



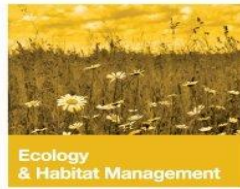
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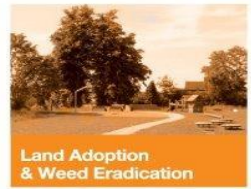
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James Blake Associates Ltd

Our Ref: JBA 22/009 ECO4 SM

26th February 2024

FAO: Steve Ellis

Dear Steve,

RE: Lighting design scheme, condition 13 of DC/21/2303/FUL

Introduction

Following the grant of full planning permission for replacement storage and plant building (class B8 - storage or distribution) with hardstanding and storage tanks at the Yara UK Chedburgh manufacturing, storage, and distribution site, on Bury Road, Chedburgh, Suffolk by West Suffolk Council, a lighting design scheme was required as to inform discharge of condition 13 of DC/21/2303/FUL.

James Blake Associates have assessed the external lighting design for the new storage and plant building (Drawing numbers 45255/015/016/017/018/019 Eastwood and Partners 2021) for impacts on bats potentially foraging on site to inform an effective lighting plan sensitive to bats.

This letter addresses condition 13 of DC/21/2303/FUL which states:

“Prior to installation of any external lighting, a lighting design scheme for biodiversity shall be submitted to and approved in writing by the local planning authority. The scheme shall identify those features on site that are particularly sensitive for bats and that are likely to cause disturbance along important routes used for foraging; and show how and where external lighting will be installed so that it can be clearly demonstrated that areas to be lit will not disturb or prevent bats using their territory.

All external lighting shall be installed in accordance with the specifications and locations set out in the scheme and maintained thereafter in accordance with the scheme. Under no circumstances should any other external lighting be installed without prior consent from the local planning authority.

Reason: To allow the LPA to discharge its duties under the Conservation of Habitats and Species Regulations 2017 (as amended), the Wildlife & Countryside Act 1981 as amended and s40 of the NERC Act 2006 (Priority habitats & species) as updated by the Environment Act 2021. “

Background

A PEA was undertaken by James Blake Associates in February 2022, which recommended up to three bat emergence surveys be undertaken, with three buildings having low suitability for roosting bats and one, having ‘moderate’ suitability for roosting bats (JBA 2022). No trees on site were considered to have bat roosting potential. The habitat on site “was assessed as ‘low’ for foraging and commuting bats. Habitat that could be used by small numbers of bats such as gappy hedgerows, but isolated and not very well connected to the surrounding landscape by other habitats.” See Figure 1 below for a site map.



Figure 1 – Site Map

A single bat emergence survey was conducted on May 25th, 2022, of the single building (B1) building earmarked for demolition which had been assessed as offering ‘low’ bat roost potential (BRP). The resulting emergence survey bat report (JBA 2022) found no bat roosts were identified during the emergence survey visit on the 25th May 2022, undertaken at B1.

Low amounts of foraging and commuting activity were noted around the building and adjacent habitats. Only common pipistrelle (*Pipistrellus pipistrellus*) and nathusius’ pipistrelles (*Pipistrellus nathusii*) were recorded; common pipistrelles are common and widespread, and nathusius’ are widespread but considered rare.

Most activity was either along the narrow strip of defunct hedge and poor semi-improved and amenity grassland on the northern site boundary to the north of B2 and Pond 1, as well as around pond 1, and the semi-improved grassland strip to the east of B3. Limited activity was recorded along the wet ditch on the southern boundary of the site and adjoining agricultural land. Further activity was likely around the areas of semi-improved grassland and Pond 2 on the eastern half of the site, though these areas of habitat are quite removed from the redevelopment area and indeed all potential habitat is to be retained across the wider site.

Very limited activity was recorded around B1 over areas of hard-standing, though there was likely limited commuting activity between B1 and the large storage tanks on the southern boundary, and

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between B1 and B2 on the northern boundary, B1 and the storage tanks to the west, as well as between B1 and B3 and B4 to the east with bats detected acoustically and visually more along the darker margins to the north, south and east with just single occurrences between the areas mentioned above of common pipistrelle during the May 25th 2022 survey.

Recommendations within the bat emergence survey report and enhancements report were (JBA 2022) to ensure lighting levels were to ensure that the lighting currently present surrounding the building B1 (but not on the building) is retained, and that light levels currently on B1 are not increased and that no additional lighting is proposed.

It was also recommended that any new lighting should have a low lux level and be facing the ground rather than skyward. Furthermore, lighting should be set on a short timer and only be triggered by large objects.

