PHASE 1 ECOLOGY SURVEY

MARIA FIDELIS SCHOOL,

NORTH GOWER STREET, LONDON

Commissioned by: **ME Landscape Studio**

Report Number: ASW/MELS/093/22/2018
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CONTENTS

EXECUTIVE SUMMARY

1. The main protected species potential present within the application site at Maria Fidelis School, as identified during this ecological survey, was for: breeding birds and bats.

2. Some nesting bird habitat is present within the development footprint, although less than expected due to the urbanised character of the site. Such bird breeding habitat in trees, shrubs and buildings would be expected at any similar site.

3. Breeding birds will therefore only be an issue if any active nests are present within any features to be removed or felled during the works within the proposed development footprint.

4. There is some bat roosting potential present within three of the School buildings, but only within the external features, such as under slates and within damaged soffit boxes.

5. No badger setts were found at the site and no badger field signs were present such as a latrine and scrapes.

6. There is no potential for hazel dormice to be present at this site, as it is too urban, with no direct connectivity to the nearest population of this protected mammal species.

7. In regards to possible reptile presence, there is no potential reptile habitat at the application site. The absence of suitable tall vegetation and bramble scrub means that there is little to attract reptiles into the site.

8. There is no great crested newt potential present at the application site, given the lack of tall vegetation and bramble scrub. The School pond is not suitable for this species, given that it is silted up completely, dries up early and normally has fish in.

9. Overall, the application site has low ecological value and the scope for protected species to be present is limited due to the highly urbanised environment it is located in.

10. Various key recommendations are set out later in this report, including further survey work needed at the correct time of year, the requirement for a county bat group data search and initial best practice guidelines for the client and contractors to follow.

1. INTRODUCTION

- A Phase 1 Ecology Survey at the Maria Fidelis School, North Gower Street, Camden, London NW1 2HR, was undertaken during November/December 2018, for the client: ME Landscape Studio.

- This ecological survey had been requested in regards to a development proposal for this School site.

- The main method used for this ecological survey, as well as the full results and the final recommendations can be found within this report.

- Both this survey and the report were undertaken and compiled by Mr Andrew S. Waller, Consultant Ecologist, ASW Ecology.

- Mr Andrew S. Waller MSc BSc (Hons) MCIEEM - has been a Consultant Ecologist since 1997, and has very extensive experience/knowledge of protected wildlife species/issues including bats, for which he is fully licensed to survey throughout England by Natural England for consultancy purposes (Bat Class 2 Licence Registration Number: 2015-15703-CLS-CLS). He also has Natural England survey licences for great crested newts and barn owls. He has been studying bats for 25 years and wildlife in general for 37 years. He is a Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and meets the requirements of being a Suitably Qualified Ecologist.

2. METHODOLOGY

2.1 Phase 1 Ecology Survey method

- A daytime based Phase 1 Ecology Survey was undertaken at the application site, on 26/11/2018 and 17/12/2018, by a qualified and experienced Consultant Ecologist.

- The method used for assessing habitat types followed that outlined by the Nature Conservancy Council Phase 1 survey methodology (JNCC, 1993). Please see Section 3.9 for the habitats listed from the site and the relevant codes given to these.

- Weather conditions were very good and visibility was excellent on the two visits. During these visits, the application site was walked and assessed in detail for its suitability for various protected wildlife species and habitats.

- The focus on habitats and protected species potential included on bats, badgers, reptiles, amphibians and breeding birds in particular. The buildings and trees on site were assessed for bat roost potential, in particular, as part of this wider survey.

- Site photographs were taken as for reference, and are included at the end of this detailed survey report in Appendix 1.

2.2 Survey constraints

- The only constraint to this daytime based assessment was the timing of this study, where it was only possible to survey during the Autumn months, for example, due to the commissioning of this study.

- However, given the actual survey results, this is seen as a minor constraint only, since it is not possible to survey any site all year round.

- As always though, without taking into account any further active surveying or monitoring, this study can only provide a “snapshot” of the potential presence of protected wildlife species at the site during the time of the survey visits.

3. SURVEY RESULTS

3.1 Birds

- No bird nests were found at the application site during the two ecological survey visits.
- Although, there was the potential for concealed bird nests to be present in trees with ivy cover as well as some of the buildings, for example, especially old nests concealed from earlier in the Spring, when birds would have been nesting.
- Bird species seen or heard at the application site or closeby during the two ecological survey visits included lesser black-backed gull, feral pigeon, pied wagtail, blackbird and great tit.
- A reduced diversity of bird species would be expected within such an urban school site as there is minimal natural habitat present, when most of the site is dominated by hardstanding and buildings.
- It is highly unlikely therefore that any rare breeding species would be nesting at the application site itself.
- The application site does have some breeding bird potential as would be expected, within the trees and structures as mentioned, which provide suitable nesting bird habitat structure.
- More information on this can be found in the Recommendations section of this report.

3.2 Bats – Please see Map A in Appendix 2 for the building locations

Building description:	• B1 – Main School Building – Large, three storey, red brick, building, with solid walls, flat roofs and pitched roofs. Has wooden soffit boxes, slates and lead flashing • B2 – School Building – Two store, brick structure with flat roof and wooden soffit boxes • B3 – Greenhouse – Located next to Building B2 • B4 – School Building – Long structure with flat roof with metal trim. Part wooden construction • B5 – School Building – Brick structure with cavity walls, felt roof and fascia
External bat survey	• B1 – Main School Building – Crevices noted under slates and lead flashing. A crevice was also found at one end of a damaged soffit box too • B2 – School Building – Crevice in damaged soffit box at one end • B3 – Greenhouse – No interest for bats

	• B4 – School Building – No crevices for bats to use • B5 – School Building – Large crevice behind fascia board
Internal bat survey	• B1 – Main School Building – No interest inside the building for bats as too illuminated by daylight and too disturbed by human usage • B2 – School Building - No interest inside the building for bats as too illuminated by daylight and too disturbed by human usage • B3 – Greenhouse – No interest for bats • B4 – School Building - No interest inside the building for bats as too illuminated by daylight and too disturbed by human usage • B5 – School Building - No interest inside the building for bats as too illuminated by daylight and too disturbed by human usage
Bat evidence present	• B1 – Main School Building - None • B2 – School Building - None • B3 – Greenhouse - None • B4 – School Building - None • B5 – School Building - None
Other wildlife evidence present	• B1 – Main School Building - None • B2 – School Building - None • B3 – Greenhouse - None • B4 – School Building - None • B5 – School Building - None
Overall bat roost grading for the buildings	• B1 – Main School Building - **MODERATE** • B2 – School Building - **LOW** • B3 – Greenhouse - **NIL** • B4 – School Building - **NIL** • B5 – School Building – **LOW**

3.2.1 Tree assessment

- There were two trees close to the pond, with ivy cover. One tree has light ivy cover with low bat roost potential (T3), but the second larger tree has dense ivy cover, so had low/moderate bat roost potential (T1). There is an adjacent tree with two bat boxes, although it is unknown if these have ever been checked for bat usage (T2). **Please see Map A in Appendix 2 for the locations of the stated trees**

3.3 Badger

- There were no badger field signs at the application site, such as setts, latrines, scrapes or badger hair/footprints.

- This urban site is unsuitable for badgers, with very little natural habitat present for any mammal species.

- Badgers are not thought to be present in the wider area and there is no evidence to suggest that any badgers will be impacted by the future development here.

3.4 Reptiles

- There is no reptile potential within the application site, based on the results of this investigation.

- The school ground have no suitable tall vegetation or bramble scrub, that would be needed for reptiles such as slow-worm or common lizard.

- This school site is dominated by buildings and hardstanding, with minimal vegetation present, mainly next to the small, silted up pond.

- There are no known records that we can find of any reptiles close to the application site. And even if reptiles were present nearby, there is nothing in the school grounds which would attract reptiles into the site.

- It is considered that reptiles will not be impacted by the proposal at the application site.

3.5 Great crested newts

- There is also no great crested newt potential within the application site, based on the results of this investigation.

- There are also no viable ponds or ditches at the application site that could be used by breeding newts. The existing pond had no open water present and was found to be heavily silted up.

- This school site is dominated by buildings and hardstanding, with minimal vegetation present, mainly next to the small, silted up pond.

- There are no known records that we can find of any newts close to the application site.

- It is considered that great crested newts will not be impacted by the proposal at the application site.

3.6 Hedgehogs

- Hedgehogs will be present in the wider area eg the larger parks, but there were no field signs such as droppings to suggest they have visited the application site. There is minimal foraging habitat at the School grounds, with the only natural vegetation around the small pond.

- Hedgehogs are a Priority Species in England within the UK Biodiversity Action Plan.

- Therefore, it is still vital that hedgehogs are not impacted during the proposed development related works. This should include no uncovered hole during the works and the restoration of any habitat lost by new habitat creation.

3.7 Hazel dormice

- There is no potential for this protected mammal species to be present at the application site and that there will be no direct connectivity to the nearest dormouse population.

- The area is just too urban to support dormice and the nearest population will be many miles away at the edge of London most likely.

- Dormice will not be impacted in any possible way by the proposed development at this site.

3.8 Invasive plant species

- The following invasive plant species were found at the application site:

    - **Buddleia –** This is present to the rear of the Building B4, at the eastern end of the site, close to Starcross Street.

3.9 Habitats present

- The main habitat types present within the overall application site are the following, with the relevant JNCC habitat codes included:

    (a) Pond – G1 – Includes the very small pond near the Hampstead Road School gate. There are some plantings next to the pond eg horseweed, surmac, shepherd's purse plus some grasses and a sedge spp as well as a small group of trees. Two of the trees have ivy cover – 1 with low bat roost potential but 1 with moderate bat roost potential. There are also two bat boxes on one of the trees.
    (b) Introduced shrubs – J1.4 – Includes buddleia, box and other ornamental shrubs.
    (c) Buildings and associated hardstanding – J3.6 – Includes the School buildings and all hardstanding areas. There is a tiny area of colonising herbs at the end of the hardstanding behind Building B4 – but this area is so small that this has been included as a target note.

3.10 Desktop study

- The ASW Ecology wildlife database was used for all previous wildlife records for the area around the survey site and nearby eg within a mainly 2km radius, as this has collated records from more than 37 years for the UK. Please note that no formal county biological data search by GIGL was requested by the client.

3.10.1 Wildlife Records

The ASW Ecology database has some wildlife records for Regent's Park, which is just over 1km to the West of the application site. Please see the following:

- Common pipistrelle – Flight records from 2005.
- Soprano pipistrelle – Flight record from 2005.

Birds that we have recorded previously at Regent's Park include (all 2016):

- Black-headed gull, Blue tit, Canada goose, Carrion crow, Coot, Egyptian goose, Feral pigeon, Grey heron (heronry present at park too), Greylag goose, Hobby, Lesser black-backed gull, Magpie, Mallard, Moorhen, Mute swan, Pochard, Ring-necked parakeet, Robin, Starling, Tufted duck and Woodpigeon.

The following species are also mentioned to be present from The Royal Parks web page on wildlife at Regent's Park:

- Hedgehogs are present at Regent's Park, as are further bat species including noctule, serotine and Daubenton's bat.

4. CONCLUSIONS

4.1 Significance of the survey results

- The main protected species potential present within the application site at Maria Fidelis School, as identified during this ecological survey, was for: breeding birds and bats.

- Some nesting bird habitat is present within the development footprint, although less than expected due to the urbanised character of the site.

- Such bird breeding habitat in trees, shrubs and buildings would be expected at any similar site. The ivy covered trees at the application site have the most bird nesting potential.

- Breeding birds will therefore only be an issue if any active nests are present within any features to be removed or felled during the works within the proposed development footprint.

- There is some bat roosting potential present within several of the School buildings, but only within the external features, such as under slates and within damaged soffit boxes.

- However, no bat roost evidence such as droppings, were found at the outside of the buildings during this investigation.

- No badger setts were found at the site and no badger field signs were present such as a latrine and scrapes.

- However, no badgers would be expected at the application site, given the lack of connectivity to the nearest badger population.

- There is no potential for hazel dormice to be present at this site, as it is too urban, with no direct connectivity to the nearest population of this protected mammal species.

- In regards to possible reptile presence, there is no potential reptile habitat at the application site. The absence of suitable tall vegetation and bramble scrub means that there is little to attract reptiles into the site.

