



BROWN FISHER
ENVIRONMENTAL
REPORTS 4 PLANNING

Brown Fisher Environmental
Barley House
Cedar Drive
Snitterfield
Stratford-upon-Avon
CV37 0LJ

tel: 0845 680 1723
e: enquiries@reports4planning.co.uk

Client:

Mr Tony Denton
DN Pacifica Ltd
Langstone Lodge
1 Langstone High Street
Langstone
Hampshire,
PO9 1RY

Construction Environment Management Plan (CEMP)

Langstone Lodge (Main house extensions)

Report Author:

Dr. Stefan Bodnar BSc (Hons) PhD MIEEM



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1. INTRODUCTION

Background and Site Information

At the request of clients, a Construction and Environmental Management Plan was carried out at an area of land at Langstone Lodge , 1 Langstone High Street, Havant, PO9 1RY. The application is for a 2 extensions to the existing main house, with demolition of a single storey structure involved.

1.1 Brief

This Construction and Environmental Management Plan (CEMP)/Ecological Enhancement plan has been drawn up in order to ensure that adequate protection measures and safeguards for breeding birds, bats, amphibians and reptiles are in place for the re-development of this site. A Preliminary Ecological Appraisal of the site has been undertaken in October 2021 by Dr. Stefan Bodnar MCIEEM and this should be read in conjunction with this CEMP.

The purpose of a construction environmental management plan is to outline how a construction project will avoid, minimise or mitigate effects on the environment and surrounding area.

Construction environmental management plans often detail the implementation of measures in accordance with environmental commitments outlined in; an Environmental Statement, an environmental policy or environmental plan, requirements of planning conditions, Section 106 agreements or other legislative requirements. They are 'live' documents that are reviewed and updated at regular intervals throughout the project life cycle.

In particular this Construction Environment Management Plan, to ensure that the construction of the scheme does not adversely affect wintering waders on the nearby SPA not far from the application site. This has been requested by Natural England (October 2020).

As a result, Natural England advise that best practice measures are adopted during construction to limit noise and visual disturbance to the adjacent sensitive habitat. Natural England advises that a Construction Environmental Management Plan (CEMP) should be submitted to and approved in writing by the district ecologist/biodiversity officer that identifies the steps and procedures that will be implemented to avoid or mitigate constructional impacts on the adjacent Chichester and Langstone Harbours SPA, Ramsar and the SPA's functional land mentioned above.

The CEMP should address the following impacts:

- Noise/visual/vibrational impacts
- Visual screening (for SPA birds)
- Storage of construction materials/chemicals and equipment;
- Dust suppression
- Chemical and/or fuel run-off from construction into designated sites
- Waste disposal.

The CEMP should ensure there is no percussive piling or works with heavy machinery (i.e. plant resulting in a noise level in excess of 69dbAmax – measured at the sensitive receptor) to be undertaken during the bird overwintering period (i.e. October to March inclusive). The sensitive receptor is the nearest point of the SPA or any SPA supporting habitat (e.g. high tide roosting site).

This detail should be included in the Appropriate Assessment to ensure there is no adverse impact from the construction work on the adjacent designated sites and its functional land. In addition, Natural England would advise on the following issues.

In addition, Natural England states the following:

It is a requirement of all development to enhance the natural environment, as stated in the NPPF (2019 as amended), paragraphs 8, 118, 170, 174 and 175d. Natural England recommends that an appropriate level of enhancement, such as the addition of bat boxes and/or bird boxes, are secured as part of this application.

Location and statutory information

The site is located on land at Langstone Lodge, 1 Langstone High Street, Havant, PO9 1RY. The plan in Figure 1a below, satellite image Figure 1, and plan also show the area concerned.

Figure 1a. Plan showing site location and existing elevations (east and north face)