According to the latest guidance note GN08/23 Bats and Artificial Lighting At Night (2023) “a recent study suggested that the faster-flying pipistrellus spp. were significantly more abundant at [orange, white and green light types], compared to dark controls, most probably in response to accumulations of insect prey”.

Wildlife sensitive areas

The narrow strip of defunct hedge and poor semi-improved and amenity grassland on the northern site boundary to the north of B2 and Pond 1, as well as around pond 1, and the semi-improved grassland strip to the east of B3 are considered to be wildlife sensitive areas and will require that lighting does not shine directly, with light being directed down using cowls or other suitable coverings onto only the areas that need to be essentially illuminated for any nighttime operations around the new building.

The new design of the building to replace B1 also has roller doors for access and egress to ensure there will be minimal light spill from inside the facility, unlike the current access which has multiple areas of wide-open access with considerable light spill at night., especially with many panels now missing from the large, tall, prefabricated warehouse portion of B1.

The wet ditch on the southern boundary of the site and adjoining agricultural land is also likely used as a foraging and commuting route and requires that lighting does not shine directly onto it from the new building and does not increase the overall lighting intensity that already exists around the silos on the southern boundary.

The areas of semi-improved grassland and Pond 2 on the eastern half of the site are likely good for bat foraging and commuting as they currently have low light levels, but as these areas of habitat are quite removed from the redevelopment area it is unlikely that they would be adversely affected by any additional lighting from the new building.

Recommendations for bats and lighting for the replacement building for B1

According to the latest guidance note GN08/23 Bats and Artificial Lighting At Night (2023) “a recent study suggested that the faster-flying pipistrellus spp. were significantly more abundant at [orange, white and green light types], compared to dark controls, most probably in response to accumulations of insect prey”.

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Therefore, by reducing the overall light spill and light from the new replacement for B1 and implementing the below key design features into an overall lighting design strategy any impact on pipistrelle bats currently utilising the site should be negligible.

The lighting strategy shall adhere to the principles outlined in Bats and Lighting in the UK (2009) and more recently clarified in Guidance Note GN08/23 Bats and Artificial Lighting At Night (2023) both produced by the Bat Conservation Trust in partnership with the Institute of Lighting Engineers.

The following are suggested for consideration within this lighting design strategy:

- No works on site will be conducted after sunset and if security lighting is required then this will be kept to the minimal level (as necessary for safety and security).
- Lighting is to be directed away from the bat sensitive areas of habitat on the northern and eastern boundaries where feasible to minimise impacts on foraging/commuting bats and other terrestrial ecology.
- Lighting to be minimised between the new building and pre-existing silos along the southern boundary, as well as the hard-standing areas on the western side of the new boundary and between B2 and the new building to the north where practical.
- Installation of lighting columns, lights above entrances and exit points and for security Lights installed above any doorways or entrance points or to light areas used by vehicles or pedestrians for access into and around the building to be as low as practical (preferably below 5m) have box shield fittings where necessary to minimise glare and light spillage both internally and externally and along designated walkways or access roads.
- Lux level of lamps to be as low as possible with covers made of glass rather than plastic as this minimises the amount of UV light, reducing the attraction effect of lights on insects.
- Security lights to be set on short timers and be sensitive to large moving objects only.
- Bat or bird boxes recommended in the updated ecological enhancement strategy (JBA 2024) to not be installed below or near the bat or bird boxes recommended as part of the enhancements for the site.
- Part-Night Lighting will be designed with input from an ecologist as it may still produce unacceptably high light levels when active or dimmed. Part-Night Lighting is not usually appropriate where lights are undimmed during key bat activity times.
- Alternative lighting designed for subtle waymarking, rather than illumination, may be more appropriate than lighting columns, such as very low wattage ground-level luminaires. This lighting option has several additional benefits such as lower carbon footprint during manufacture and fitting and no requirement for cabling. However, it should be noted that such systems depend on regular maintenance and a long-term commitment for them to be successful, as well as a clear view of the sky for solar-powered options.
- Any windows or equivalent (e.g. translucent wall panels) should be tested or agreed upon by the light professional and ECoW /Trained Ecologist prior to instalment.

Light sources, lamps, LEDs and their fittings have numerous specifications which a lighting professional can help to select. However, the following should be strongly considered when choosing luminaires and their potential impact on the light sensitive habitats, foraging or commuting routes on the site:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

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- A warm white light source (2700 Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal luminaires can be recessed (as opposed to using a pendant fitting, where installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar minimise upward light spill) to delineate walkway edges on site around new building.
- Column heights need to be considered to minimise light spill and glare visibility if light columns are to be used. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01 The Reduction of Obtrusive Light.
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow.
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand.
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues and only if all other options have been explored e.g. accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be solely relied upon.
- Lighting can be set to a low output state by default, to turn up to a predetermined output in response to a trigger and be combined with a timeclock or photocell to further add an element of seasonal or diurnal control. A Passive Infrared (PIR), Artificial Intelligence enabled cameras, on demand controls, or pressure sensors can be used to trigger lights to come on or dim in response to movements, either by vehicles (for example within loading bays, access roads etc.) or by pedestrians (e.g. walkways around the new building). The timeclock or photocell could be programmed through a CMS to only occur during a set window of hours after sunset and before sunrise, or during certain months (April to November) when bat activity is likely to be highest.