- There is no great crested newt potential present at the application site, given the lack of tall vegetation and bramble scrub. The School pond is not suitable for this species, given that it is silted up completely, dries up early and normally has fish in.

- Overall, the application site has low ecological value and the scope for protected species to be present is limited due to the highly urbanised environment it is located in.

- Please see the next chapter of this report for the recommendations now put forward in regards to the further actions needed.

4.2 Impact assessment

In the absence of any mitigation measures, the following potential impact status identified from the proposed development related works at the application site are considered to be:

- **Reptiles/Great crested newts:** Without any mitigation, there is no risk of reptiles being injured or killed, during any proposed clearance works within the application site. Great crested newts are not thought to be present at the site either so will also not be affected by the proposed development works. **Potential impact level: None**

- **Bats:** Without any mitigation, there is a risk that the occasional bat roost may be impacted by any proposed works within the application site. Bats could use the existing structures or trees for occasional roosting and therefore further study is needed to ensure that no bats are disturbed, injured or killed during the proposed development related works. **Potential impact level: Moderate – This grading will be revised though after the recommended bat emergence survey has been completed**

- **Hazel dormice:** Without any mitigation, there is no possibility that this protected mammal species could be adversely impacted by the future clearance works. **Potential impact level: None**

- **Badgers:** Without any mitigation, there is no possibility that any badgers could be disturbed by any future development related works at the application site. There is no risk of any badgers tunnels being collapsed or any setts being damaged in any way. **Potential impact level: None**

- **Nesting birds:** Without any mitigation, potential nesting bird species could be impacted if any trees, ivy cover, shrubs and bushes are to be removed within the development footprint as part of any future clearance works. Bird nests may be present especially in dense ivy cover on trees and could be disturbed or accidentally damaged or destroyed. However, this risk will of course be eliminated by mitigation options such as a breeding bird watching brief and the correct timing of the stated works. **Potential impact level: Moderate**

4.3 Summary of the legal protection of relevant wildlife in the UK (Simplified summary only of the legislation – please see other texts for full details)

4.3.1 THE LEGAL PROTECTION OF REPTILES IN ENGLAND AND WALES

In the UK, reptiles are legally protected from intentional killing and injuring, as well as against sale too under the Wildlife and Countryside Act 1981 (as amended). The offences stated may be absolute, intentional, deliberate or reckless (English Nature, 2004).

This means that reasonable steps must always be taken to avoid killing or injuring all reptiles if they are known to be present within the development footprint. A criminal conviction for injuring or killing reptiles could result in large fines being imposed, imprisonment and/or seizure of the equipment involved.

4.3.2 THE LEGAL PROTECTION OF BATS IN ENGLAND AND WALES

Introduction

All species of bats in England and Wales are protected by law. Their legal protection derives from two sources:

- the strict species protection provisions of the EU Habitats Directive as implemented in England and Wales by Part 3 of the Conservation of Habitats and Species Regulations 2010 (the **"2010 Regulations"**); and

- Part 1 of the Wildlife and Countryside Act 1981 (as amended).

Conservation of Habitats and Species Regulations 2010 ("2010 Regulations")

The 2010 Regulations came into force on 1 April 2010. They replace the previously applicable regulations (Conservation (Natural Habitats, &c) Regulations 1994) in relation to England and Wales. The 2010 Regulations are the principal means by which the EU Habitats Directive is transposed in England and Wales.

The Regulations contain a number of Parts but Part 3 sets out the protection to be afforded to "European Protected Species" ("EPS"), which includes all species of British bats. The list also includes other species which are rare on a European scale, such as great crested newts, otters and dormice.

Under Part 3 of the 2010 Regulations both bats themselves and their "breeding sites and resting places" (most commonly their roosts) are protected.

Part 3 provides that it is a criminal offence to do the following (note that this is not an exhaustive list of all offences but rather a list of offences which will be of most relevance to developers):

a. to damage or destroy a breeding site or resting place of a bat (Reg 41(1)(d));

b. to deliberately capture, injure or kill any bat (Reg 41(1)(a));

c. to deliberately disturb bats [note, wherever they are occurring] (Reg 41(1)(b)), in particular:

   i. any disturbance of bats which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young (Reg 41(2)(a)(i)); or

   ii. any disturbance of bats which is likely to impair their ability to hibernate or migrate (Reg 41(2)(a)(ii)); or

   iii. any disturbance of bats which is likely to affect significantly the local distribution or abundance of the species to which they belong (Reg 41(2)(b));

d. to have in one's possession or to control or to transport or to sell or exchange or offer to sell or exchange any live or dead bat or part of a bat which has been taken from the wild; or any part of, or anything derived from, a bat or any part of a bat (Reg 41(3) and (4)); and

e. to attempt any of the above (Reg 116(1)).

The maximum penalty that can be imposed for the above offences is (as at May 2010) a fine of up to £5,000, and/or up to six months imprisonment. The offences can be committed by individuals or by bodies corporate. Where a body corporate has committed the offence, the directors or officers of the company may also be prosecuted if the offence has been committed with their consent or connivance, or is attributable to their neglect (Reg 124).

Wildlife and Countryside Act 1981 ("WCA 1981")

The WCA 1981 protects a wide range of animals, plants and habitats in the UK. All British bat species are afforded protection under Part 1 of the WCA 1981, in addition to the protection they have under the 2010 Regulations.

As regards England and Wales the following offences apply to protect bats under the W&CA 1981:

a. to intentionally or recklessly disturb any bat while it is occupying a structure of place which it uses for shelter or protection (s9(4)(b) WCA 1981);

b. to intentionally or recklessly obstruct access to any structure or place which any bat uses for shelter or protection (s9(4)(c) WCA 1981);

c. attempting either of the above (s18(1) WCA 1981).

The maximum penalty that can be imposed for the above offences is (as at May 2010) a fine of up to £5,000, and/or up to six months imprisonment. The offences can be committed by individuals or by bodies corporate. Where a body corporate has committed the offence, the directors or officers of that company may also be prosecuted if the offence has been committed with their consent or connivance or is attributable to their neglect (s69(1) WCA 1981).

4.3.3 THE LEGAL PROTECTION OF BIRDS IN ENGLAND AND WALES

All birds have the following legal protection (although there are exceptions for game birds, some waterfowl and designated pest species). This is listed below.

All birds, their eggs and nests are protected by law under the Wildlife and Countryside Act 1981 (as amended). It is an offence to kill, injure or take any wild bird, or to take or destroy their eggs. It is also illegal to take, damage or destroy the nest of any wild bird while it is in use or being built (RSPB, 2001). No provisions can be made for the destruction of occupied bird nests, eggs, or young for development purposes, and no licences are available for this purpose.

Certain rare and/or vulnerable bird species such black redstart, barn owl, red kite, peregrine and hobby are specially protected under Schedule 1, and have the following additional legal protection:

- It is an offence to intentionally (or recklessly, in England and Wales only) disturb any wild bird listed on Schedule 1 whilst it is nest building or is at (or near) a nest with eggs or young; or disturb the dependent young of such a bird.

4.3.4 THE LEGAL PROTECTION OF GREAT CRESTED NEWTS IN ENGLAND AND WALES

Great crested newts have strong legal protection under both British and European legislation. This is briefly summarised below:

Great crested newts are legally protected under provisions within the Wildlife and Countryside Act 1981 (as amended), the Conservation Regulations 2010 and the Countryside and Rights of Way Act 2000. Taken together, it is illegal to:

- **Intentionally or deliberately capture or kill, or intentionally injure great crested newts.**
- **Deliberately disturb great crested newts or intentionally or recklessly disturb them in a place used for shelter or protection.**
- **Damage or destroy a breeding site or resting place.**
- **Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.**
- **Possess a great crested newt, or any part of it, unless acquired lawfully.**
- **Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.**

The maximum penalty that can be imposed for the above offences is (as at May 2010) a fine of up to £5,000, and/or up to six months imprisonment. The offences can be committed by individuals or by bodies corporate.

4.3.5 THE LEGAL PROTECTION OF BADGERS IN ENGLAND AND WALES

In the UK, the Protection of Badgers Act 1992, is the most relevant to this mammal species. Under this legislation, it is illegal to injure, kill or take any badger or attempt to do so without a special licence. It is also illegal to dig for a badger, and to damage, destroy or obstruct access

to any part of a badger sett, or to allow a dog to enter the sett, or to disturb a badger whilst it is occupying a sett.

Certain offences can be caused by reckless, intentional or wilful behaviour, and the Act should always be read in detail for the exact wording.

Penalties for such offences can be severe, and can include fines of up to £5,000 per offence eg per badger sett or per badger, and/or up to six months imprisonment.

5. RECOMMENDATIONS

5.1 Requirement for a follow-up bat emergence survey

- Due to the presence of bat roosting opportunities at some of the existing buildings, it is recommended that a standard bat emergence survey is undertaken at the application site, in suitable weather conditions.

- Such a follow-up survey would adhere to current best practice for surveying bats by the Bat Conservation Trust (BCT, 2016) where a site such as this warrants a specialist bat survey of two (but possibly three) night based survey visits by experienced bat surveyors with bat detectors.

- This bat survey should be undertaken between late April to late September, when bats are most active. During late April onwards, weather conditions can be more suitable for such surveying, when hungry bats can emerge earlier than normal from their Spring based roosts.

- Such a survey would focus on if any bat species are roosting in the existing buildings and which species. The survey would also focus on any key bat commuting routes at the site as well as any key foraging areas.

- This bat survey should use ideally a minimum of four experienced bat surveyors with bat detectors, so to provide robust survey coverage of the two buildings, and begin before sunset and last for approximately 2 hours. Or any dawn survey visit should start 2 hours before sunrise.

- Any bats or bat roosts found during this recommended follow-up survey should have their locations plotted accurately on a map for reference. Bat EPS Mitigation Licence advice would be provided if an actual bat roost was found, which is currently unknown.

5.2 Pond restoration at the application site

- The pond at the School, close to the Hampstead Road boundary, should be restored as part of the biodiversity enhancements put forward for the development proposal.

- The existing pond is in a very poor state, with it being completely silted up, does dry out quickly according to School staff and it did have fish in previously.

- It is recommended that this pond has all of the silt dug out and new submerged aquatic plants installed. Although such plants must be native and must also be non-invasive.

- Or the pond has a new lining installed so that there are no leaks and it holds water longer.

- This pond should be retained for wildlife only, with no fish added, so that this will be a genuine biodiversity gain for the application site.

- More information can be given on pond restoration and the timing of such works, if this option is taken up for the development proposal at the School.

5.3 Best practice guidelines – breeding birds and development

- As per any development related site, the general advice is that no vegetation eg trees, bushes, shrubs, hedges or dense ivy cover should be removed during the bird nesting season as all bird nests are fully protected by law, and this includes whilst a nest is being built by the adult birds. This includes both buildings and bird boxes, where nesting birds have been shown to be present.

- If any nests are present within the boundaries of the proposed development footprint during the clearance phase, then these must be left alone until the young birds have fully fledged from the nest and no further breeding attempts are to take place.

- The main bird nesting season in the UK, currently runs mainly from late January/February to September, but sometimes birds can start breeding before or after this period eg birds have been found by us nesting in the second half of January at other sites due to milder winters.

- Therefore September/October to January can be the best months for such vegetation clearance works, if this is to occur. Although it is possible for a consultant ecologist to physically search any trees, hedges, bushes and shrubs at a site to ensure no hidden nests are present beforehand.

5.4 London Bat Group data search option

- It is recommended that there should be a formal London Bat Group data search undertaken for this application site, for any local bat records.

- Such a search will be more advanced than that in the limited desktop study in this report, with far more records available.

- Such wildlife records will help determine which bat species are present in the 2km radius around the application site. It will help provide context in terms of bat distribution in this part of London.

5.5 Ecological enhancement options for the new landscape scheme

The following are options for the client to consider in regards to enhancing the biodiversity of the site, post clearance. These are options only though and some of these may change such as the bat boxes, depending on the results of the recommended bat emergence survey of the buildings and trees.

5.5.1 Bat boxes

- As a biodiversity enhancement option for the client, it would be possible to install at least three or more bat boxes at the new development for local bats to use, as part of any future new landscaping scheme.

- The bat box model proposed would be the 2F Schwegler Bat Box and this is a high quality bat box which will be used by a number of different bat species, including common and soprano pipistrelles. This box is made of woodcrete and is a long lasting box.