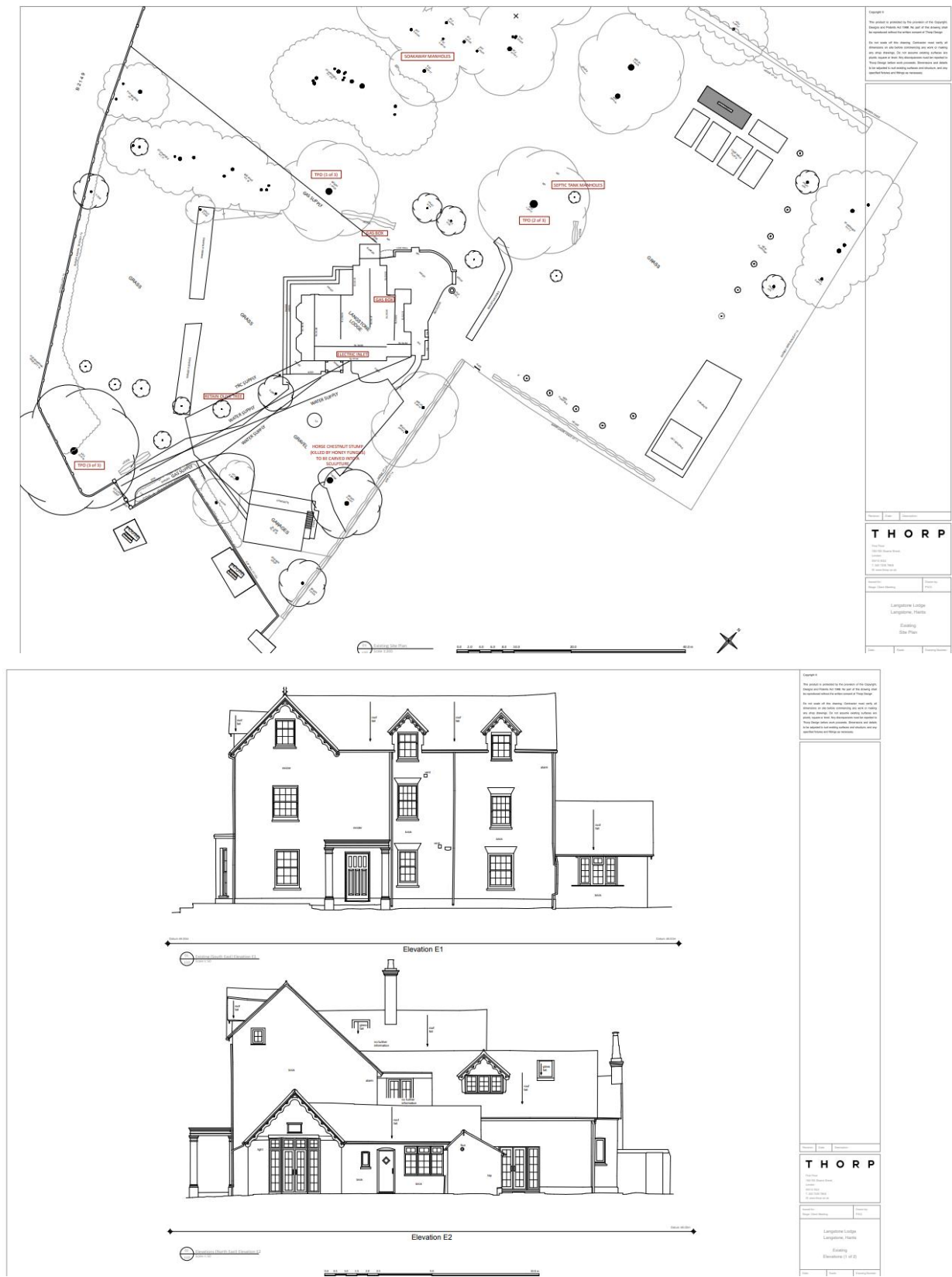
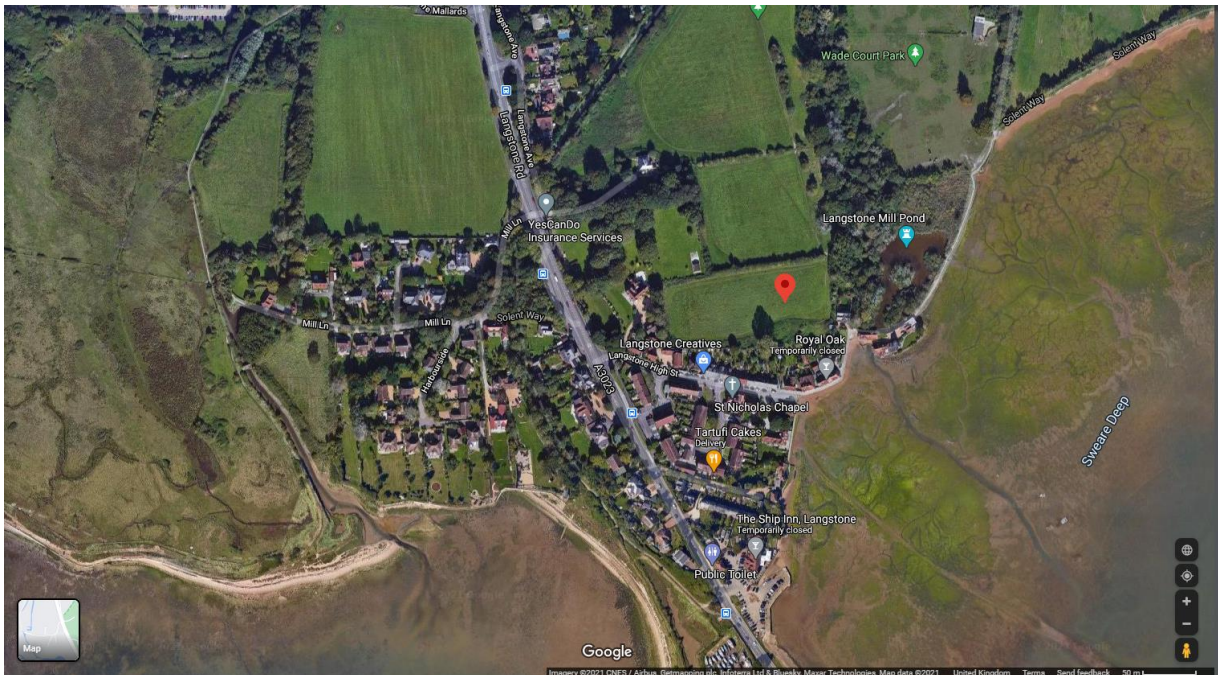




Figure 1. Satellite image showing site location

Map data 2021 © Google.



Map data 2021 © Google.

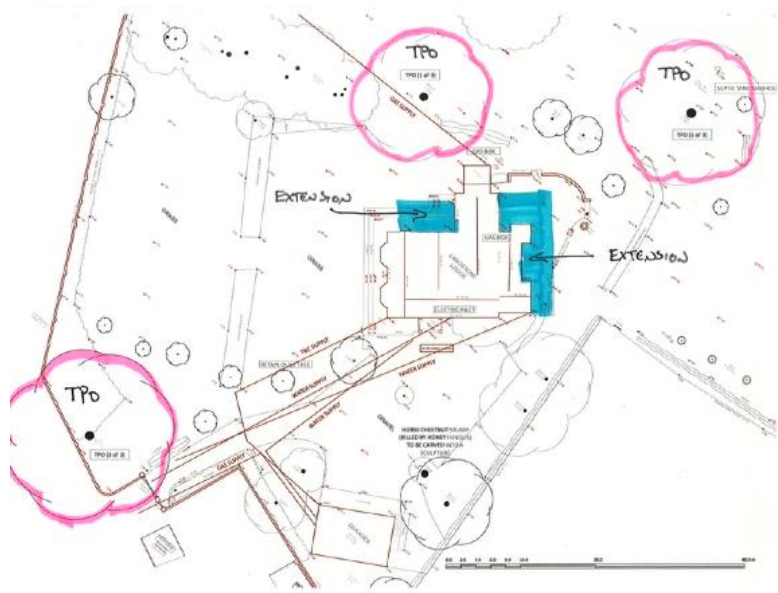
Figure 2. Satellite image of local area around the site.

1.3. Site Description

The area involved in the proposed works comprises two proposed extensions to the existing 3 storey building, which is c 1870 in construction, with extensions in the 1920s and 1997, but has had extensive recent renovation works completed including a new roof structure less than a year previously. The area involved comprise hard-standing and improved mown grassland areas to the North and East of the existing building and single storey attached structures to the East that will be demolished. The main building will be unaffected by any works proposed. In addition to this report a Construction Environmental Management Plan and a Pre-development tree survey and Constraints plan has been produced, to demonstrate appropriate safeguards during construction and appropriate tree constraints in relation to the significant trees on site, some of which are protected by Tree Preservation Orders as well as the site lying within a Conservation area.

