

# **An Assessment of the Lands and Buildings at Belcamp, Fingal, County Dublin For Protected Mammals Including Bats, Badgers and Otters**

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## **Introduction**

Development creates the potential for affecting the habitat of protected mammal species including bats, badgers, otters, and other protected species. Bats are widespread on the island of Ireland. They are known to occur from much of the rural landscape, but they are also present within the urban environment and here they occupy buildings and occasionally trees for short or long periods within the towns and main cities including Dublin. Buildings are a vital element of the annual cycle of all Irish bat species and at no time more so than the period May to August, but many bats may also avail of buildings as hibernation sites. Changes to a site may reduce the lands available to bats as a feeding site and in some cases may even destroy their dwelling place through or during the partial or total demolition, restoration and renovation of buildings, clearance activities and the subsequent construction.

Bats are protected by Irish and EU law and to prevent unlawful injury or death, it is essential that a full understanding of the site is available in advance to protect the resident bats from unintentional disturbance and to create a pathway by which a legal derogation and exemption may be designed in consultation with the National Parks and Wildlife Service.

The site at Belcamp, Fingal, County Dublin will undergo a clearance of vegetation and tidying of the area to make it safe and subsequent construction of a large number of houses following a period of construction that has spanned 2019 and 2020. This assessment will address the potential for ground mammals within the site and for bats roosting within the buildings and trees that will be flanked by houses and the significant alteration of the site including the completion of an existing approval and continued construction.

Previous evaluations have determined the presence of common pipistrelles, soprano pipistrelles and Leisler's bats and some limited evidence of brown long-eared bats. Studies in the surrounding area of Clonshaugh have shown the same assemblage of bat species. Additional to this, *Myotis* bat species (possible Natterer's bat) and Daubenton's bat have been recorded in Kinsealy. Previous bat records from this area include a Leisler's bat in former engineering company offices (Atkins, now demolished) at Balgriffin, brown long-eared bats at St. Doulagh's Church, Balgriffin and from 2019, the same bat assemblage in Malahide Demesne and surrounding lands.

Surveying for bats in September is a very suitable time to address the late summer / autumn usage of buildings and trees. Given the limited roost potential currently offered by the now hugely damaged former school, the month of September allows for an examination of the trees as transitional and mating roosts and any remaining bats within the buildings. A spring survey in late March also provides information on the likely use of the site for hibernation in addition to the feeding activity and roosting potential in spring.

In addition to the bat assessments, the site was checked for the presence of otters and badgers to determine if there was potential for an impact upon these protected species. Badgers have a national level of protection under the Wildlife Act (1976 (and Amendment (2000))) and both they and their resting places (setts) are protected from disturbance and destruction. Otters are protected under Annex II of the Habitats Directive equivalent to the protection of lesser horseshoe bats.

Otters are present throughout Ireland and have been recorded into Dublin city centre as well as within Fingal and all districts of Dublin city. They have a strong dependency on water but will often establish their burrows (known as holts) in ditches or hedgerow that is not directly associated with rivers or streams.

Badgers are a widespread and common element of the fauna of Ireland and are found in all counties. In urban situations, badgers come under intense pressure from loss of feeding grounds, intentional and malicious disturbance, roadkill, and accidental injury from domestic pets etc. The encroachment of housing into agricultural lands may directly affect the survival of a sett through removal for a development or indirectly through a combination of the above-named factors. Badgers may survive in urban areas where there are links between green space

and gardens. Badgers are present throughout Dublin city and Fingal and have been recorded by the author from the lands directly north and north-west of the site. The presence of badgers is only indicated in many areas by the occasional presence of roadkill individuals as badgers are nocturnal and secretive.

## **Methodology**

### **Bats**

The proposed development site at Belcamp, Fingal, County Dublin was examined over a number of dates between September 2020 and March 22 for evidence of bats and for bat roost potential. The first of the visits to the site was on 21<sup>st</sup> to 22<sup>nd</sup> September 2020 in daylight for evidence of roosting bats and from prior to sunset for two hours. The site was visually inspected for the presence of bats with the aid of a high-powered beam. The bat detector assessment commenced prior to dusk (19.15 hours, sunset at 19.25 hours) and continued for two hours before a pause in surveying and recommencement approximately one hour before dawn (06.11 hours, sunrise 07.11 hours). Most of the buildings have lost their roofs and exhibit repeat fire damage and vandalism. Surveying concentrated on the remaining roofed building. The survey was undertaken by three surveyors commencing at the buildings and radiating out through the site to identify bat activity in open areas, along hedgerow, around trees and around the ponds with handheld bat detectors (EM3 x 3).

A Song Meter 2 BAT+ was placed outside the roofed building to detect any emerging or active bats from sunset (to cover any dusk and dawn activity indicating bats emerging from or returning to a roost).