- The bat boxes can be located on separate trees eg one per tree ideally, so there is a better chance of them being used by bats.

- Bat boxes should be installed between three to six metres up a tree trunk, facing SE, S or SW ideally and with enough space for bats to fly under the box easily.

- No artificial lighting must illuminate any of the installed bat boxes as this would deter bats from using the boxes.

- The NHBS is a good ecological equipment supplier and this bat box model can be purchased from them. The web link for this bat box is:

  http://www.nhbs.com/title/158629/2f-schwegler-bat-box-general-purpose

5.5.2 Wildlife friendly planting

- It would also be advantageous if wildlife friendly planting can be introduced to the new landscaping scheme, by the use of night scented plants, which will attract insects which bats prey on. Native plants should always be chosen ideally, since these species will have the most benefits to wildlife. But the occasional hybrid or exotic would be fine.

- Suitable border plant species can include corn flower, field poppies, mallow, evening primrose, ox-eye daisy, primrose and yarrow.

- Herbs can also be very good for insects and include borage, coriander, fennel, lavender, rosemary and thyme.

- Trees, shrubs and climbers suitable for insects, so to benefit bats, include dog rose, elder, gorse, guilder rose, hawthorn, hazel, honeysuckle, ivy and jasmine.

- Such plantings will of course benefit the invertebrate populations at the site as well as nesting birds, in regards to new trees and shrubs. Further information can be provided on the above if needed.

5.5.3 Bats and lighting

- It will also be important that there is no new light pollution at the new development scheme and that dark corridors are maintained here for bats. This will mean that bats can continue to use the site despite any new landscaping scheme.

- Lighting can call a vacuum effect at greenspaces, where such artificial light will pull flying insects at night away from areas where bats feed. So adjacent darker areas have less insects for bats to survive on and that affects the life cycles of the insect species.

- Where lighting may be added in the future, if applicable, this this should be bat friendly and adhere to best practice on this aspect. Low pressure sodium lights are better to use than high pressure ones in regards to the impact on bats.

- In regards to the future and current lighting, it would be beneficial for both insect populations and for bats, if any lighting is switched off at the new development scheme well before midnight.

- Light spillage should also be curtailed, as hoods can be used and light should focus on where it is needed. Screening by vegetation can also be used to mitigate the effects of any new lighting.

5.5.4 Bird nesting boxes

- Bird boxes can be installed at the new development scheme in the future and suitable bird box models can be found below.

- This would be a genuine ecological enhancement for this urban site, where few trees have any suitable cavities for hole nesting birds.

- The 1B Schwegler Nest Box would be a good model to have installed at the site, since a range of birds are present at the site and likely to be in the surrounding area including local gardens. This model would benefit blue and great tits especially.

- At least three or more nest boxes should be installed at the site and as widely spaced apart as possible. This is appropriate for the size of the site as nest boxes should not be located too close together.

- The NHBS is a good ecological equipment supplier and this nest box model can be purchased from them. The web link for this bat box is:

  http://www.nhbs.com/1b-schwegler-nest-box

- In general, bird boxes should be spaced widely apart, away from bird feeders, quite high up a tree or building (ideally at least three metres up from ground level but higher in urban areas really), facing North to South-east only and away from cats.

- Further nest box models are also available for house sparrows, starlings, wrens and robins.

6. REFERENCES

(1) Altringham, J.D. (2003) British Bats. HarperCollins*Publishers*, London.

(2) ArborEcology (2006) Assessment of Trees with Consideration of their Value for use by Bats.

(3) Arnold, N.E. (2002) A Field Guide to the Reptiles and Amphibians of Britain and Europe. Collins, London.

(4) Bat Conservation Trust (2008) Bats and lighting in the UK – Bats and the Built Environment Series. Version 2. BCT, London.

(5) Collins, J. (Ed) (2016) Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd Ed). Bat Conservation Trust, London.

(6) English Nature (2004) Reptiles: guidelines for developers. English Nature, Peterborough.

(7) Entwistle, A.C. et al (2001) Habitat Management for Bats. JNCC, UK.

(8) Gent, A.H. and Gibson, S.D. (eds) (1998) Herpetofauna Workers' Manual. Joint Nature Conservation Committee, Peterborough, UK.

(9) HGBI (1998) Evaluating local mitigation/translocation programmes: maintaining best practice and lawful standards. HGBI advisory notes for amphibian and reptile groups (ARGs). HGBI, c/o Froglife, UK. Unpublished.

(10) Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. English Nature.

(11) Mitchell-Jones, A.J. and McLeish, A.P. (2004) The Bat Workers' Manual. 3rd Ed. JNCC.

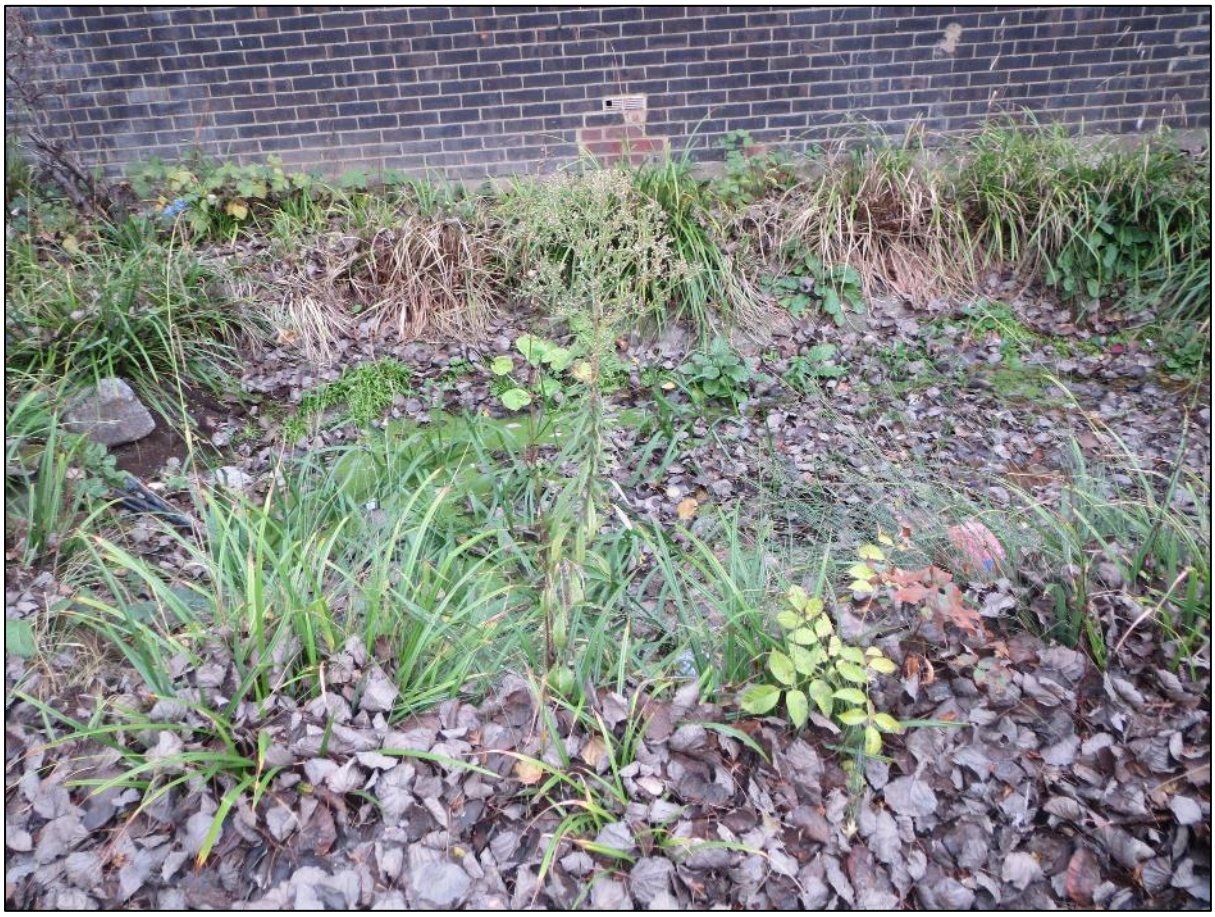
(12) RSPB (2001) Wild Birds and the Law. RSPB, Sandy. UK.

(13) Shawyer, C. (1998) The Barn Owl. Arlequin Press, Essex.

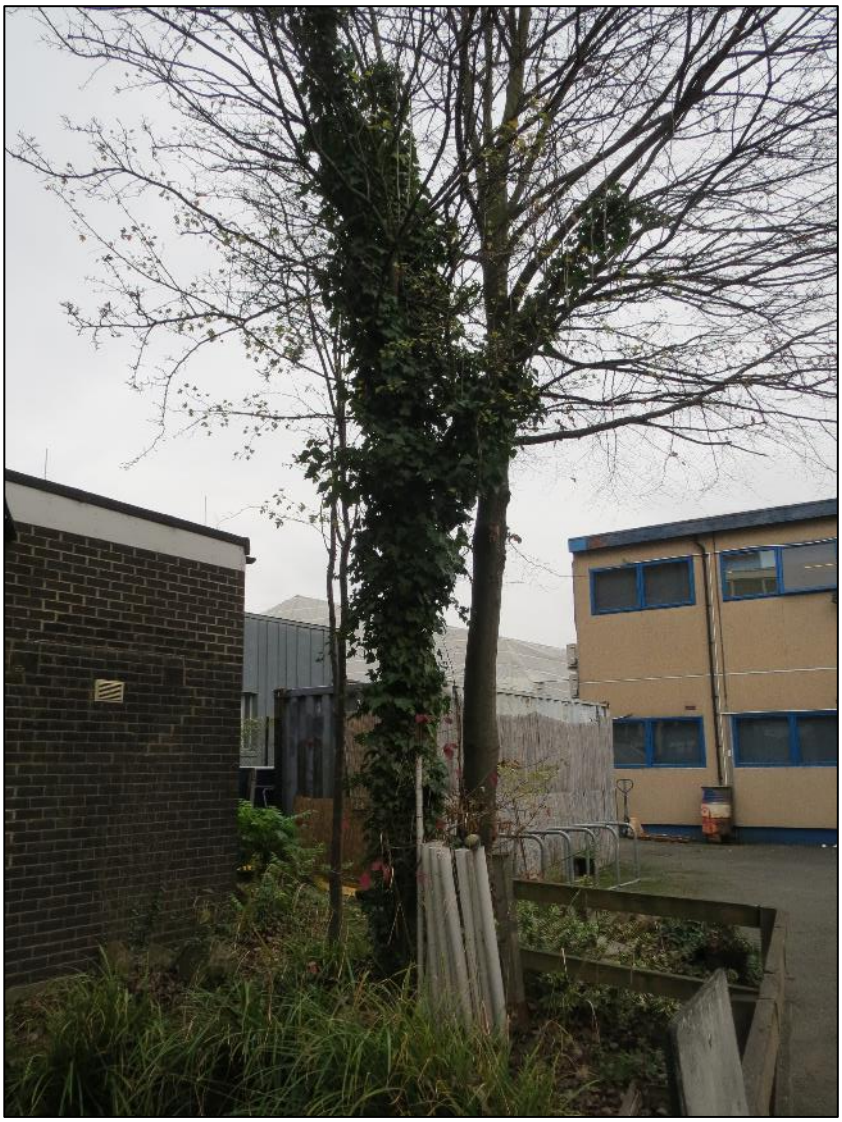
(14) Treweek, J. (1999) Ecological Impact Assessment. Blackwell Science Ltd, UK