1.4 Brief Description of Project

Two new extensions, one of which involves the demolition of the existing single storey structure. See plans below and refer to planning application for full details. The new structures are mainly ground floor with a small first floor to the East, with a pitched roof.

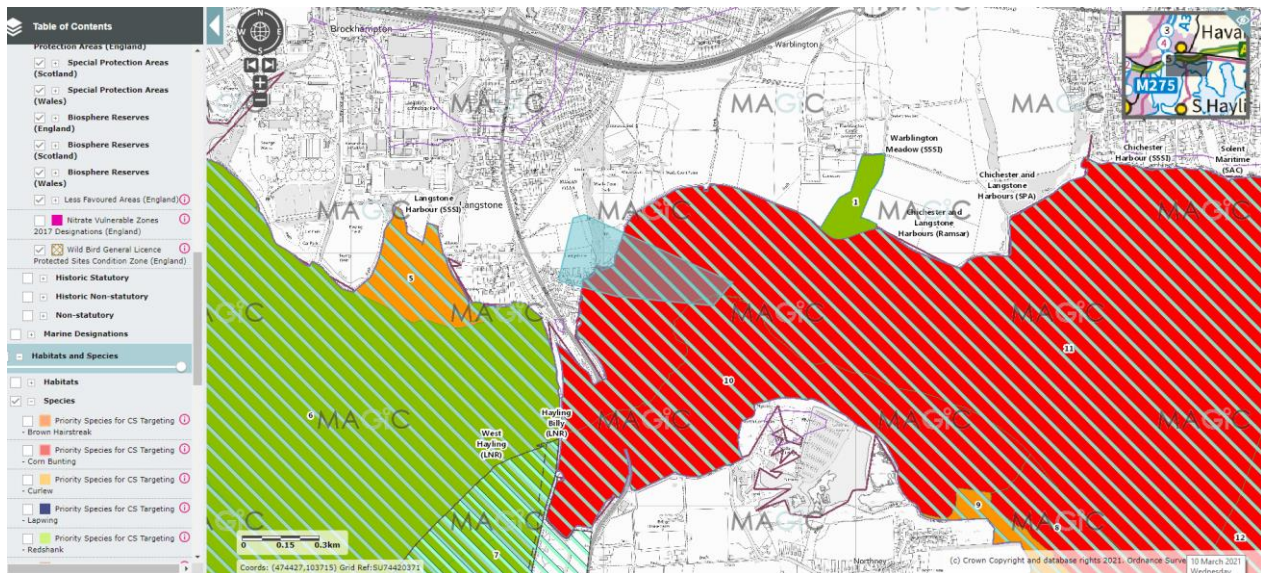




The precautions and concern for this site relates to its proximity to a Specially Protected Area or (SPA), rather than the specific build area affected.

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See Natural England 'Magic' searches below and designation of Chichester Harbour SSSI, which indicates its importance for wintering waders and geese :



COUNTY: WEST SUSSEX/HAMPSHIRE SITE NAME: CHICHESTER HARBOUR

DISTRICT: CHICHESTER/HAVANT

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: CHICHESTER DISTRICT COUNCIL; HAVANT BOROUGH COUNCIL

National Grid Ref: SU 760 000 Area: 2657 ha 6566.7 acres W Sussex
3695 ha 9130.3 acres Total

Ordnance Survey Sheet 1:50,000:197 1:10,000: SU 70 NW,NE,SW,SE, SU 80 NW, SW,SE, SZ 79
NW,NE, SZ 89 NW

Date Notified (Under 1949 Act): 1970 Date of Last Revision: 1980

Date Notified (Under 1981 Act): 1984 (Hants) 1985 (W Sussex)

Other Information: This site lies within the South Coast Plain. It includes Nutbourne Marshes Local Nature Reserve. The site is listed in 'A Nature Conservation Review' and is a Geological Conservation Review site.

Reasons for Notification:

Chichester Harbour is a large estuarine basin in which at low water extensive mud and sandflats are exposed, drained by channels which unite to make a common exit to the sea. The site is of particular significance for wintering wildfowl and waders and also breeding birds both within the Harbour and in the surrounding permanent pasture fields and woodlands. There is a wide range of habitats which have important plant communities.

The intertidal area is fragmented in the upper reaches of the harbour by intruding tongues of land giving a very long and varied coastline. The harbour exhibits a wide range of intertidal and associated terrestrial habitats and with the neighbouring Langstone and Portsmouth Harbours is unusual in providing a large volume of sheltered saline water fed by a few streams of only low volume. The extensive intertidal mudflats are the feeding grounds, at the relevant times of year for internationally important numbers of ringed plover, grey plover, redshank, black-tailed godwit, dunlin, sanderling, curlew and greenshank (the latter two in autumn particularly). Bar-tailed godwit numbers are of European importance. Amongst the wildfowl, shelduck, teal and dark-bellied brent goose numbers are of international importance with 5% of the world population of the latter. The unimproved permanent pasture behind the sea wall provides alternative feeding sites for the geese and major high tide wader roosts. Some of this pasture is floristically rich being a red fescue *Festuca rubra* sward with scarce species such as green-winged orchid *Orchis morio* and adder's tongue fern *Ophioglossum vulgatum*.

The lower saltmarsh habitat fringing the mud flats is dominated by cord grass *Spartina anglica* and in most places the upper saltmarsh is rather restricted by the sea wall but there are some pure stands of sea purslane *Halimione portulacoides* while in some areas there is also sea lavender *Limonium vulgare*, sea aster *Aster tripolium* and other saltmarsh species.

Shingle occurs as spits and islands and most are rather unstable permitting little vegetation to become established. This habitat forms the main breeding grounds in the harbour for ringed plover, black-headed gull and three species of terns. The extensive sand dunes at East Head are dominated by marram grass *Ammophila arenaria* although the degree of ground cover varies from 90% to 10% on the more recently established dunes.