The buildings were examined externally for evidence of roosting bats. The buildings were examined internally on 22<sup>nd</sup> November 2019. This included an examination of all roofed areas such as the chapel and priests' residence. The cellars were also examined for evidence of potential for winter usage. There was a visual examination externally in March 2022.

A survey was undertaken on March 23<sup>rd</sup> 2022 to assess any changes within the site that would alter the bat distribution in the period from 2020 to spring 2022. This was undertaken by two surveyors and was concentrated around the buildings, mature trees and ponds and River Mayne to determine bat activity and the potential for roosts within this area. This included an

examination of the folly (with limited access) and the ice house. The buildings were observed externally as previously without entry to the structures due to the unsafe state from repeated vandalism.

Surveying commenced at 18.30 hours and continued up to 20.00 hours and re-commencing at 05.15 hours up to 06.15 hours.

### ***Survey constraints***

Both bat activity survey periods were suited to identifying the bat fauna of the site. The results reflect previous evaluations of the site for Fingal County Council by the author. In March 2022, the air temperature went up to 16°C during the day and dropping to 7° C overnight (10° C by sunset). Conditions were cloudy and dry with 72% cloud cover wind 5 – 6 kmph.

Sunrise 06.18 hours sunset 18.44 hours.

There are some limitations to movement through the site created by safety concerns from the presence of small gatherings.

### **Badgers and Otters**

Badger and otter surveying involved an examination of the site in 2020, 2021 and 2022. All hedgerow, woodland, streams, and banks were examined for evidence of setts, holts, feeding signs, territorial marking including latrines or scratching as well as observations at night for evidence of commuting badgers. Surveying was carried out on 22<sup>nd</sup> September 2020 and again on 16<sup>th</sup> December 2020 with further surveying in January to February 2021 and January to March 2022 (January 26<sup>th</sup>, February 3<sup>rd</sup>, and March 23<sup>rd</sup>) to evaluate burrows noted in earlier surveys and activity along the River Mayne. This involved the installation of a motion activated camera at a burrow on 29<sup>th</sup> January 2021 and its retrieval on 10<sup>th</sup> February 2021. A motion activated camera was also installed at the River Mayne bridge under the Malahide Road between 26<sup>th</sup> January 2022 and 3<sup>rd</sup> February 2022 and was then moved upriver into Belcamp from 3<sup>rd</sup> February 2022 to 16<sup>th</sup> February 2022. The river and pond were checked for evidence of otters on 23<sup>rd</sup> March 2022.

## Constraints

The surveys for otters and badgers covered a wide period of time and 3 separate years and provides a comprehensive assessment of the current badger and otter activity of the site. There were no constraints on this assessment.

## Existing Environment

### Bat fauna within the Belcamp site

Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Leisler's bat	<i>Nyctalus leisleri</i>
Brown long-eared bat	<i>Plecotus auritus</i>

In the autumn assessment of 2020, bat activity was noted throughout the site but with higher levels of activity in the more sheltered areas. Given the weather conditions were mild and dry, bats were widespread. All four bat species present were recorded close to the former school and walled garden and this area was also the area where a bat roost was noted. A pipistrelle was noted to fly into the buildings prior to sunrise. This was a soprano pipistrelle based on the recorded ultrasonic signals.

Two pipistrelle species were noted around the buildings shortly after sunset. Both common and soprano pipistrelle were noted throughout the survey period. Other species noted within the site included brown long-eared bat (very brief calls were noted close to the walled garden) and Leisler's bat which was a little more widespread and was particularly notable in its southern activity. There was bat activity both after sunset and prior to dawn and bats were roosting within and around the site. Activity at the ruined school and chapel and walled garden included soprano pipistrelles flying towards the building at 19.44 hours followed by a common pipistrelle and a calling soprano pipistrelle. Leisler's bat activity was noted at 19.51 hours and then soprano pipistrelle social calls were noted followed by two common pipistrelles in pursuit along the wall (of the walled garden).

In the spring assessment of 2022, the primary bat activity was soprano and common pipistrelle with a small number of Leisler's bat signals noted. There was repeat activity near to the ruined buildings and this suggests the likely presence of a soprano pipistrelle within these buildings. A soprano pipistrelle was noted close to the buildings as late at 06.01 hours (17 minutes prior

to sunrise). This bat is almost certainly roosting in the ruined buildings or in very close proximity. Soprano pipistrelle was primarily concentrated around the buildings and walled garden. But was also noted close to the pond and Mayne River.

Common pipistrelle activity was noted along the edge of the River Mayne as well as west of the buildings and within the woodland.

Leisler's bat activity was noted towards the southern edge of the site, south of the former main avenue into the school. This activity was very brief.