APPENDIX 1

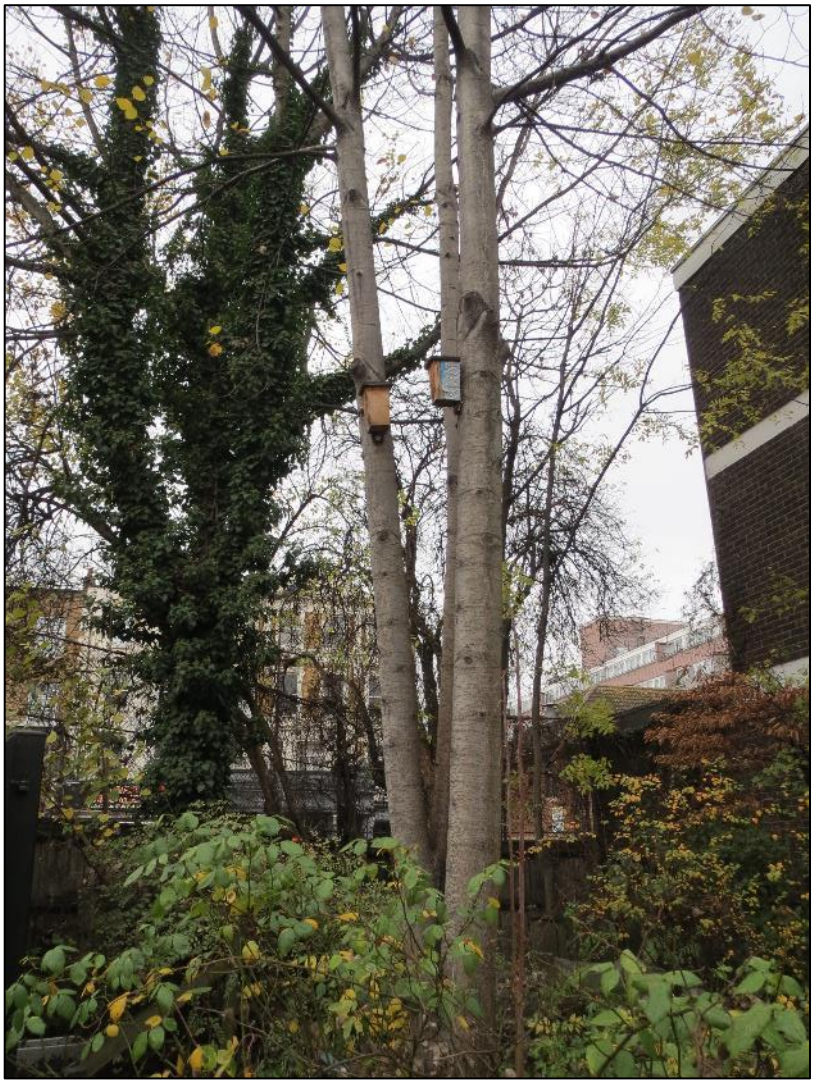
PHOTOGRAPHS A-U



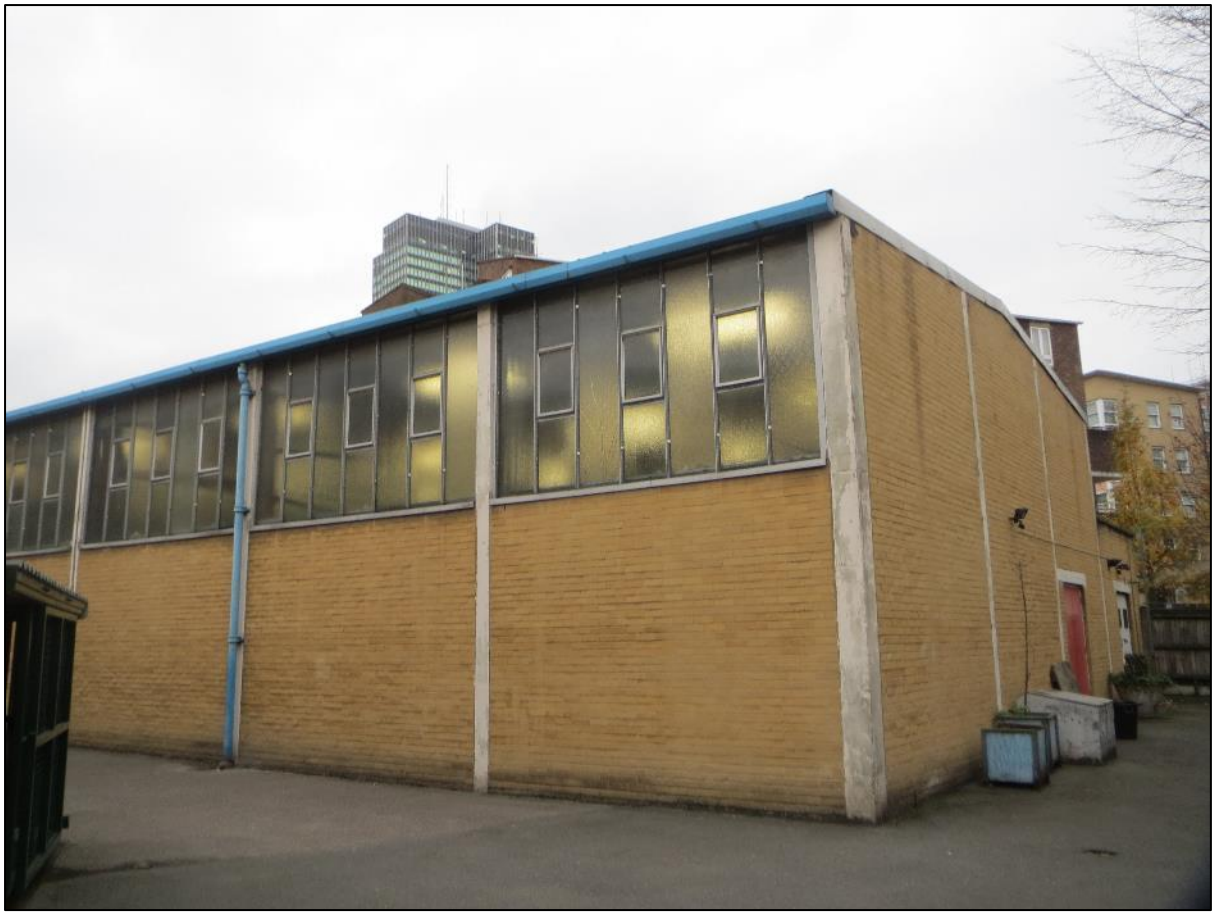
Photograph A
Pond – This waterbody is almost dry and badly silted up



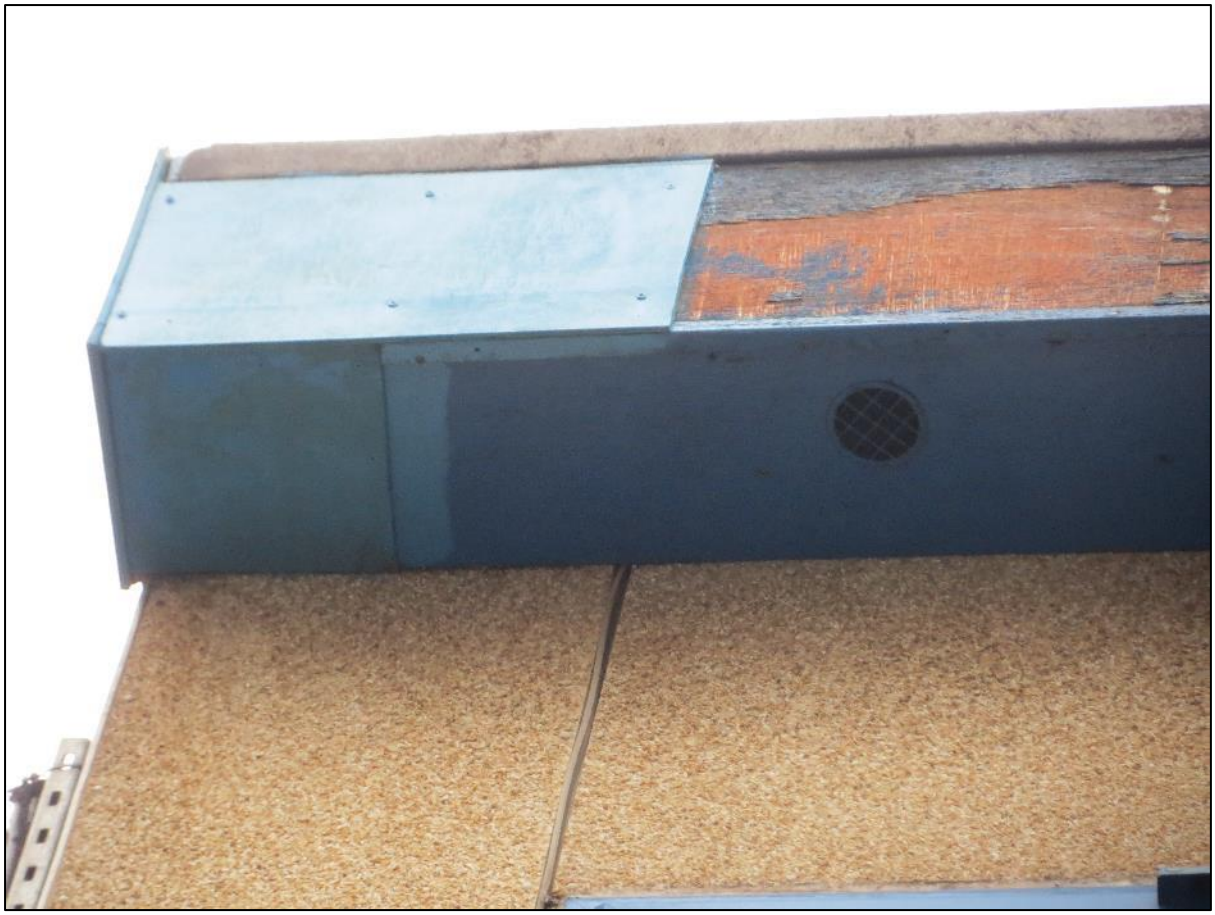
Photograph B
Trees – This tree has some ivy cover, which may provide bird nesting habitat



Photograph C
Trees – The tree in the foreground has bat boxes attached to the trunks. The tree in the background with the dense ivy cover has bird nesting potential plus some bat roosting potential too

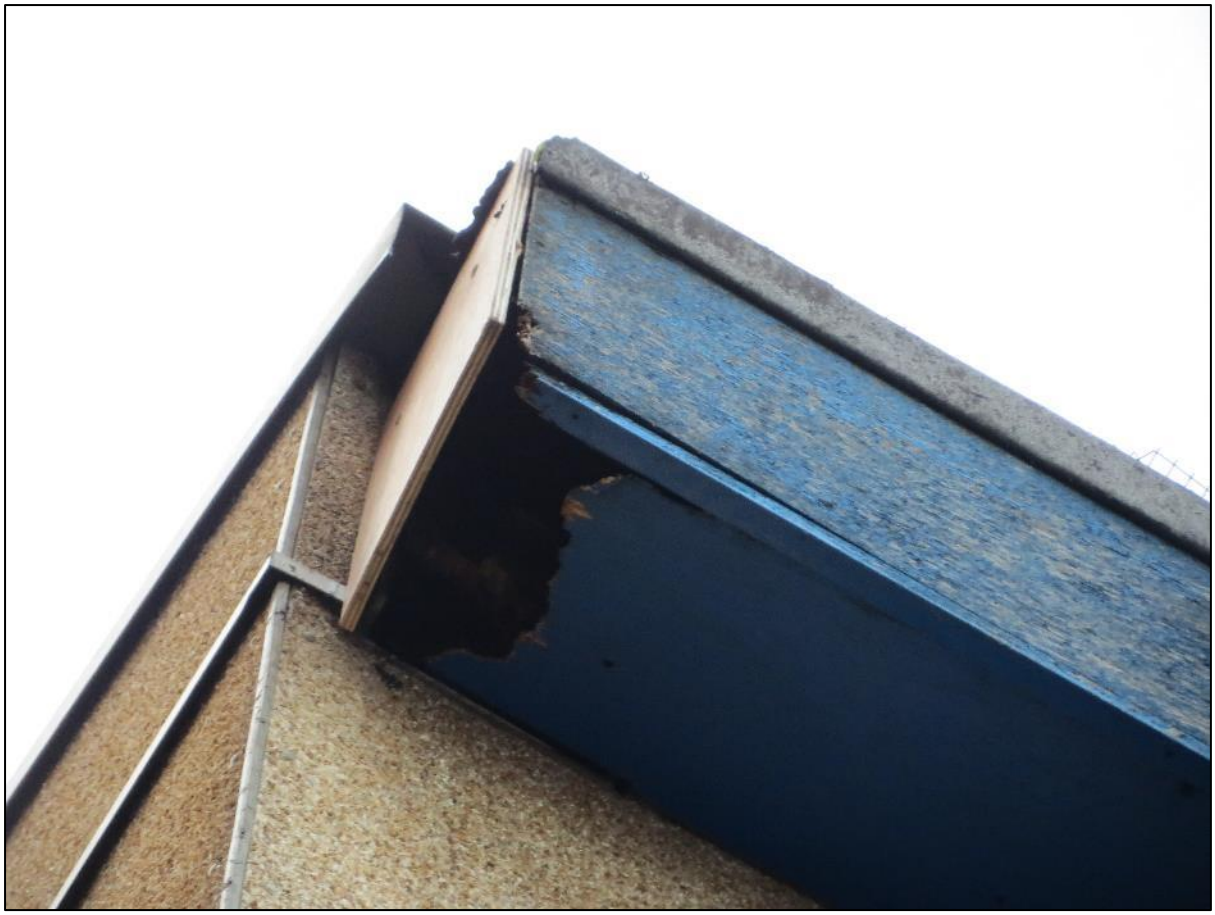


Photograph D
B1 – The modern gym extension at the main School building has low bat roost potential