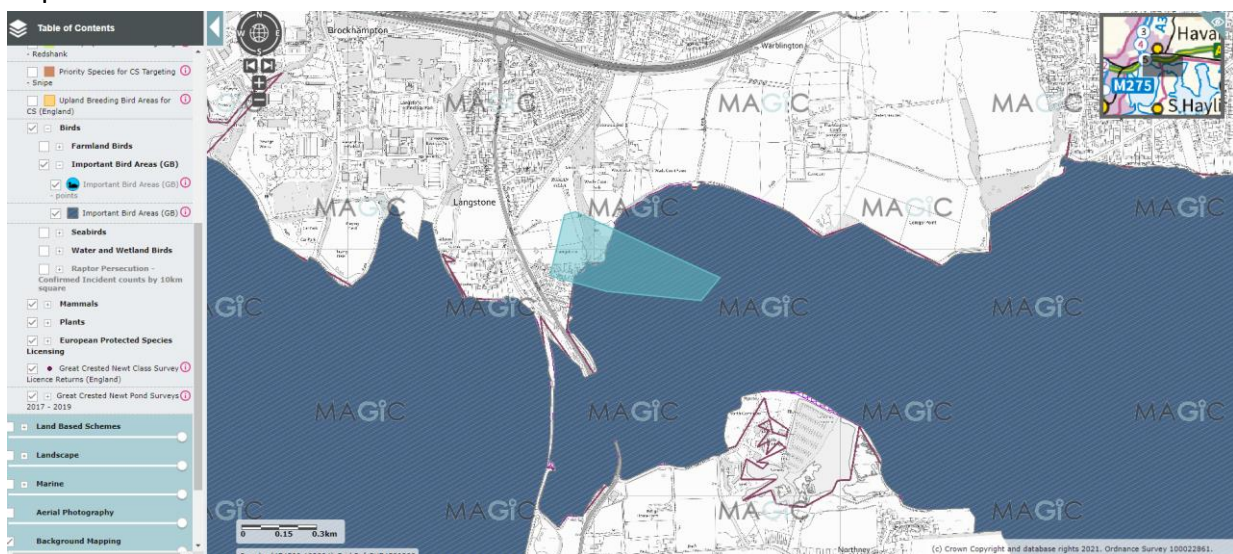
influenced by a chalk spring. Most of the other fresh marshes behind the sea wall are small but at Thorney Deep reclaimed saltmarsh has given way to extensive fresh water marsh vegetation influenced by salt water intrusion; here the reed is fringed by extensive areas of rushes *Juncus* species and invasive willow *Salix* scrub. A number of small ponds occur one of which contains the rare annual beard grass *Polypogon monspeliensis*. Significant blocks of scrub, mainly hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* occur which are important for breeding and roosting birds. Hedgerows of oak *Quercus robur* are common and in some places the oak roots are strongly influenced by salt water. Semi-natural broadleaved woodland associated with the Harbour is important for breeding birds and supports two heronries. Oak is the major tree species usually with hazel *Corylus avellana* coppice, as at Old Park Wood, although Tournerbury Wood has well spaced oaks with the occasional beech *Fagus sylvatica*, holly *Ilex aquifolium* and yew *Taxus baccata* with a fairly dense ground flora of bramble *Rubus fruticosus* and bracken *Pteridium aquilinum*.

Notable invertebrates include the long-winged conehead *Conocephalus discolor* and the moths, starwort shark *Cucullia asteris*, the sand dart *Agrotis ripae*, shore wainscot *Mythimna litoralis* and lunar hornet *Sphecia bemeciformis*.

Geology and Physiography

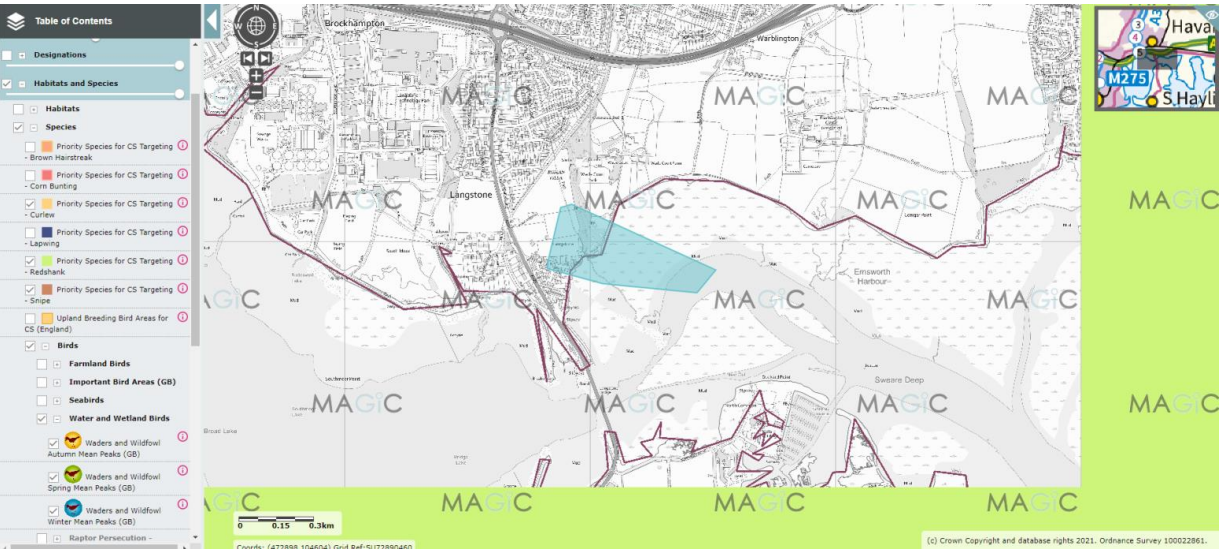
East of Langstone, at SU 725053, a low cliff line at high water mark exhibits a complex of Brickearth and Coombe Rock deposits and at East Head, SZ 769991 there is a sizeable sand dune and shingle system both of which are of geomorphological importance.