Bats at Belcamp 2020

*Legend*

Leisler's bat  
 Common pipistrelle  
 Soprano pipistrelle  
 Brown long-eared bat

*Nyctalus leisleri*  
*Pipistrellus pipistrellus*  
*Pipistrellus pygmaeus*  
*Plecotus auritus*

*Yellow paddle*  
*Green paddle*  
*Blue paddle*  
*Red oval*



Bat activity March 23<sup>rd</sup> to 24<sup>th</sup> 2022

*Legend*

Leisler's bat

*Nyctalus leisleri*

*Yellow paddle*

Common pipistrelle

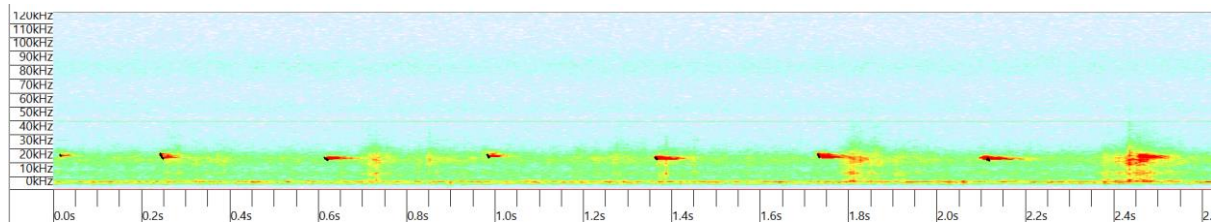
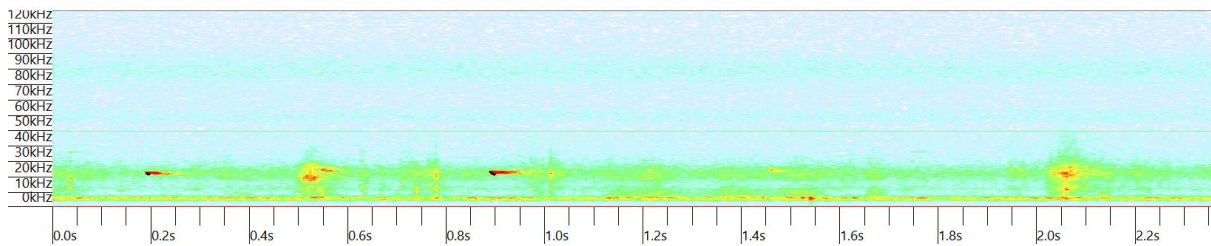
*Pipistrellus pipistrellus*

*Green paddle*

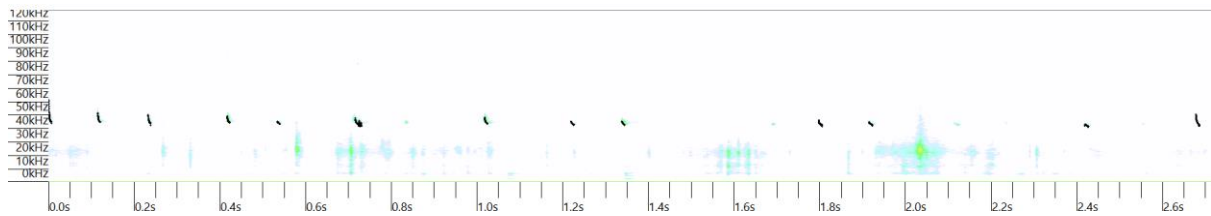
Soprano pipistrelle

*Pipistrellus pygmaeus*

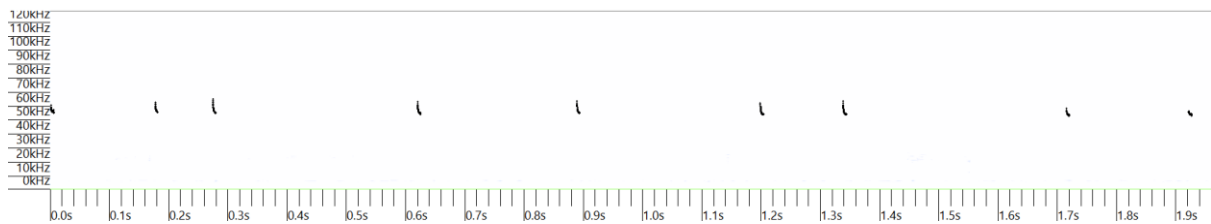
*Blue paddle*



Leisler's bat at 19.25 and 19.26 hours along the field south of the eastern pond



Common pipistrelle at 19.37 hours



Soprano pipistrelle at 19.24 hours at eastern pond

## **Badgers**

There was no evidence of badgers from the site in autumn or winter 2020/ 2021 or winter 2021/2022. There were no latrines, signs of digging, snagged hairs, tracks or badger setts within or adjacent to the site. The largest burrows within or around the site are used by rabbits but may have been originally constructed by badgers.

