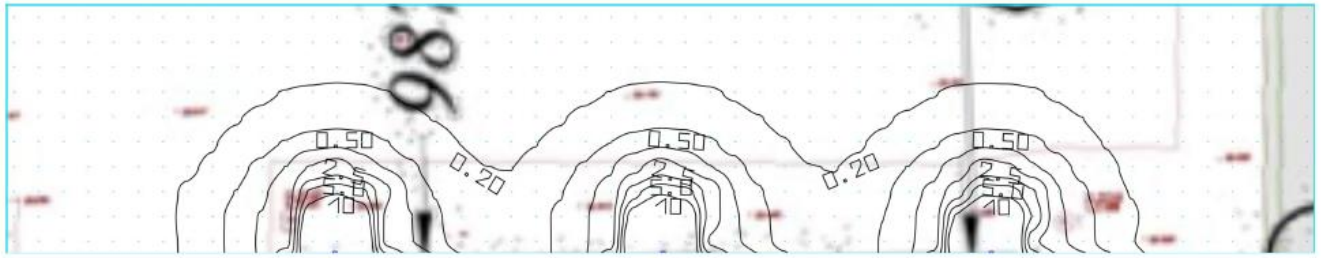
Main Calc Area



Detailed view showing isolux contours.



North facing calculation area



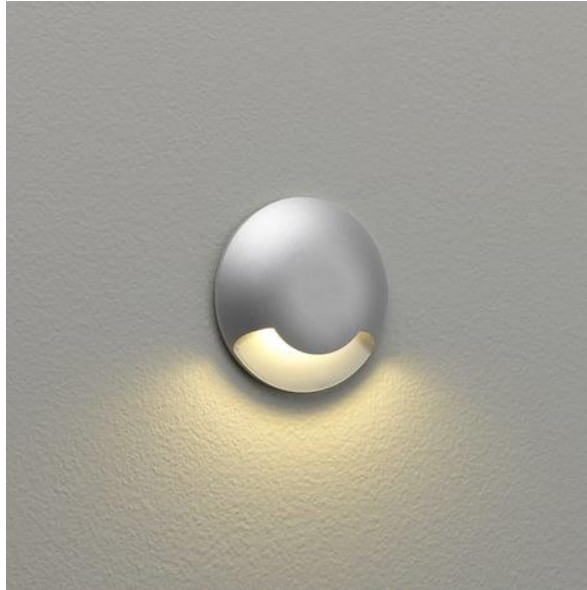
This calculation plane is 26m wide and extends 5m from the house.

External wall light which only directs light downwards.



Astro Lighting Dunbar 100, 3.7W, 64 lumens, 3000K. This unit emits no upward light.

Step Lighting



This 3000K eyelid paver is just 2W and emits no upward light. This Beam One unit is made by Astro Lighting but similar units are available from other manufacturers.

Glossary of Lighting Terms

Illuminance: this is the SI term for what is normally referred to as Illumination level. It is measured in lux. It refers to the light falling on a surface. Normally this is a horizontal plane such as the ground or desktop. It can also refer to vertical surfaces such as windows and building facades. Illuminance is measured in lux.

Lumen: is the SI term for luminous flux or quantity of light. A typical 8w LED “bulb” emits 700 lumens; a 1.5m fluorescent tube emits around 5,500 lm.

Lux: is defined as an illuminance of 1 lumen/m². A residential road is typically 3 – 10 lux, a major traffic route 20 – 30 lux. A typical tennis court would be 300 -500 lux. Note that lux is normally taken to be the horizontal value but the vertical value is often relevant. E.g. vertical illuminance is important in recognising faces or light intrusion on windows.

Luminance: It is a measure of objective brightness and is a function of how much light is reflected off a surface. There are many factors involved but the major one is the reflectance of the surface. For a given level of illuminance, dark surfaces have lower luminance than light coloured surfaces. Its importance is that it is the metric used for classifying traffic routes, signs and advertising hoardings.

Luminaire: is the term for what is usually referred to as a light fitting. A fixture, light fitting or lantern are other commonly used terms. These terms are used to distinguish them from the actual light source or lamp.