Important Bird Areas

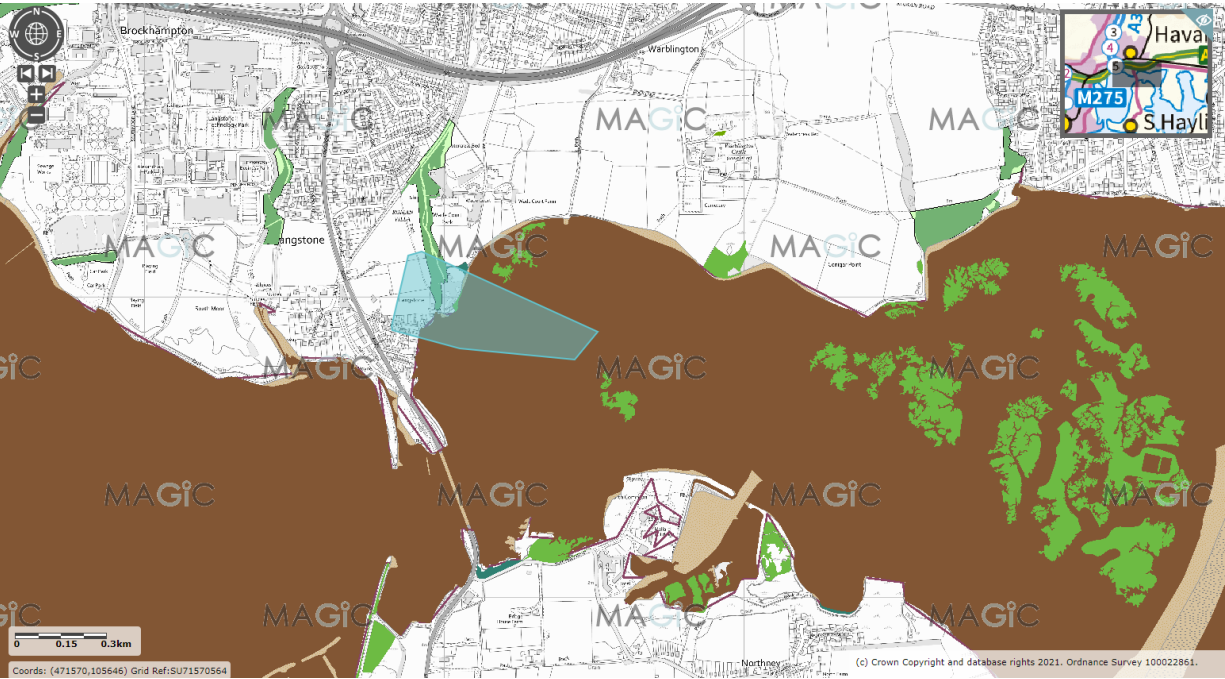


The screenshot displays the MAGIC web application interface. On the left, a 'Table of Contents' sidebar lists various data layers. The 'Redbank' section includes 'Priority Species for CS Targeting' and 'Single'. The 'Birds' section includes 'Farmland Birds', 'Important Bird Areas (GB)', and 'Important Bird Areas (GB)'. The 'Seabirds' section includes 'Seabirds', 'Seabirds', 'Seabird Nesting Counts (British Isles)', 'Seabird Oil Sensitivity Index 2016 (GB)', and 'Vulnerable Concentrations of Seabirds to Oil Spills 1995'. The 'Water and Wetland Birds' section includes 'Water and Wetland Birds', 'Raptor Persecution - Confirmed Incident counts by 10km square', 'Mammals', 'Plants', 'European Protected Species', 'Licensing', and 'Great Crested Newt Class Survey Licence Returns (England)'. The 'Land Based Schemes' section includes 'Great Crested Newt Pond Surveys 2017 - 2019'. The main map area shows the Humber and Trent estuaries with a highlighted polygon. The map is labeled 'MAGIC' and includes a scale bar at the bottom indicating 0, 0.15, and 0.3km. A small inset map in the top right corner shows the location relative to Haver and South Haver.

Redshank



Habitats: The SPA is primarily mudflats and salt marsh



2. Timings and specific guidance

Notes from PEA (Bodnar, 2021) to be incorporated into report:

4.3 Precautionary Measures during Development

The trees, hedges and garden planting could all provide suitable nesting structures, therefore although it is considered clearance will not be necessary, any required site clearance involving woody material, should be carried out outside of the bird breeding season. Bird breeding season is between mid March and mid August, although certain species can breed outside these months and if breeding birds are found then work should cease and the advice of an ecologist sought.

All retained trees should be treated in accordance British Standard BS5837 (2012) Trees in Relation to Design, Demolition and Construction – Recommendations, to ensure require adequate root protection fencing.

To protect any reptiles or amphibians which might be using the site, it is recommended appropriate precautions should be taken during development. These include;

- If great crested newts are discovered at any time during processes involved with the development, work should cease immediately and the advice of a licensed ecologist sought.
- All site staff involved with site clearance and construction works are to be made aware of the potential for encountering great crested newts and reptiles through a tool kit talk and the appropriate measures to be taken if great crested newts are encountered.
- Keep duration of groundworks as short as possible.
- Undertake during the day works that might only affect newts above ground.
- Backfill trenches and other excavations before nightfall, or leave a ramp to allow newts to easily exit.
- Raise stored materials (that might act as temporary resting places) off the ground, e.g. on pallets.
- Ensuring storage of piles of materials and excavated earth on the site should be kept to a minimum.

- Storing piles of materials and excavated earth away from the field boundaries to deter reptiles from using them for temporary cover.

Appropriate precautionary measures are recommended, in case badgers enter the working areas at night:

- Ensure that all those in work are aware of the potential for setts or badgers to be encountered, and the actions to be taken if these are discovered at anytime.
- All excavations to be covered over or ramped so that any badgers could get out of an excavated structure. Further measures are detailed below:
- Any ground-works that are to be left open overnight will be provided with a means of escape should a badger enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
- Any trenches/pits will be inspected each morning to ensure that no badgers have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett. Should a trapped badger be encountered the Ecologist should be contacted immediately for further advice who, if necessary, will contact Natural England in respect of legislative and licensing issues.
- The storage of topsoil or other 'soft' building materials on site will be given careful consideration. Badgers will readily adopt such mounds as setts; so as to avoid the adoption of any mounds, these will be kept to a minimum and any essential mounds subject to daily inspections (or nightly patrols if 24 hour security is present on site), with consideration given to temporarily fencing any such mounds to exclude badgers.

Bats:

For the single storey building to be demolished, although of negligible bat roost potential, with the small residual risk of bat use being dealt with by timing precautions to the demolition (November to end March in any year) , direct ecological ¹⁵supervision of roof strip and mitigation features for loss of

bat roost potential/enhancement on the new structure.

2.1 General Notes

Nesting Bird note:

Work should avoid disturbance to nesting birds. Birds can nest in many places including buildings, trees, shrubs dense ivy, and bramble/rose scrub. Nesting birds are protected under the 1981 Wildlife and Countryside Act. The main nesting season lasts approximately from March to September, so work to trees should be checked by a suitably qualified ecologist prior. (N.B birds can nest at any time, and the site should ideally be checked by a suitably qualified ecologist for their presence immediately before work starts, especially if during the breeding season.)