## **Otters**

There was no evidence of otters within the site in 2021 or 2022. The River Mayne runs through the site eastwards to join the sea at Baldoyle / Portmarnock (north of the former racecourse). In the assessment of the river for otters in 2022, a large number of otter spraints were noted under a bridge in the former racecourse site including very fresh and old spraints. Previous surveys along the river in 2016 by the author identified otter spraints in a small number of locations. An otter spraint was noted in the western pond area on March 5<sup>th</sup>, 2018, during surveys within Belcamp of trees for bats. The greatest level of otter activity was noted at a small bridge east of the railway line along the River Mayne. A dead otter was noted by Conservation Ranger Niall Harmey on the road where the Mayne meets the sea prior to 2016. In December 2011, an otter was found dead in this location (and also reported in January – potentially the same individual). To the south of the former racecourse, another record of a dead otter dates from November 2017 (all records from NBDC database). There are several records of otter activity north along the coast at the River Sluice,

There was one burrow noted within the banks of the stream at the northern end of the site that was considered to have potential to be an otter holt. This was not occupied by an otter and was used mainly by rabbits and rats in January to February 2021. There was no activity evident here in December 2020.

Otters are not breeding within the site but may enter the site along the River Mayne and there is historical evidence to indicate that they are present within the area and enter the site either to feed or commute (four years old – 2018 noted by the author). There is still high otter activity to the east of site in Baldoyle (see below).





**River Mayne passing the Belcamp site (blue box, left) and the site of high otter activity in Baldoyle (yellow box, right)**



**Bridge over the River Mayne, east of the site at the former Baldoyle racecourse area**



**Otter spraints under a bridge in Baldoyle (top) on the River Mayne east of Belcamp**

## **Modifications or Features introduced by the proposed development.**

### **Lighting**

There will be an increased level of lighting as this property has lain idle for some time and there is no sustained illumination. There will also be increased lighting for any new construction. This may lead to the disturbance of light intolerant or shy species while the more urban-adapted species will be affected only over a short-term period. Of the species noted on site, brown long-eared bats and secondly pipistrelle bats would show the least tolerance of lighting. Leisler's bats are the most tolerant of light but equally, this species does not benefit from illumination of roost sites (including trees or buildings).

### **Increased Housing**

There will be a major increase in buildings within the site. This is currently primarily an agricultural site with a derelict school and residence within the grounds.

### **Increased Human and associated pet activity**

There is a relatively limited human activity over most of the site at present with social gathering in some areas at night. There are a number of ponies present but little human presence away from the construction site (frequently dormant during the Covid 19 pandemic). Once housing is occupied, there will be an increase in pet activity within the site. This will have an impact on the native fauna.

### **Increased Traffic / Vehicular Activity**

There is very limited traffic through the site at present. This will increase substantially both for the period of construction and once complete, there will be residential traffic.

### **Loss of cover and open (green) areas**

There will be a loss of scrub and mature trees. This will increase light penetration into the sight, reduced cover for mammals to travel through the site and less sites for shelter in general.

The loss of grass and other plants and soil for growth of native plants will reduce invertebrate diversity and this will reduce available invertebrate food for mammals.

## **Impacts of The Proposed Development**

### **Potential roost loss**

Tree felling creates a risk of roost loss where mature trees have been unmanaged and there are cavities and rotten or cracked limbs. The former school buildings will remain with the possibility of further clearance of ruins and rubble for safety, but this is not included within this scheme.

### **Disturbance from lighting**

Lighting will be increased for two different functions:

1) Access and safety and 2) Security and policing

The former is to allow ease of use at night. The latter is to ensure a perceived higher security level. This may affect bat species, in particular, light-intolerant bat species such as brown long-eared bat during foraging and if directed at emergence points would affect all bat species, even those that will feed in illuminated areas. Species such as common pipistrelle and Leisler's bat are less affected than all other Irish bat species. At worst, it would be a permanent moderately negative impact.

### **Reduced Feeding**

Reduced vegetation may lead to reduced insect abundance. This will be a permanent slight negative impact. While the crop at the time of survey was a cereal crop and would support low densities of insects, rotation of crops would allow for the presence of pasture on occasion and a greater availability of insects. This will cease once housing is constructed. This the level of insect availability and bat food will decrease.

### **Disturbance from increased presence of humans**

While most vertebrate fauna are negatively affected by the physical presence of humans, bats are generally oblivious to human presence. This tolerance is reduced or removed entirely if human presence is accompanied by increased lighting or ultrasonic noise. The increased human presence is unlikely to be of significance given the low number of bats present and the absence of a bat roost on site. Badgers are at higher risk of interference from close proximity of housing both from people and from dogs. Setts may come under threat of destruction or badgers may be persecuted. However, while there was evidence from surrounding fields to the north of badger activity, there was no badger evidence within the site and adjoining fields.

## **Proposed Mitigation**

### ***Ecological corridors to allow movement of wildlife through the site Protection and enhancement of the River Mayne.***

Planning of the site shall ensure that there are areas where mammal fauna have sufficient cover to commute and feed. The site has a large number of trees at present and there is a sizeable pond along the River Mayne. While the water quality is currently very poor, the presence of the river and pond creates high ecological potential for this area.