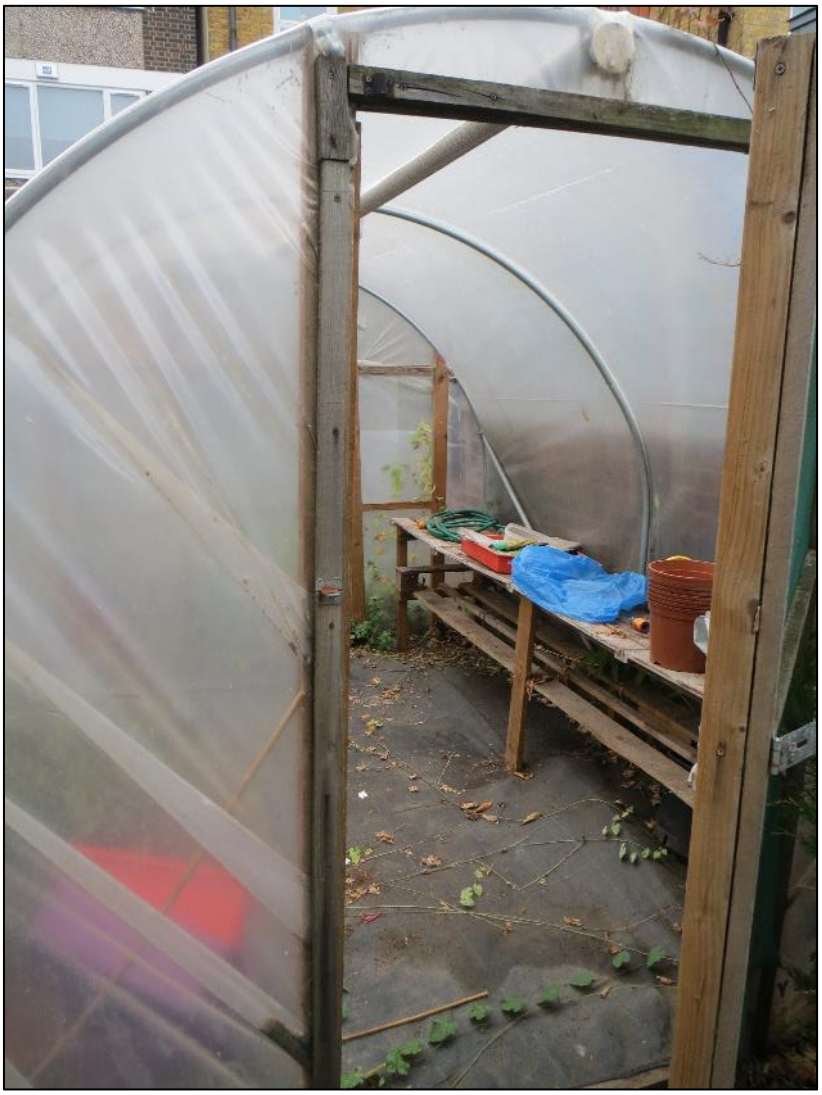


Photograph E
B1 – This building has sealed metal soffit boxes

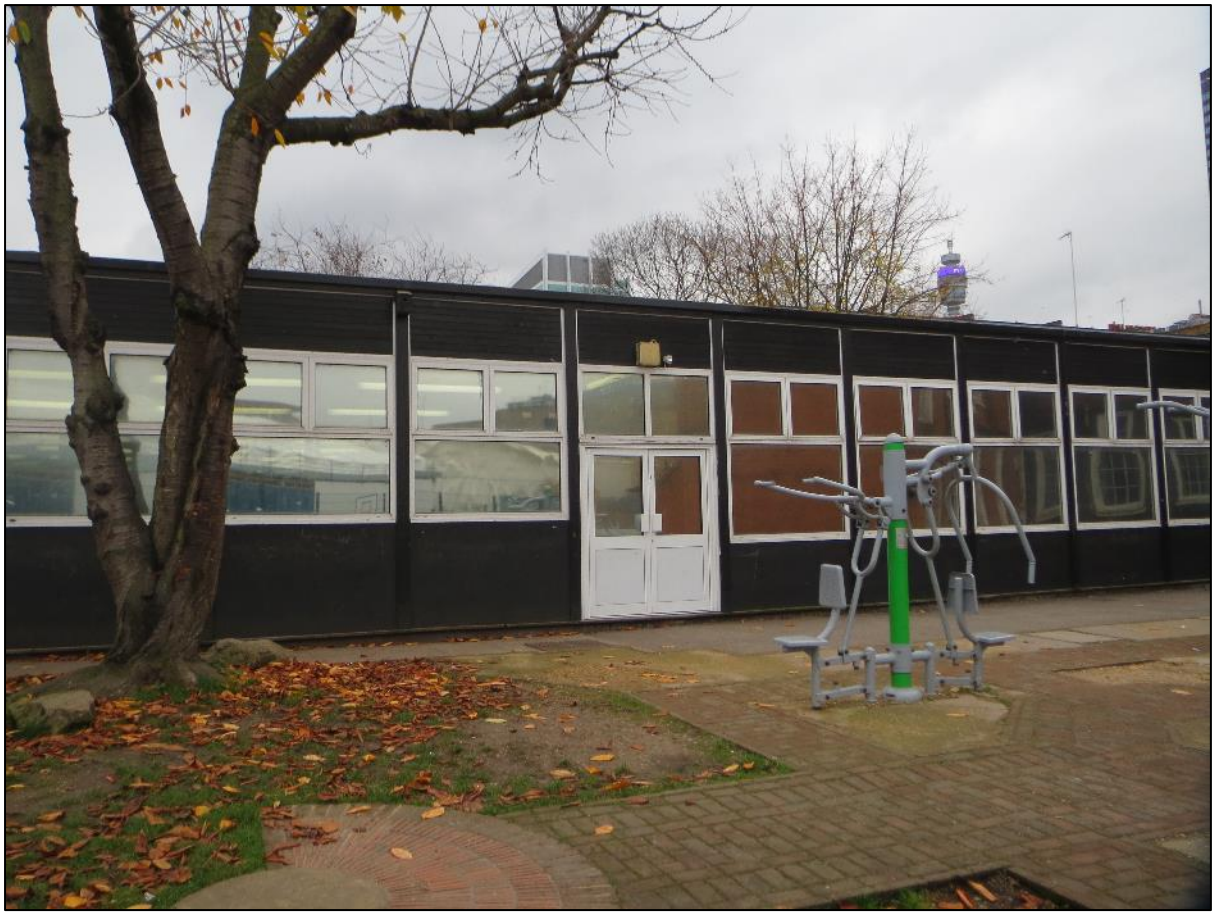
Photograph F
B2 – This School building also has low bat roost potential overall



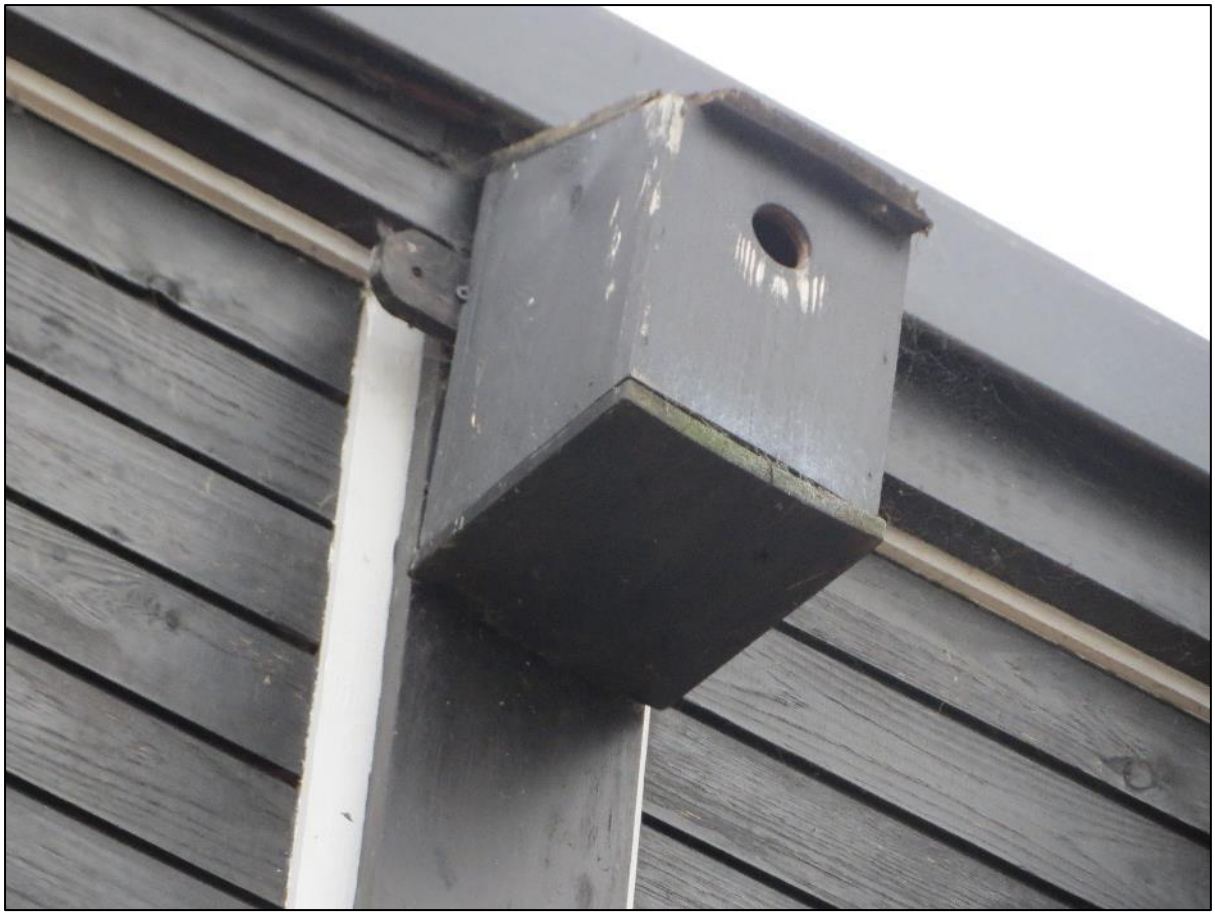
Photograph G
B2 – Although there is damage in the soffit box at this building so this will need to be investigated further during the future bat emergence survey