Bat lighting note

Lighting can have a harmful effect on bats impacting on their use of a roost and also their commuting routes and foraging areas. Light falling on a roost access point is likely to delay bats from emerging, which can be especially damaging around dusk as that is when there is a peak in the number of insects. In the worst case scenario, it can cause the bats to desert the roost. Bats and their 'roost' sites are fully protected under the 1981 Wildlife and Countryside Act and the Conservation of Habitats and Species Regulations 2017, the latter of which deems them a European Protected Species. Bats should always be taken into account when lighting is being considered. It is respectfully advised that lighting is kept to a minimum around the roof area and is limited to illuminating the ground and not any possible access points or foraging corridor.

Protection of Watercourse

It should be ensured that there is no contamination of any nearby watercourses either during or after development. All watercourses are of significant nature conservation value.

Therefore, we would recommend that suitable measures are taken to minimise detrimental run-off and ensure no net biodiversity loss in accordance with PPS9 and to comply with guidance within the Water Framework Directive.

2.2 Specific guidance

Breeding, wintering and passage waders

The nearby SSSI/SPA is partially designated for its wintering waders and geese. The most sensitive season is October to March inclusive.

Works likely to disturb waders and Geese:

- Visual: Large vehicle movements in particular any use of lorries and excavators for delivery or movement of materials.
- Noise caused by creation of foundations and build works themselves. Demolition works to single storey structure.
- Dust

Cautions required for:

- Chemicals and fuel on site
- Waste disposal
- Storage of materials

Avoidance measures:

- Consider machinery, awareness to minimise these actions
- Plan all these operations (other than demolition, which will be by soft strip techniques in the winter period November to March) to avoid the months of April 1st to September 30th of any year, other than demolition which ideally would be timed March 2022, though within the winter period (Nov to March of any year) for bats. Hand strip tiles and soft demolition of structures to minimise noise.

2.3 Mitigation plan

1. Wintering and passage waders and geese: Timing

This is the most critical measure and the majority of operations above should be minimised and take place only between 1st April and 30th September.

2. **Visual and noise:** The development, although around 100m distance of the SPA edge, has intervening mature deciduous trees and hedgerows which (in season) will effectively screen the development from the mudflats and will also attenuate any noise.

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3. **Arboriculture:**

There are arboricultural constraints that should be incorporated. These are set out in the

Arboricultural Impact and Tree Protection reports.

4. Consideration of construction methods and materials/vehicles:

Following advice provided, the client has provided the following:

Months of demolition: existing single storey structure-

Months of demolition (Nov to March) best targeted March (end): soft demolition methods.

Months of construction - April to September - or as best advised

External Lighting - None

Construction - No Cranes / Standard foundations for single storey

Tony Denton MBA, FIMI, FMInstLM

Director
Cornerstone Hampshire LTD

As such, it is considered that the foundations will be essentially a concrete pad on which the structure (single storey) will be built.

2.4 Enhancement Measures:

(a) Details of landscaping features, to maintain and enhance the biodiversity of the site, primarily bird and bat boxes.

- 2 bird and 2 bat boxes could be attached to the built structures, as follows:
- **Bird box specifications;** Bird boxes can be ordered from NHBS Ecology details can be found in appendix 1
- **Bat Box Specifications;** It is also suggested that a minimum of 3 bat boxes be attached to the corners of the built structure or integrated bat boxes within the new structure. Bat boxes can be ordered from NHBS Ecology details can be found in appendix 1.

(b) Restrictions on external lighting to avoid impacts on bat roosts, bat foraging areas and sensitive habitats

The applicant will undertake not to install any external illumination. If this is amended at any stage, the lighting of small low energy lights controlled by movement sensors and will be within the guidance provided by BCT 'Artificial lighting and bats' 2018. Any external lighting will be deliberately designed to reduce light splay. See general guidance Appendix 2.

3 Construction Ecological Management plan cautionary notes

Main cautionary notes are listed in red.

Note that at all times the measures from the PEA to avoid harm to bats, badgers, and herpetiles shall be followed in it's entirety.

Work will include:

- a) Clearance of site, including clearance of vegetation and demolition of single storey .

Note 1: Retained trees and root zones of retained trees protected with Heras fencing

Note 2: Building demolition by soft strip techniques and in winter November to March, ideally end March.

Note 2: Timing; other site clearance work timed during April to September, to be completed by September to avoid sensitive times for wildlife and not re-commence if required till next April.

Note 3: Avoid use of high vehicles such as cranes and noisy operations.

Note 4: Working within agreed development area

- b) Levelling of land and dragging over. Hardcore areas

Note 1: Trees and root zones protected with Heras fencing

Note 2: Awareness and implementation of procedure for emergencies if protected species found.

Note 3: Timing; work timed during April to September, to be completed by September to avoid sensitive times for wildlife and not re-commence if required till next April

Note 4: Avoid use of high vehicles such as cranes and noisy operations. .

- c) New groundworks, connection to new building

Note 1: Caution in respect of any protected species discovered

Note 2: Trees and root zones protected with Heras fencing

Note 3: Any excavations will be ramped to allow any newts or badgers or other wildlife to escape.

Note 4: Timing; work timed during April to September, to be completed by September to avoid sensitive times for wildlife and not re-commence if required till next April

Note 5: Avoid use of high vehicles such as cranes and noisy operations.