The creation of an ecological corridor requires control of lighting, provision of suitable cover and plant diversity as well as the provision of suitable conditions for mammal dwellings.

The overall strategy for protecting fauna within this area is dependent on ensuring that this principle is borne in mind for the proposed housing.

### ***Retention of mature trees***

The principle that mature trees must be retained wherever possible must be incorporated into the planning and construction within the site. This translates to deriving a means of saving mature trees as the first step in construction. Surgery must be undertaken to reduce risk from any tree rather than felling. Mature tree loss cannot be compensated in a timescale shorter than three to four decades.

### ***Woodland management***

Tree planting over a sustained period and of different age cohorts shall ensure that there will be mature and healthy trees into the future at Belcamp. It is essential that trees of different ages are sustained within the lands to ensure future trees and an assortment of different ages and diameters.

### ***Trees must be assessed for the presence of bats prior to felling.***

Where there is no alternative to felling, the following will apply: All mature trees undergoing any operations must be examined for the presence of bats by means of either a bat detector survey or by examination from a hoist or rope access by a bat specialist. Felling should preferably be undertaken prior to late November to ensure that bats are not in hibernation. If trees are felled in winter, additional care in examining for bats must be taken to ensure that no

bats are placed at risk. Should bats be noted in any tree, this is a protected structure and may only be felled under licence from NPWS under the instruction of a licensed bat specialist.

***Lighting shall be designed with controlled directionality and timing.***

As lighting may deter wildlife or alternatively render them visible and more exposed to disturbance, it is recommended that bollard lighting is employed where essential unless there is an equivalent means by which light overspill can be controlled. No lighting shall illuminate the River Mayne or the vegetation immediately around it.

- The source of light shall be Light Emitting Diodes (LEDs) as this is a narrow beam highly directional highly energy efficient light source. A warm white spectrum (<2700 Kelvin) shall be adopted to reduce blue light component.

The lighting shall allow for a light level of 3 lux at ground level. This low lighting is thus easier to control both the direction but also the actual light level because it is so close to the target area (if using bollard lighting). Lighting should preferably respond to a trigger (motion sensor on approach of vehicles or pedestrians) and be capable of dimming.

In relation to security, it is recommended that infra-red lighting and infra-red cameras are employed to record anti-social activity to assist in crime solving and prevention. This would not raise the visible light levels that would affect mammals and birds to a much greater extent. It is still entirely adequate for monitoring and identification.

In summary, the following would address the main lighting concerns:

- (1) No floodlighting shall be used – this causes a large amount of light spillage into the sky. The spread of light should be kept below the horizontal.
- (2) Hoods, louvres, shields or cowls shall be fitted on the lights to reduce light spillage.
- (3) Lights shall be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.
- (4) Lights should be on a timer system to switch off relatively quickly in the absence of sustained movement.
- (5) Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights. A warm white spectrum (< 2700 Kelvin) shall be adopted to reduce blue light component.

### ***Bat boxes and bat tubes***

The following bat boxes are proposed for the site:

***21 x 2FN Schwegler Bat Boxes*** Height 33 cm x diameter 16 cm. Weight: 4.1 kg.

These boxes shall be installed on 7 mature trees within the site. Boxes shall be no lower than 3 metres and shall face in several directions with a majority facing south (e.g., 14 facing either south, southeast, or southwest).

***21 x Timber bat boxes of various designs***

As for the above, these boxes shall be installed on 7 mature trees within the site. Boxes shall be no lower than 3 metres and shall face in several directions with a majority facing south (e.g., 14 facing either south, southeast, or southwest). Boxes should preferably be painted black for greater heat absorption.

***6 x Vivara Pro Build-in Woodstone Bat Tubes or 6 x 2FR Schwegler Bat Tubes if available***

These boxes shall be incorporated into the southern apartment blocks. They should be in walls devoid of open windows and doorsteps and should be predominantly in southerly directions.

External dimensions: 21cm (W) x 50cm (H) x 7.7cm (D)

Internal dimensions: 16cm (W) x 40cm (H) x 2.2cm (D) (x2 cavities)

Weight: 6kg Material: WoodStone

### ***Planting of tree lines and hedgerow***

It is recommended that tree lines or lines of shrubs are planted to provide feeding areas for bats and cover for the movement of otters along the River Mayne. Broadleaved trees are more beneficial to bats and other mammals. Species such as goat willow would grow well along the edge of the river and tolerates wet conditions. Native and local plant species should be employed including typical plants such as oak (the greatest value for most wildlife), ash, hawthorn, blackthorn, elder, gorse, bramble, in addition to other species such as dog rose with an encouragement of species such as *Clematis* and other species attractive to moths. The use of bramble would also reduce human disturbance of areas along the river.