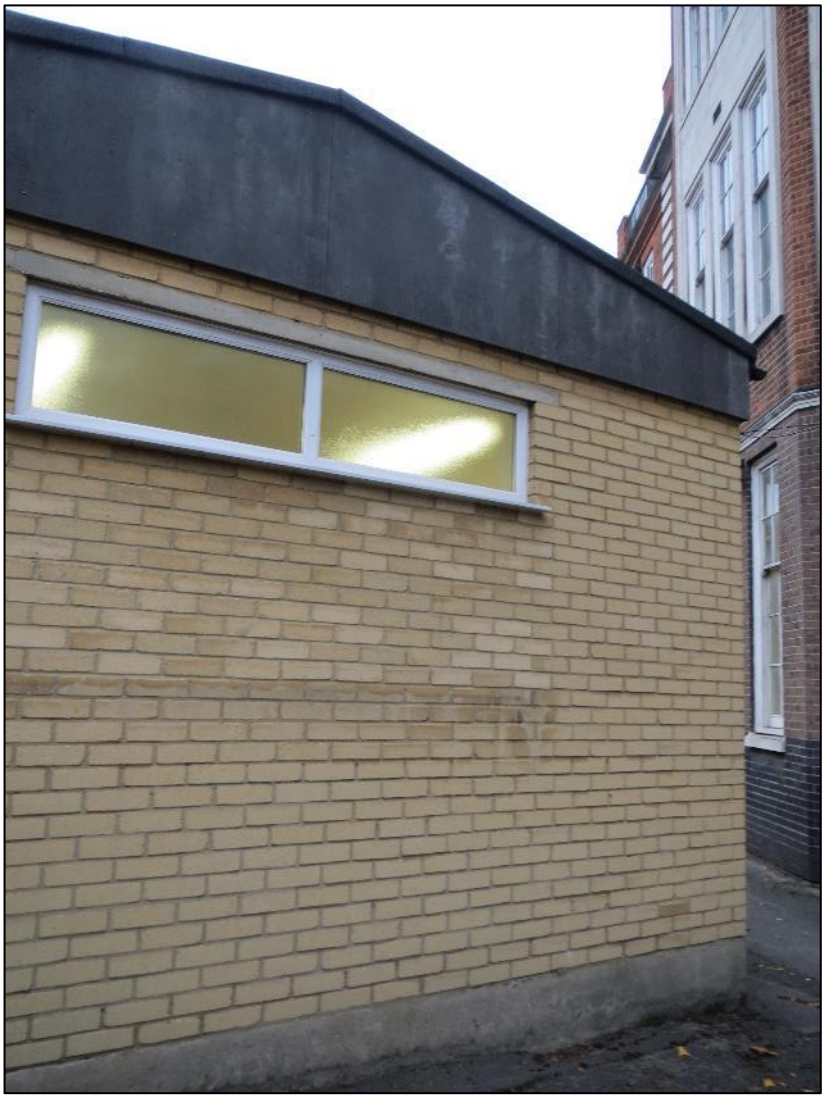
Photograph H
B3 – The very small greenhouse has no interest for wildlife



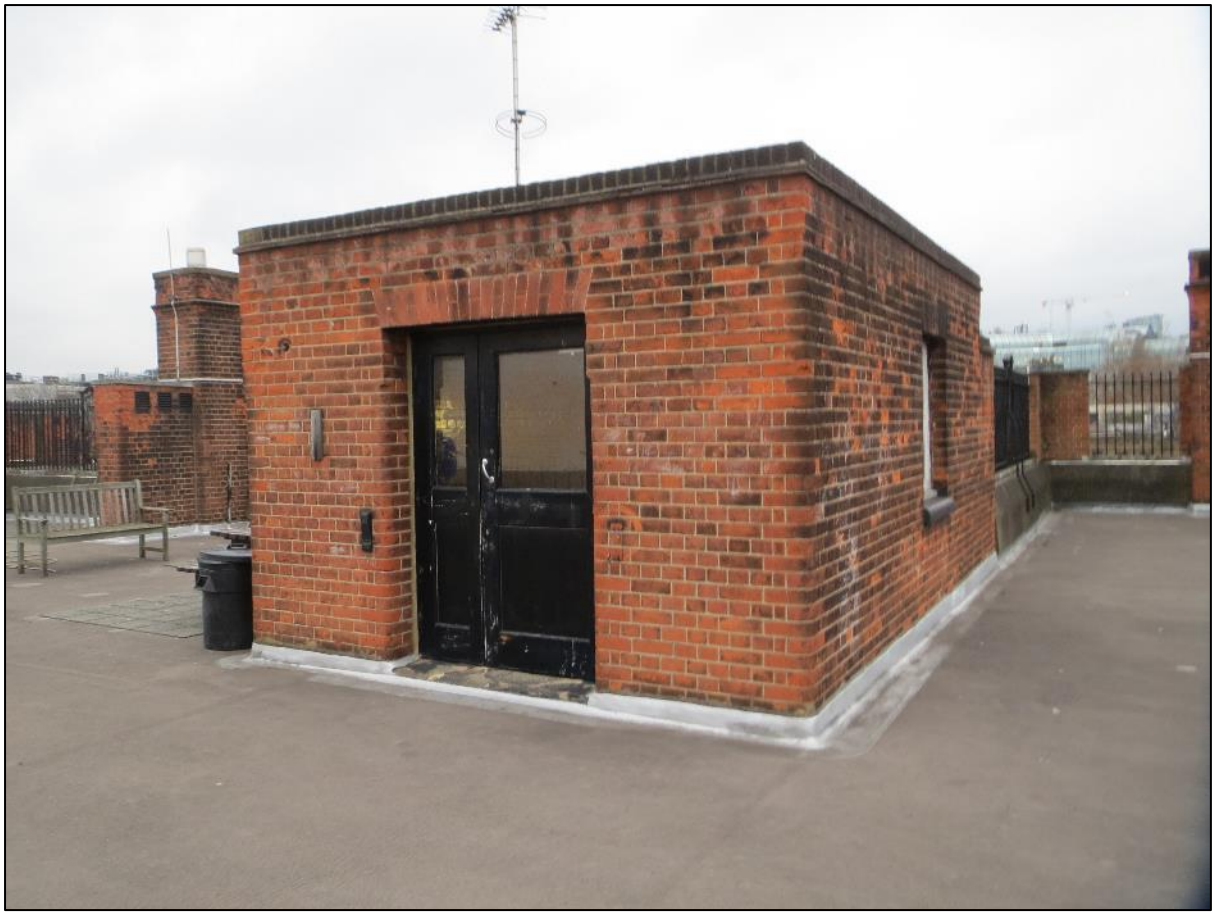
Photograph I
B4 – This long building has no interest for bats



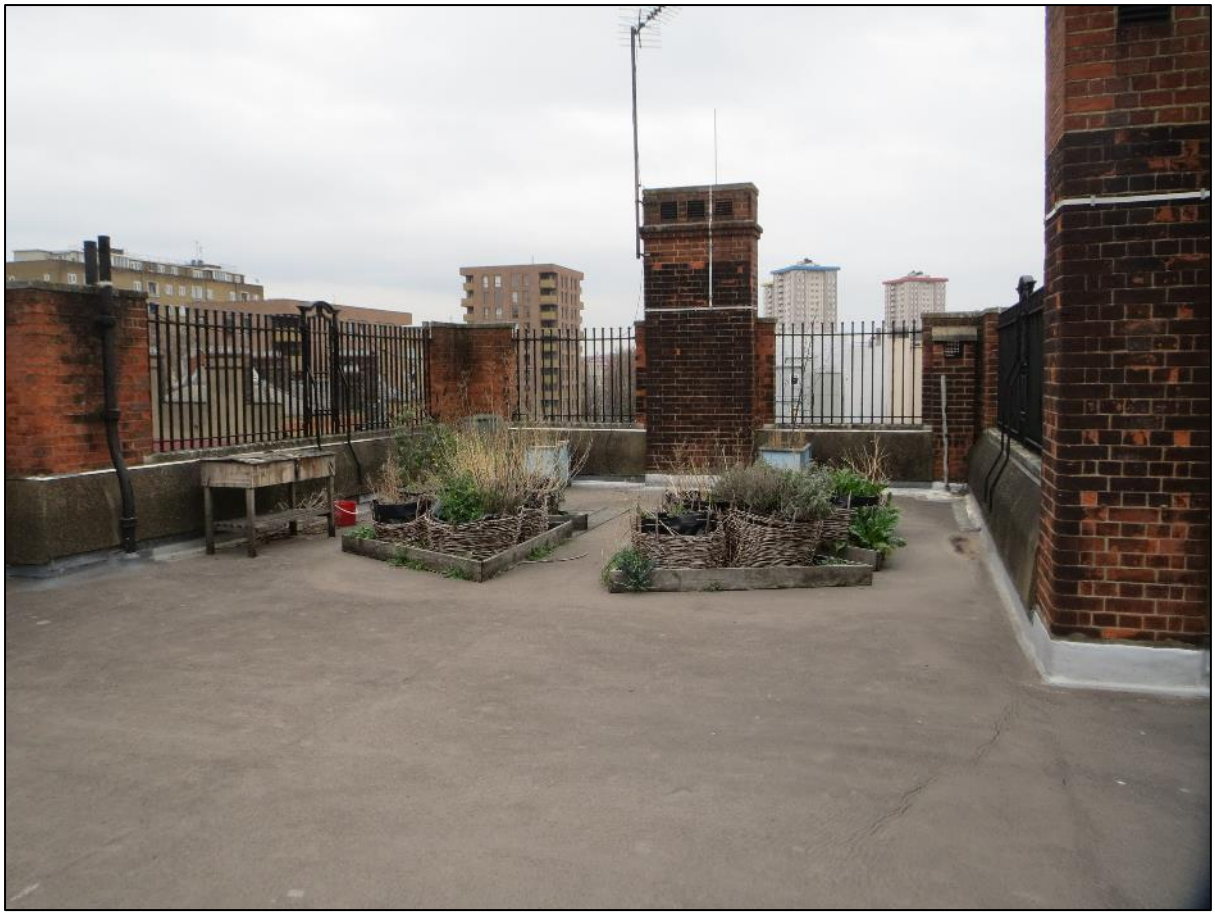
Photograph J
B4 – This building does have a bird box though at the front



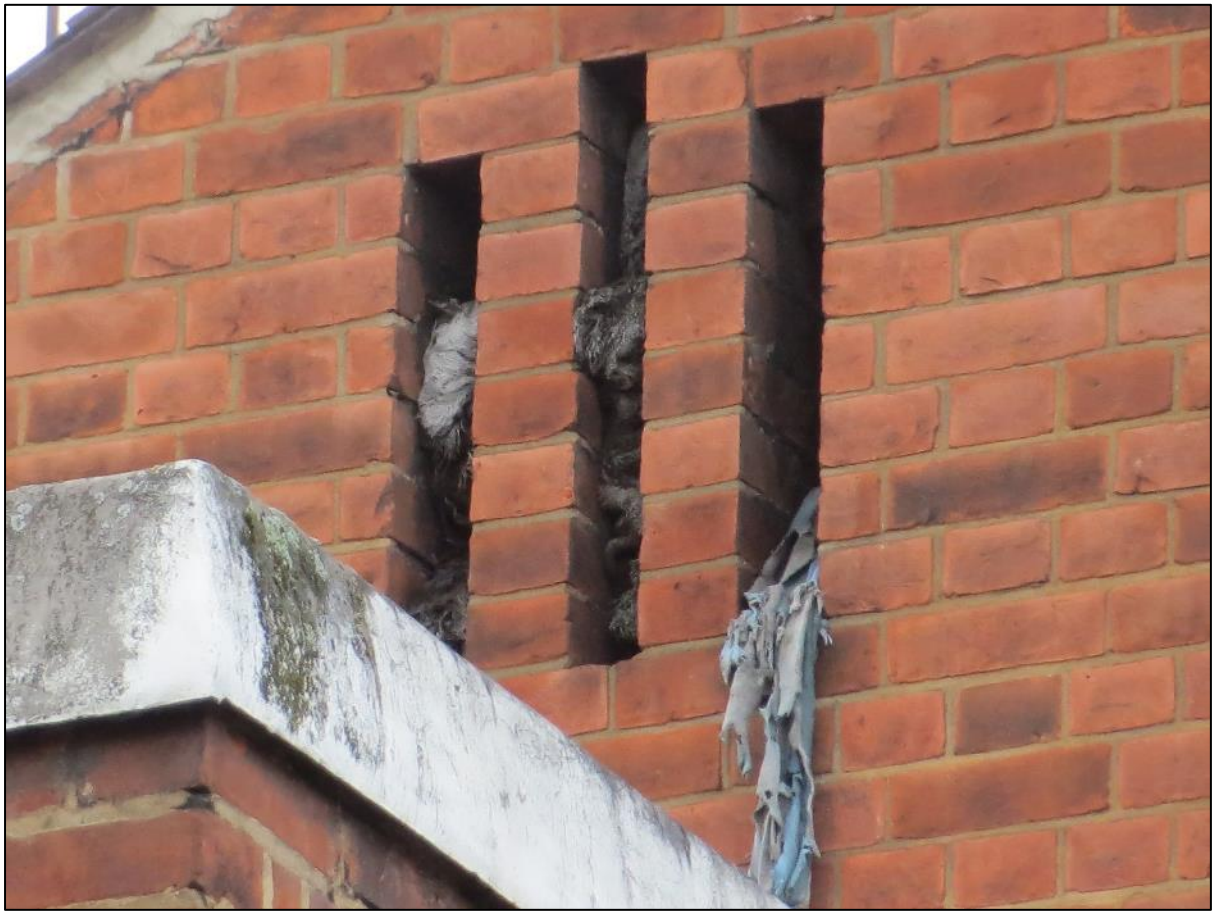
Photograph K
B5 – This building has minimal interest for bats