d) Footings and foundations

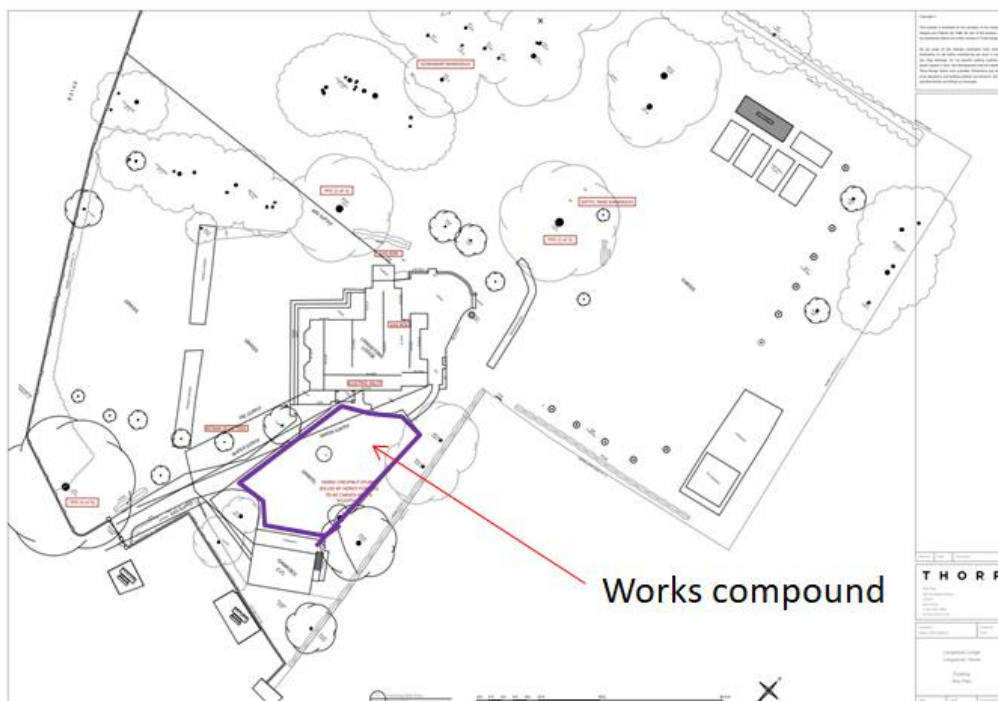
Note 1: Trees and root zones protected with Heras fencing

Note 2: Any excavations will be ramped to allow any newts or badgers to escape.

Note 3: Caution with vehicle movements and storage of materials on site

Note 4: Timing; work timed during April to September, to be completed by September to avoid sensitive times for wildlife and not re-commence if required till next April.

It is understood that the deliveries and site cabin/work unit/ work vehicles will be located on the existing hard-core driveway, location and image shown below:



4. Objective of environmental plan

This is to provide for protection of nearby areas during the demolition, construction and operational phases of the project.

The following measures are specified:

a. Prevention of pollution during works

This should be encapsulated in an environmental plan, which provides the following:

- To provide for protection of nearby areas during the demolition, construction and operational phases of the project.
- Ensuring all methods conform to the requirements set out in the following PPGs or revised updated GPPs, where indicated:

PPG 5 Works in, near or liable to affect watercourses, now replaced by [GPP 5: Works and maintenance in or near water](#). **For construction or maintenance works near, in, or over water. (January 2017)**

PPG 6 Working at construction and demolition sites

PPG 21 Pollution incident response planning

Updated by:

NEW [GPP 21: Pollution incident response planning](#)

For producing emergency pollution incident response plans to deal with accidents, spillages and fires. (July 2017)

NEW [GPP 22: Dealing with spills](#)

For anyone who is responsible for storing and transporting materials that could cause pollution if they spill. (October 2018)

PPG 23 Maintenance of structures replaced by GPP 5, Works and maintenance in or near water.

- No diesel or other potentially polluting materials shall be stored on site during the works. Diesel shall be brought on site on a daily basis and removed at the end of each working day.
- Washing down delivery/site vehicles: the contractor will confirm that this will not be undertaken within the site working area or in any other area of the site or nearby sensitive sites.
- Storage of other (inert) site materials: These will either be stored in a retained building on the site or off-site storage. All bricks and other construction materials will be stored on pallets and on hardstanding areas of the site.

4.1 Ecological protection during the works

To ensure that the works are undertaken in accordance with the CEMP a series of control measures will be utilised. The main one is the delineation of the person responsible for each element of complying with the Ecological Management Plan, normally the site manager. In addition, there will be direct supervision of strip of the roof of the single storey structure to be demolished.

4.2 Elements of construction program

Compliance with all legal aspects in relation to Nature Conservation.
Compliance with planning conditions in relation to aspects of Nature Conservation.
Installation of site fencing to create zones which will not be affected by this development (safeguarding zones.)
Institution of protective work practices
Inspection and monitoring
Remedial works/alteration to working procedures
Training and provision of information in relation to exclusion zones to all site personnel

4.3 The requirements as outlined by legislation

One particular legal requirement is specified which will need compliance with:

- Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010, amended 2017 (The Habitat Regulations)

In addition, the applicants are aware that planning permission granted, does not absolve them from complying with the relevant law, including obtaining and complying with the terms and conditions of any licenses required as described in Part IV of the Circular *06/2005*.

4.4 Procedures for emergencies: Protected species

Note 1: If protected species such as bats, reptiles or great crested newts are discovered at any time during processes involved with the development, work should cease immediately and the advice of a licensed ecologist sought

Note 2: If at any time the developer is made aware of any disturbance issues, caused by any on site operations related to the nearby protected sites, they will take immediate measures to prevent this.

4.5 General procedures

- No diesel or other potentially polluting materials shall be stored on site during the works. Diesel shall be brought on site on a daily basis and removed at the end of each working day.
- Washing down delivery/site vehicles: the contractor will confirm that this will not be undertaken within the site working area or in any other area of the site or nearby protected sites.
- Storage of other (inert) site materials: These will either be stored in a retained building on the site or off-site storage. All bricks and other construction materials will be stored on pallets and on hardstanding areas of the site.

5. Enhancement measures (summary)

In general the protection of all features identified as of landscape and of biodiversity value (primarily trees as identified in the Arboricultural Impact Assessment) coupled with some small scale enhancements will provide a small positive biodiversity gain comprising:

- Bird and bat boxes incorporated within or on the new buildings or other built fabric, in particular should be included.
- Other recommendations are made for biodiversity enhancements on the wider site.

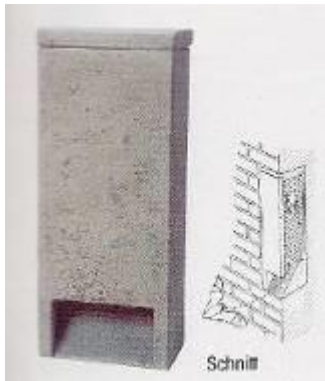
6. Summary of development impacts on features of ecological interest.