## **IMPACTS OF THE DEVELOPMENT AFTER MITIGATION**

There will be no loss of otter holts or badger setts. There will be measures to improve the water quality and create a wildlife corridor through the area. There will be a loss of overall cover and feeding areas mainly affecting species such as rabbit and other common species. It is predicted that there will be no overall effects upon the bat fauna discussed in this report from the proposed development in the long term where measures are employed to create feeding and commuting corridors to connect with surrounding areas and enhance the future tree diversity. There will be measures incorporated to provide roost sites for bats other than the existing buildings. Lighting, if following the guidelines proposed, will not interfere with feeding or commuting bat species or the movement of otters.



APPENDICES



**Location of large-entranced burrow assessed in January / February 2021**  
The burrow is in the banks of a stream in the field north of the buildings.

**Camera images from the burrow from 29<sup>th</sup> January to 10<sup>th</sup> February 2021**



**Rabbit and Brown Rat**



**Grey squirrel and wood mouse**



**Rabbit burrows potentially of badger origin but not in use by badger for many years**



**Ice house at Belcamp**

There is no evidence of bat usage of this structure



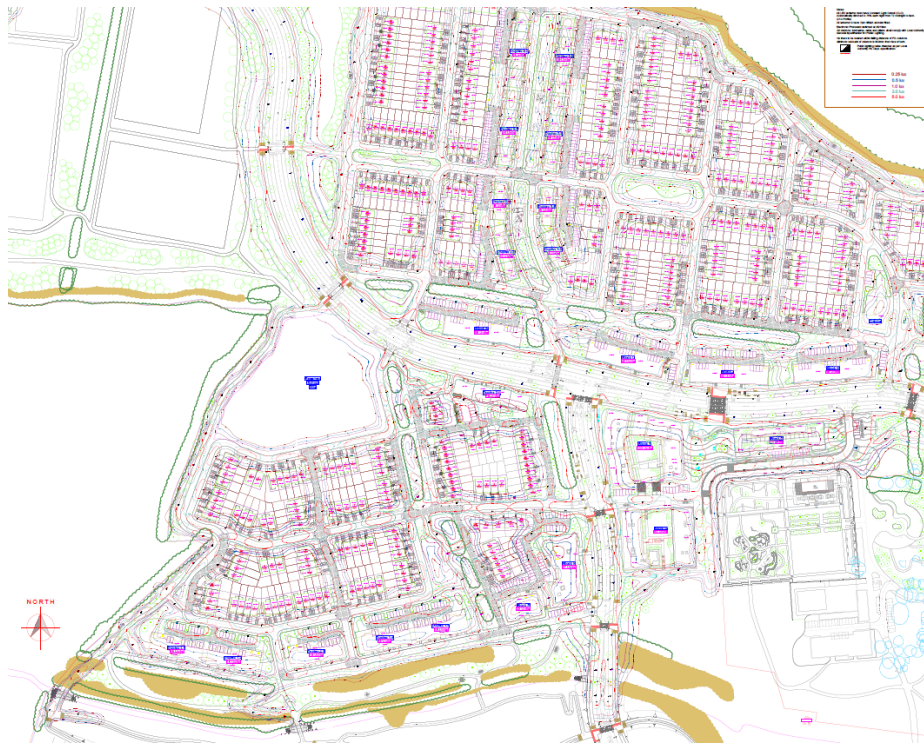
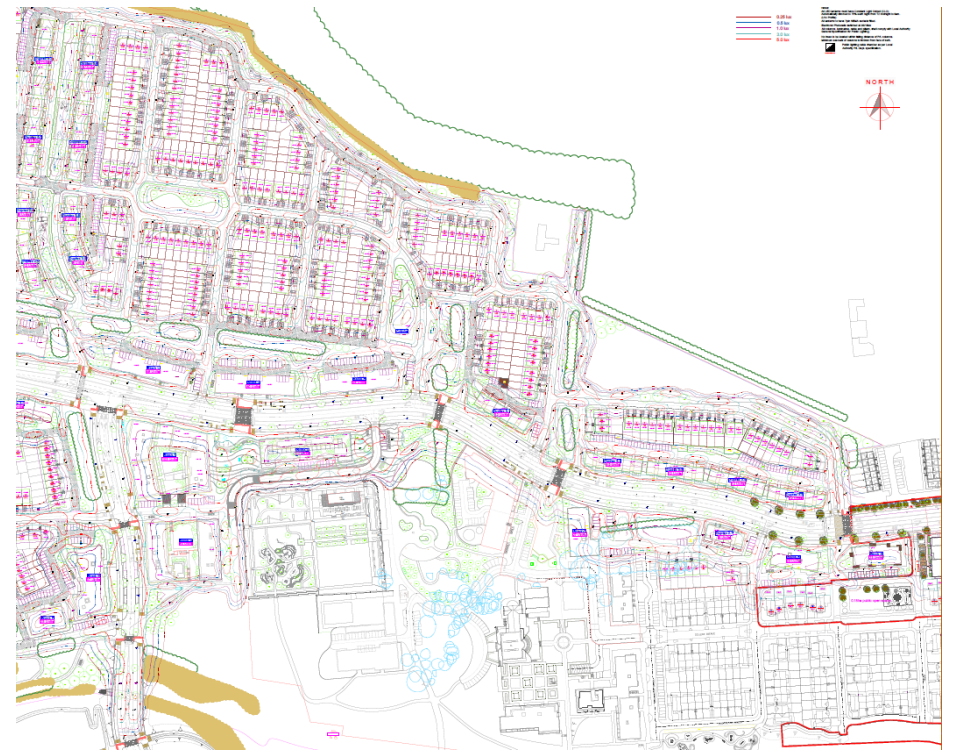
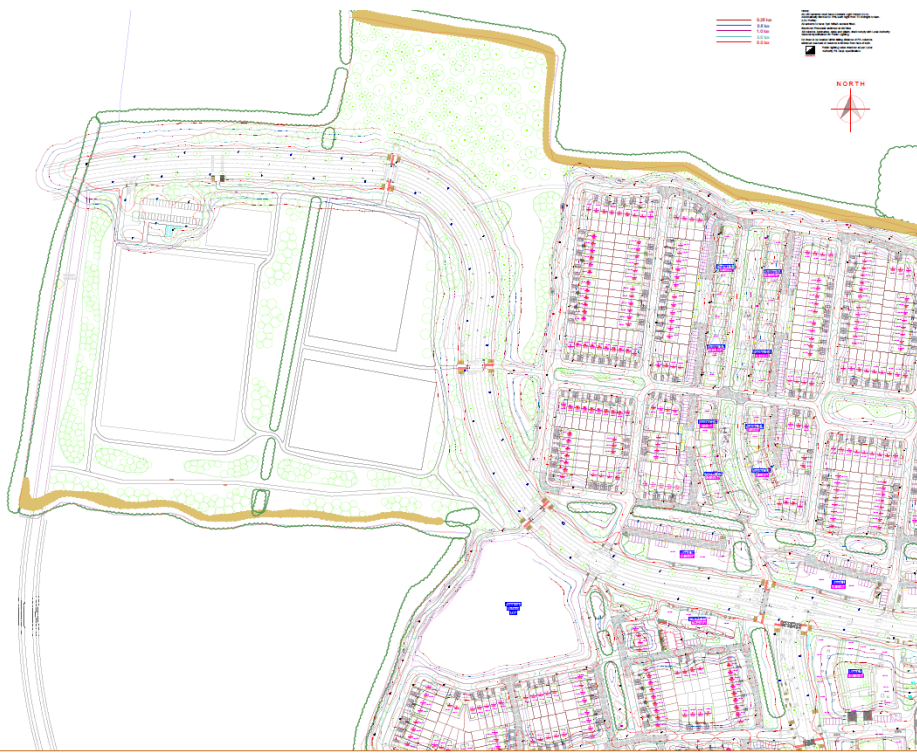
**Proposed Layout for Housing Within the Belcamp lands including future proposals**