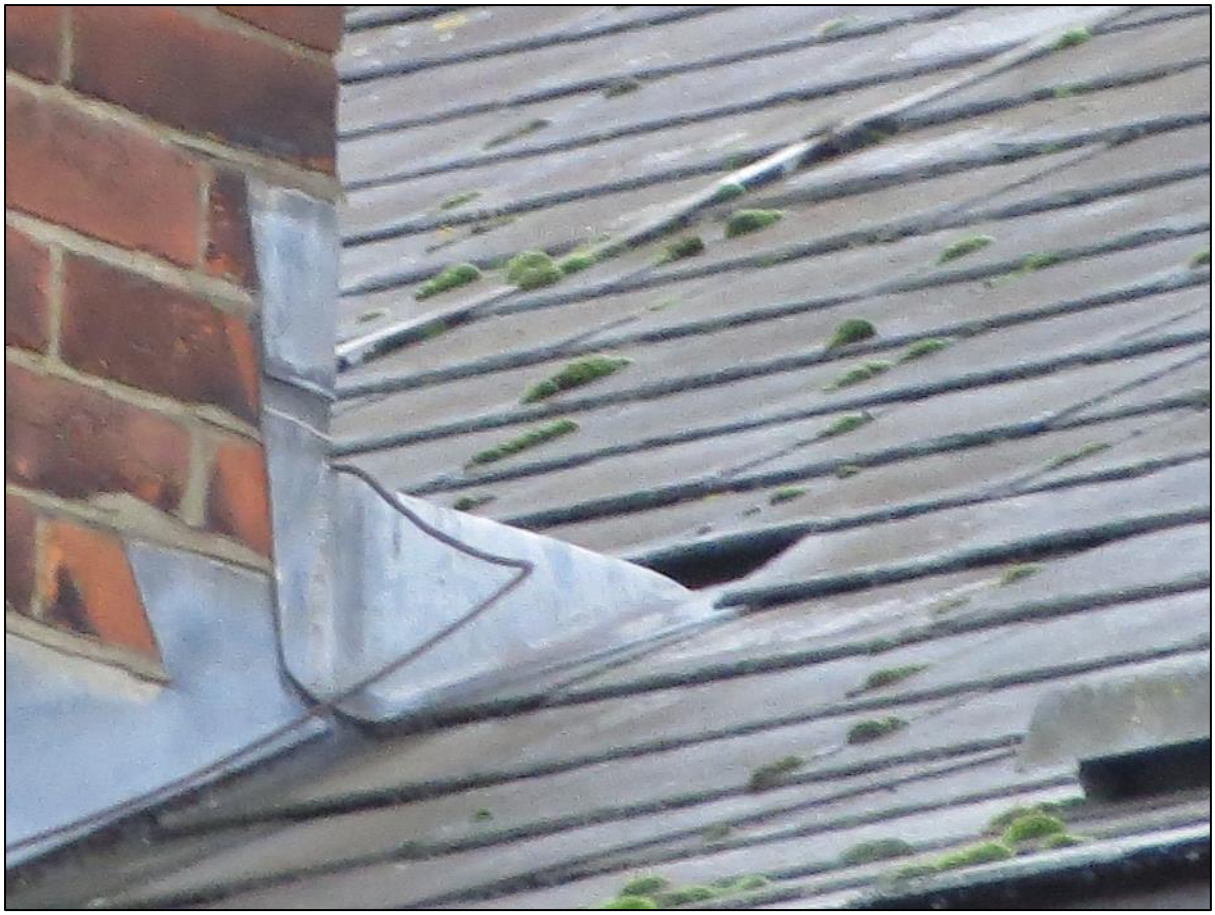
Photograph L
B1 – The roof top level at the main School building was checked for any bat or bird interest. No bird nests were found and there was no bat roost potential at this level



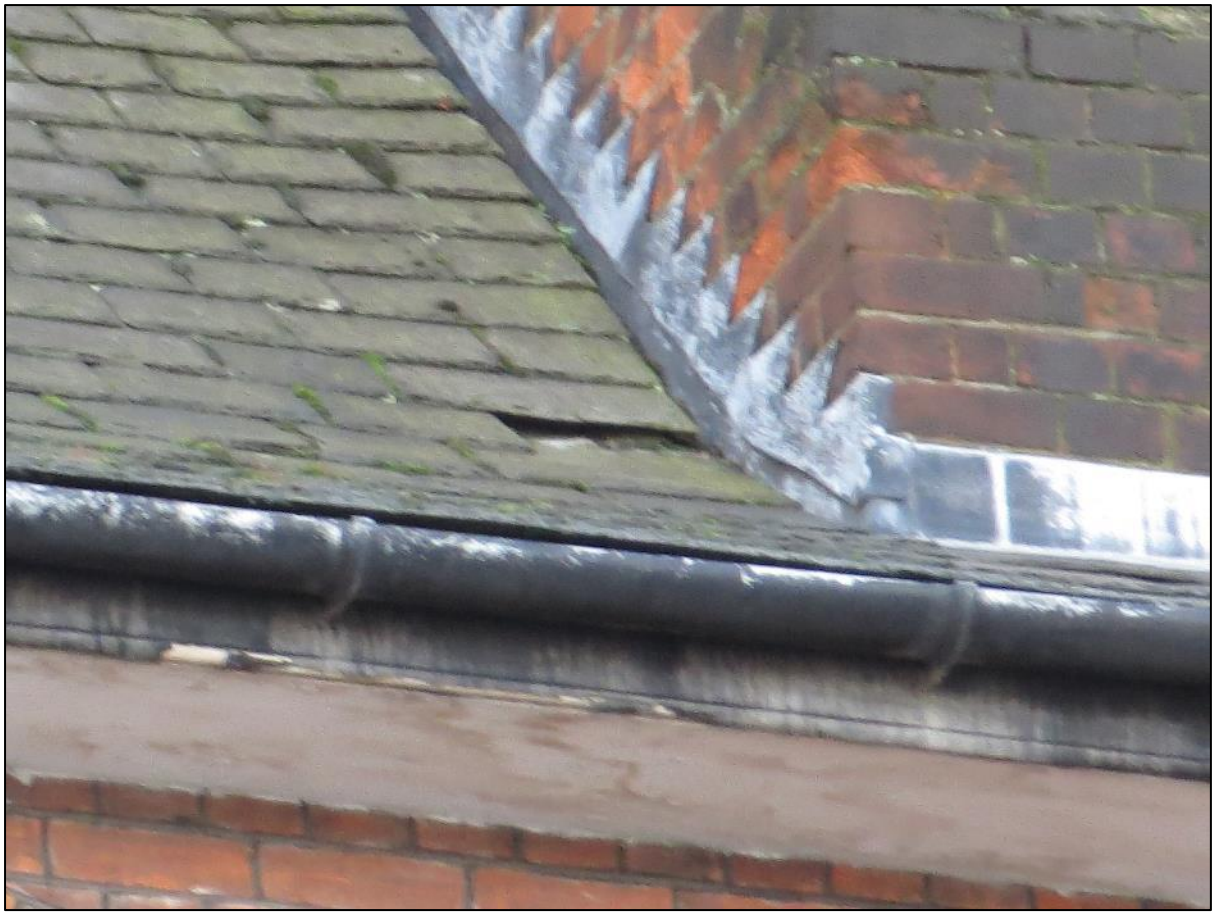
Photograph M
B1 – Some pot plants were noted on the roof of the main School building



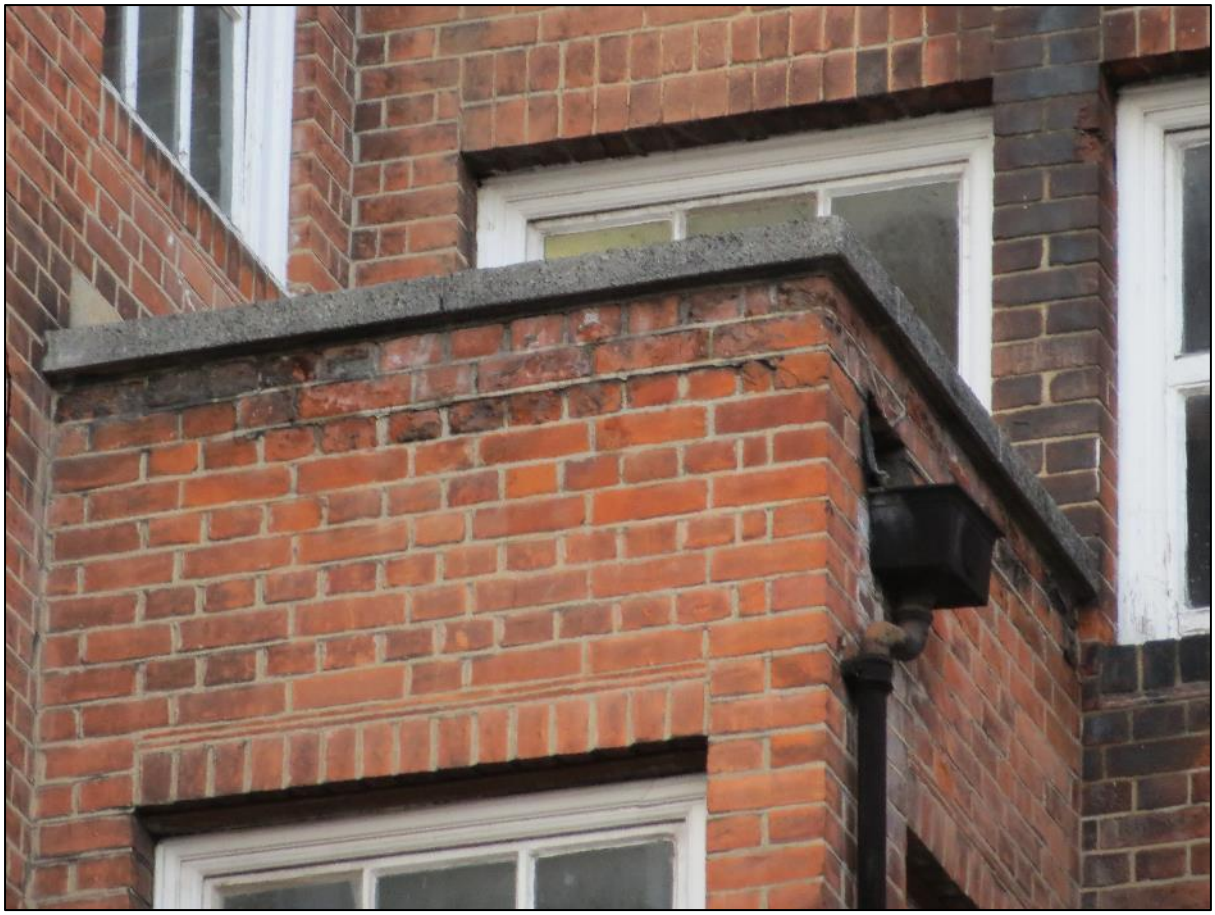
Photograph N
B1 – There were vertical slits in the side of the main School building but it is unclear if bats or birds can enter from these niches