The works prescribed will have the following impacts on ecological interests

Ecological Interest	Impact during construction	Long term impact
Nature Conservation	Minimal loss of low quality habitat, any construction related adverse impacts mitigated for in CEMP	Mitigated for by bird and bat boxes, no significant impact.
Species		
Bird	Minimal loss of low quality habitat, any construction related adverse impacts mitigated for in CEMP Timing to avoid impacts on nearby SPA	Mitigated for by bird and bat boxes and by construction timing, no significant impact.
Bat	Minimal loss of low quality structure, any construction related adverse impacts mitigated for in CEMP	Mitigated for by bird and bat boxes and precautions in supervised strip of features, no significant impact.
Reptile/amphibian/other	Minimal loss of low quality habitat	Mitigated for in precautionary measures

Date	Prepared by	Checked and Verified by
18 th October 2021	Dr Louise Sutherland MIALE Ecologist	Dr. Stefan Bodnar MCIEEM Principal Ecologist <i>Dr. Stefan Bodnar</i>

Appendix 1: Bat Boxes and Bat Brick Specifications to Provide Bat Habitat on Buildings



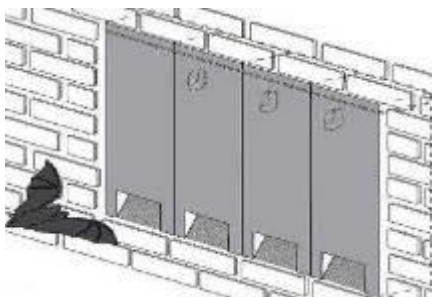
Schwegler 1FR can be installed within brick masonry just leaving the entrance and can be rendered over.



Ibstock Enclosed Bat Box B is designed specifically for the pipistrelle bat.



Schwegler WI integral Summer & Winter Bat Box.



Schwegler 2FR Bat Tube is the same design as the 1FR but with holes in the sides. Multiple tubes to be placed next to each other to form a much larger roost.



Schwegler 27 wall can be installed within brick masonry. It can be rendered over.



Schwegler 1FQ wall-mounted bat box.



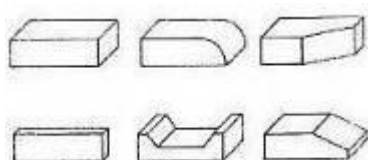
Eschweiler 1FE Bat Access Panel can be surface-mounted or integrated. The open back enables bats access through exterior walls.



Ibstock Bat Box with Engraved Motif C is designed specifically for the pipistrelle bat and is available in all brick colours.



Ibstock Free Access Bat Box allows bats to access the cavity wall of the building.



Modified bricks for creating bat access points. A standard brick is shown top left. Purpose made bat bricks can also be used.



Norfolk Bat Brick allows bats to access the cavity wall of the building. The slits are the perfect size for Natter's bat, Daubenton's bat, Brandt's bat and Brown



Marshall's Bat Access Brick (Also available in stone) allows bats access into the cavity wall of the building.

Woodcrete bat box suitable for winter hibernation of small crevice dwelling bats: 1WI Schwegler

Summer and Winter Bat box (erected on building).



Appendix 1. Bird Box Specifications

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

Schwegler No 11 House Martin Nest (Code: 002097D)



It is increasingly difficult for swallows and house martins to find suitable nest-building material. The mud they do find, if any, is often poor quality. In addition, the walls of buildings are nowadays often very smooth. As a result, nests tend to fall down, sometimes with the nestlings inside. In many places, the vibration caused by heavy vehicles shakes the nests loose. This nest has been developed to enable House Martins to breed successfully on external facades without overhanging eaves and has proved highly successful.

Schwegler No 16 Swift Box (Code: 002087D)

The design of this box mimics bell tower louvres. It has a removable panel for easy inspection of the nest chamber.



2H Robin Box (Code: 002015D)



This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts. Best sited on the walls of buildings with the entrance on one side.

Sparrow Terrace



House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. No maintenance required. Designed for fixing to walls (not suitable for fences or sheds due to the weight of the box). Available in choice of stone colour (pictured) or brown.

Schwegler 1B Bird Box



The most popular box for garden birds, the 1B appeals to a wide range of species, and is the official nest box of National Nest Box Week. The box can be nailed to the trunk of a tree, or hung from a branch. Woodcrete, 23cm high x 16cm diameter. Available in choice of four colours - brown, green, red or white. Available with 32mm entrance hole (standard) or with 26mm hole

Schwegler Built-in Multi-System Main Cavity Bird Box (Code: 002101D)



The multi-system has exchangeable front panels for kestrels, jackdaws or swifts. The system can be installed in all types of buildings, whether constructed of concrete, brick or timber. To meet the needs of various species of bird, different types of front panel are available for use with the main cavity. The main cavity is supplied without a front panel which should be ordered separately.

Positioning: At heights of 5m or more on a sheltered external wall.

Suitable for: Dependant on the type of front panel chosen.

Material: Woodcrete **Height:**415mm **Width:** 445mm **Depth:**415mm **Weight:**2.8Kg

Appendix 2: Lighting guidance

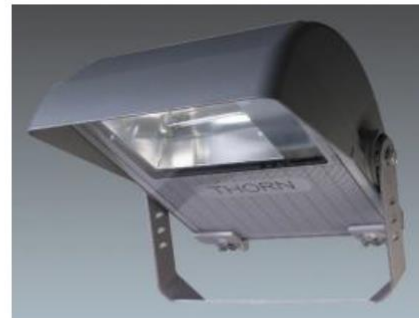
MITIGATION OF LIGHTING IMPACTS ON BATS

- **FORAGING AND COMMUTING Type of lamp (light source)** The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its uv filtration characteristics.
- **Luminaire and light spill accessories** Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or manmade features that are required within the build can be positioned so as to form a barrier. **Suitable examples shown below:**

Double Asymmetric Luminaire



Simple Hood



- **Lighting column** The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. **Aim for lighting column of 5m or less, hooded and cowled to prevent light spill, for main lighting columns**
- **Light levels** The light should be as low as guidelines permit. If lighting is not needed, don't light. **Timing of lighting** The times during which the lighting is on should be limited to provide some dark periods. Roads or trackways in areas important for foraging bats should contain stretches left unlit to avoid isolation of bat colonies. These unlit stretches should be 10 metres in length either side of commuting route. **Direct lighting so that the hedgerow dark corridors to the northern edge and southern edge of the site remain unlit. So the lighting to be restricted to the main buildings and roadways in and out, and car parking areas only. Car parking areas angle lighting inwards.**
- **SECURITY LIGHTING Power** It is rarely necessary to use a lamp of greater than 2000 lumens (150 W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.

- **Movement sensors** Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed. Timers If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.
- **Aim of light** The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any bats' roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.
- **Suitable types shown below (note that these are wall mounted and directed downwards)**

Circular Louvre



Cowl & Louvre



Cowl (or Hood)



References: Bats and lighting BCT guidance and Guidance notes for the reduction of obtrusive lighting.