the yellow box indicates an area where planting and lighting are most sensitive. Note 3 and 4 are not included in this application and are shown to indicate potential future changes to lands within the overall site.

(from Belcamp Design Strategy, Public Realm Strategy Issue 7)



**Proposed Lighting within Belcamp – See Sabre figure – Public Lighting Layout for details**



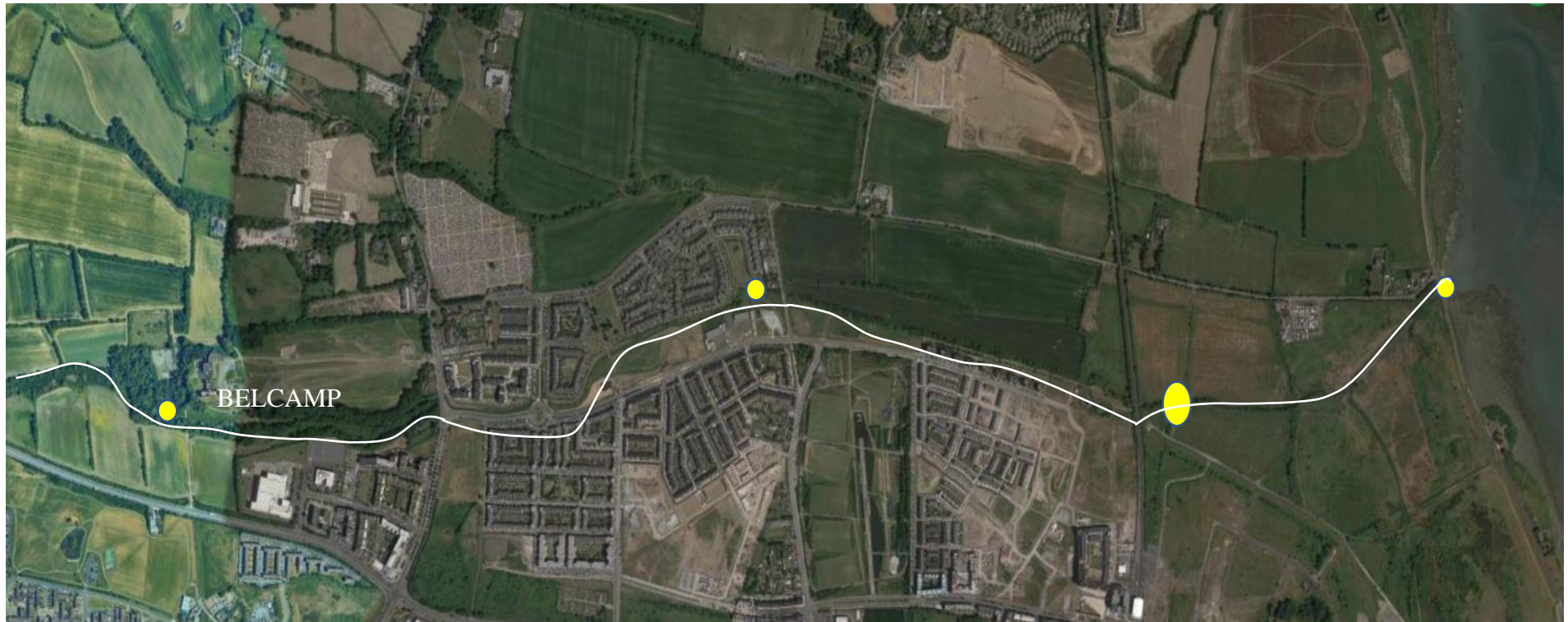
**Proposed Lighting within Belcamp – See Sabre figure – Public Lighting Layout for details**

All proposed luminaires are 2700 K colour temperature as proposed for bat friendly lighting

The luminaires on the cycle track by the river section are mounted at 5 metres and have rear louvres to minimise rear spill. Ideally lighting should be PIR to reduce unnecessary periods of illumination.

The luminaires on the bridge crossing the river are at 5 metre mounting height and photometric distribution selected to minimise spill light.

Main road luminaires are at 10 metre mounting height (except at the bridge where every effort has been made to reduce spill by using 5 metre mounts). Isolux contour lines shown are 0.25, 0.5, 1.0, 3.0 & 5 lux and are best examined in the original figure.



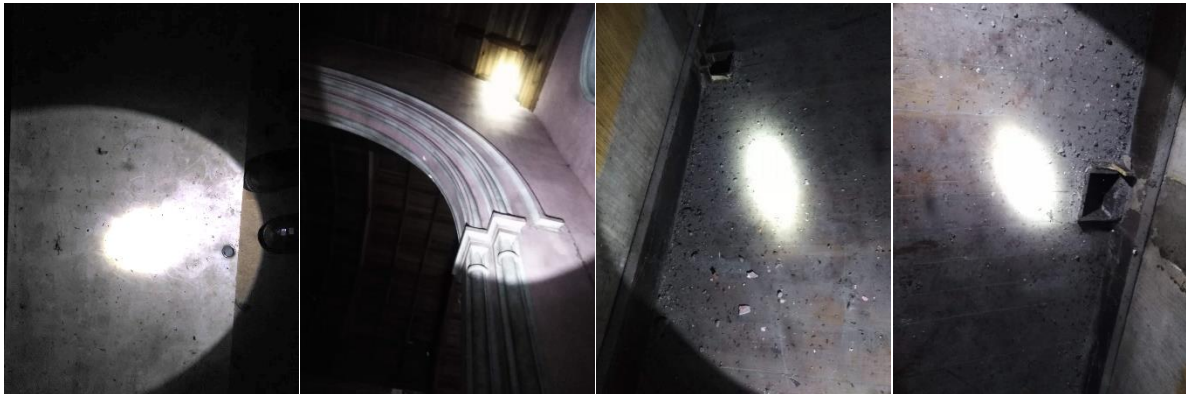
**Otter signs along the River Mayne** noted by the author between 2016 and March 2018 shown in yellow with the river's approximate course indicated by the white line.

The otter spraint at Belcamp was noted in a tree stump on 5<sup>th</sup> March 2018 during a bat survey. The other otter spraints were noted in April 2016 at bridges (including a small footbridge (middle) and on rocks in the estuary (furthest right)). The largest oval indicates the greatest number of spraints at a small bridge directly east of the railway line. This was also greatly visited by otters in 2022 based on the assessment of 16<sup>th</sup> February 2022.



**Internal inspection of the buildings at Belcamp, November 2019**

The building has suffered repeat arson attacks since this evaluation and many of the timber structures have been destroyed. Bats were present within the building in 2020 but the occupancy level was greatly reduced and there was only one pipistrelle seen to return to the building.



**Bat droppings within the church in November 2019**





**Bat droppings within a bricked-up doorway in the buildings in November 2019**