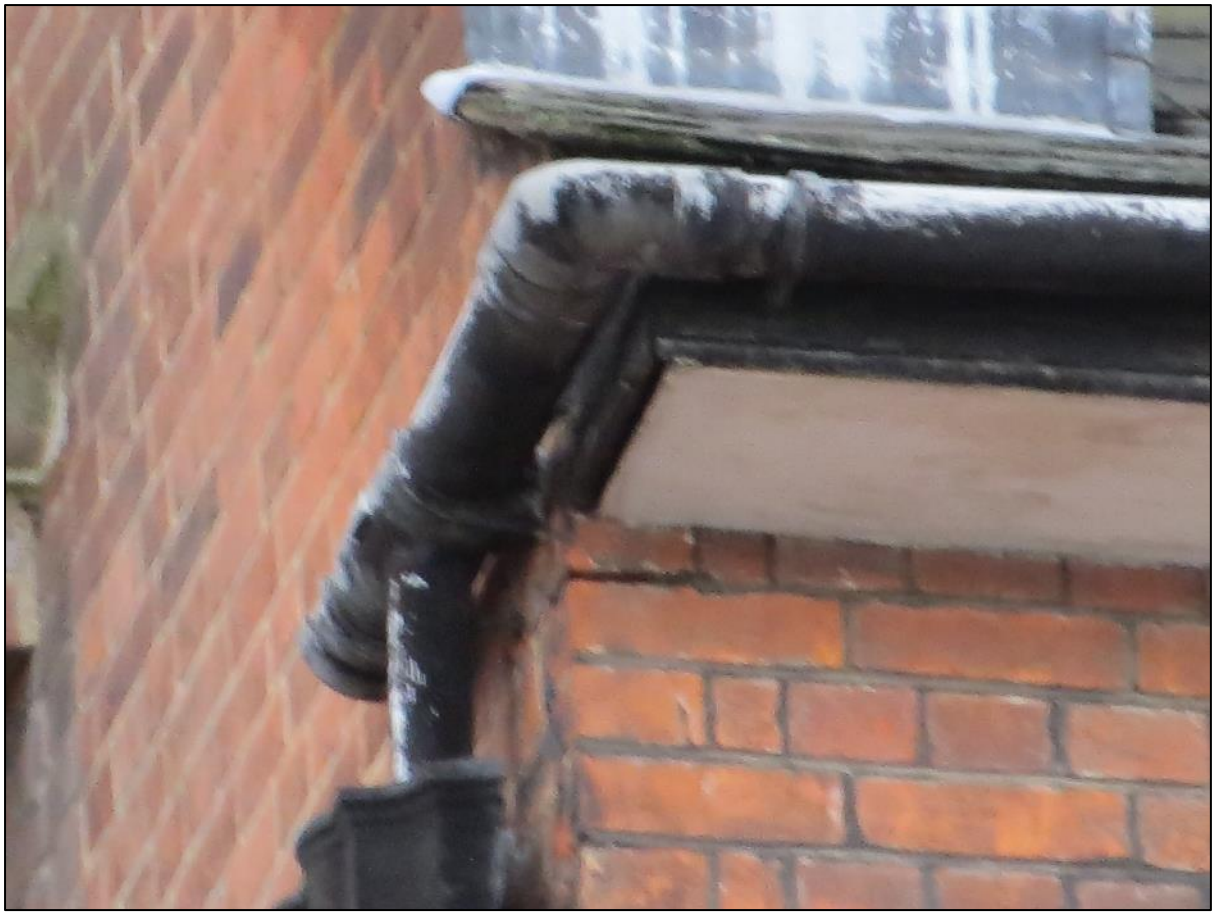
Photograph O
B1 – There were the occasional crevice under the roof slates at the main School building



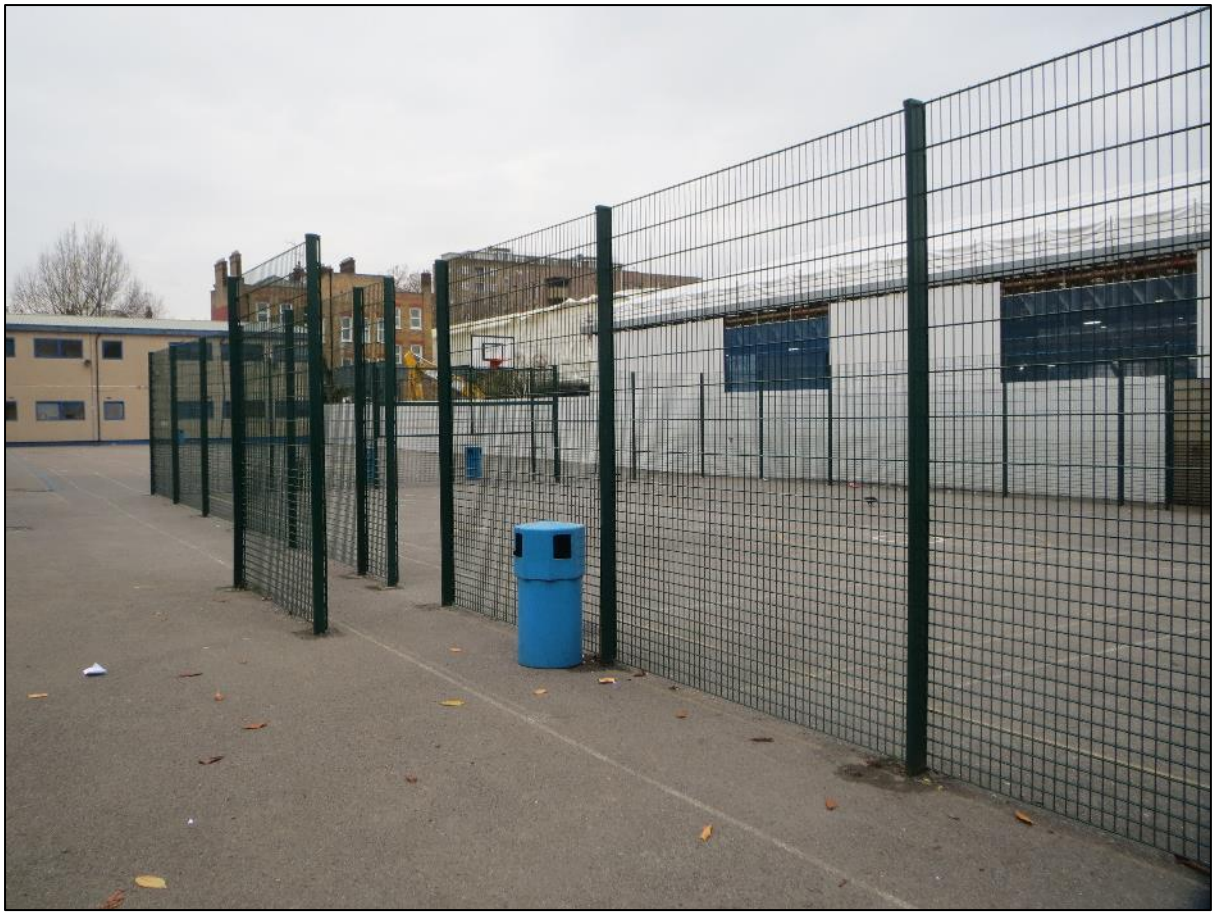
Photograph P
B1 – There were further crevices under the roof slates at the main School building



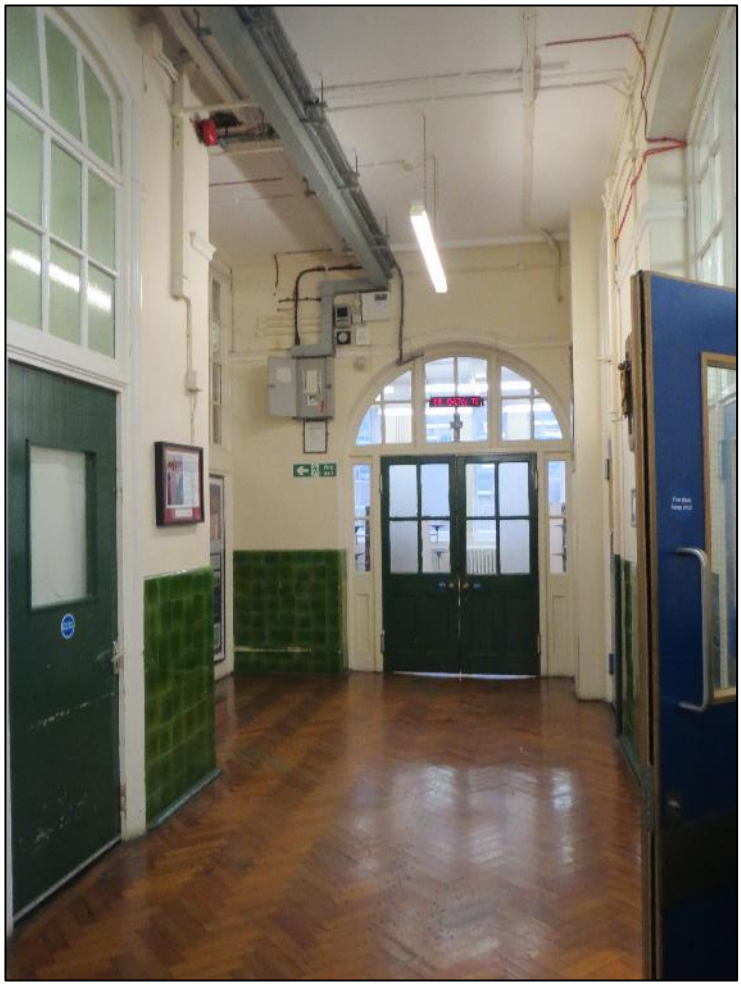
Photograph Q
B1 – There were the occasional flat roof at the main School building too. It is not known if any pigeons or gulls have tried to nest on these features



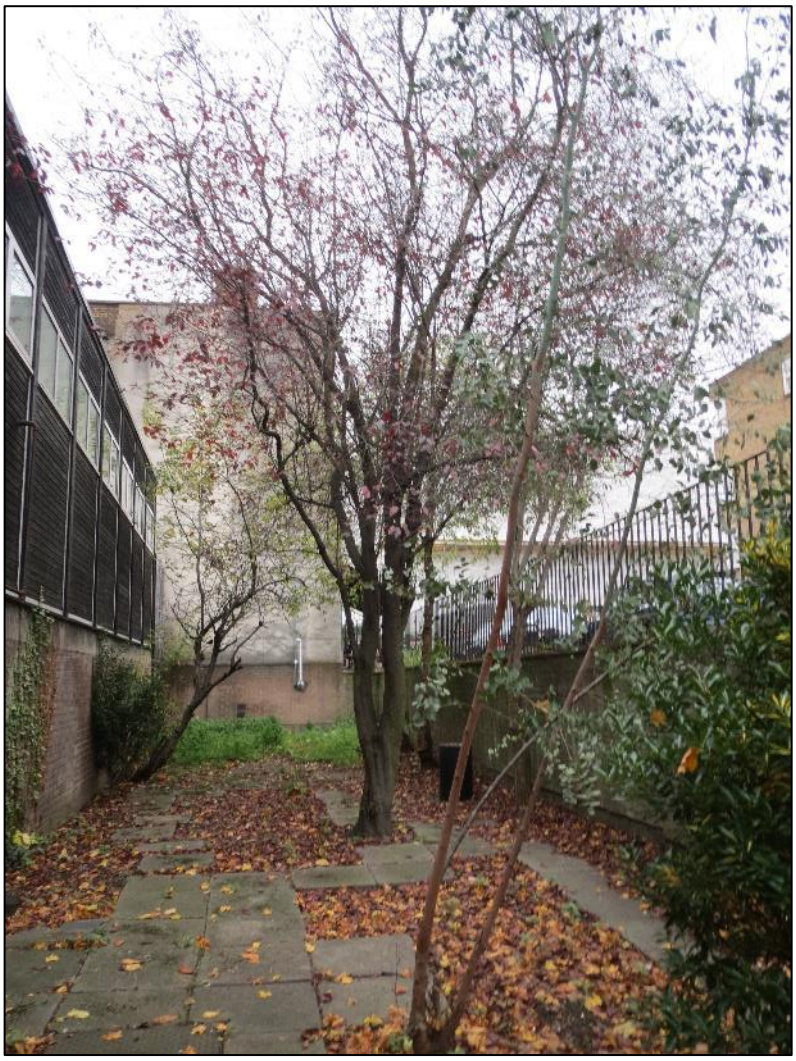
Photograph R
B1 – There was also a crevice at the end of the soffit box at the main School building



Photograph S
B1 – The hardstanding areas had no interest for any wildlife



Photograph T
B1 – The interior of the main School building had no interest for bats as was too lighted and too disturbed



Photograph U
B1 – The rear of this building was sealed off but had some trees and shrubs including buddleia

APPENDIX 2

MAP A – ECOLOGICAL TARGET NOTES FOR MARIA FIDELIS SCHOOL - 2018