Any new security lights, lighting columns to be installed along roadways, or lights above exit/entrance points on the new buildings, especially directly adjacent to those sensitive boundaries will be positioned 'backing-on' to the boundary to reduce light spill directly onto those areas. All lights in these areas will only be triggered by PIR operated sensors and all lighting will be fitted with directional back light shields. Therefore, light spillage onto these sensitive areas will be minimised.

The design of the new building as outlined in the proposed design of the new building (Drawing numbers 45255/015/016/017/018/019 Eastwood and Partners 2021) indicates a large amount of non-fragile translucent wall sheeting on all four sides of the building and on the roof.

As per GN08/23 Glazing treatments such as tinted, frosted, or low transmission glazing treatments are not being used as they are generally considered unsuitable ways of fully mitigating light spill.

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Similarly low-transmission glazing (glazing with a lower visible light transmittance) will not be used as it is believed to only make a very small difference to reduce light spill.

It is also recommended that automatic blinds are also not to be used as their longevity depends on regular maintenance and successful routine operation by Yara post-construction. Such blinds are generally only suited to commercial situations where maintenance can be incorporated into the long-term regime routine for the building.

Depending on the height of the building and windows, and therefore predicted light spill, glazing treatments or window design restrictions may not be required on all storeys. The effect of the translucent wall sheeting can be more accurately determined through consultation with a lighting professional and a trained Ecologist prior to construction.

The appointed Ecological Clerk of Works (ECoW)/ Qualified Ecologist should be able to further advise on specific light designs, appropriate light sources and positioning and lux levels for lighting columns or lights illuminating access roads and walkways, security lights or lights over exits/entrances once the design for the building internally and externally has been finalised for the new building.

Any new security lights, lighting columns to be installed along roadways, or lights above exit/entrance points on the new buildings, especially directly adjacent to those sensitive boundaries will be positioned 'backing-on' to the boundary to minimise light spill directly onto those areas. All lights in these areas will only be triggered by PIR operated sensors and all lighting will be fitted with directional back light shields. If possible, a central management system for all lighting should be considered, to further reduce external and internal light spill during key activity times of day and months to further minimise impact on the local population of common and nathusius's pipistrelle bats.

See Appendix A for annotated drawing showing maximum range of the light spill and the proposed maximum height of the lights on the new building in Appendix B and C.

It is considered that the above annotated lighting strategy provided on behalf of Eastwood and Partners, complies with condition 13 of DC/21/2023/FUL (West Suffolk Council) and addresses the sensitive habitat areas on the north, east and southern boundaries, as well as the less sensitive areas to the west of the new building and between the new building and B2 and the new building B3/4, as well as the new building and the silos to the south. The lighting within the new building, as well as externally will be reduced to a level that will comply with the minimum lux levels recommended in the British Standards and CIBSE guidance in respect of health and safety/security to the defined working areas, as well as local planning authority stipulations.

Conclusion

In order to inform discharge of condition 13 of DC/21/2023/FUL (West Suffolk Council), Eastwood and Partners commissioned James Blake Associates Ltd to assess the impacts of lighting from the new building and storage facilities to replace B1 to provide an effective lighting design strategy in regard to bat foraging and commuting routes and areas of habitat on site likely to be affected by any new lighting.

It is considered that the proposed lighting scheme outlined in this letter for the building to replace B1 on land at the Yara UK manufacturing, storage, and distribution site in Chedburgh, Suffolk would not have a significant effect on the local population of common and nathusius' pipistrelle bats or the areas they use to forage or commute along within the site boundary or adjacent countryside. as and condition 13 can be discharged.

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Yours sincerely,

Sean Minns

Assistant Ecologist
James Blake Associates Ltd

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Eastwood and Partners (2021) Yara Chedburgh Storage Shed _ New Store Ground Floor Plan - drawing number 45255/016.

Eastwood and Partners (2021) Yara Chedburgh Storage Shed _ New Store Proposed Elevations Sheet 1 of 2 - drawing number 45255/017.

Eastwood and Partners (2021) Yara Chedburgh Storage Shed _ New Store Proposed Elevations Sheet 2 of 2-drawing number 45255/018.

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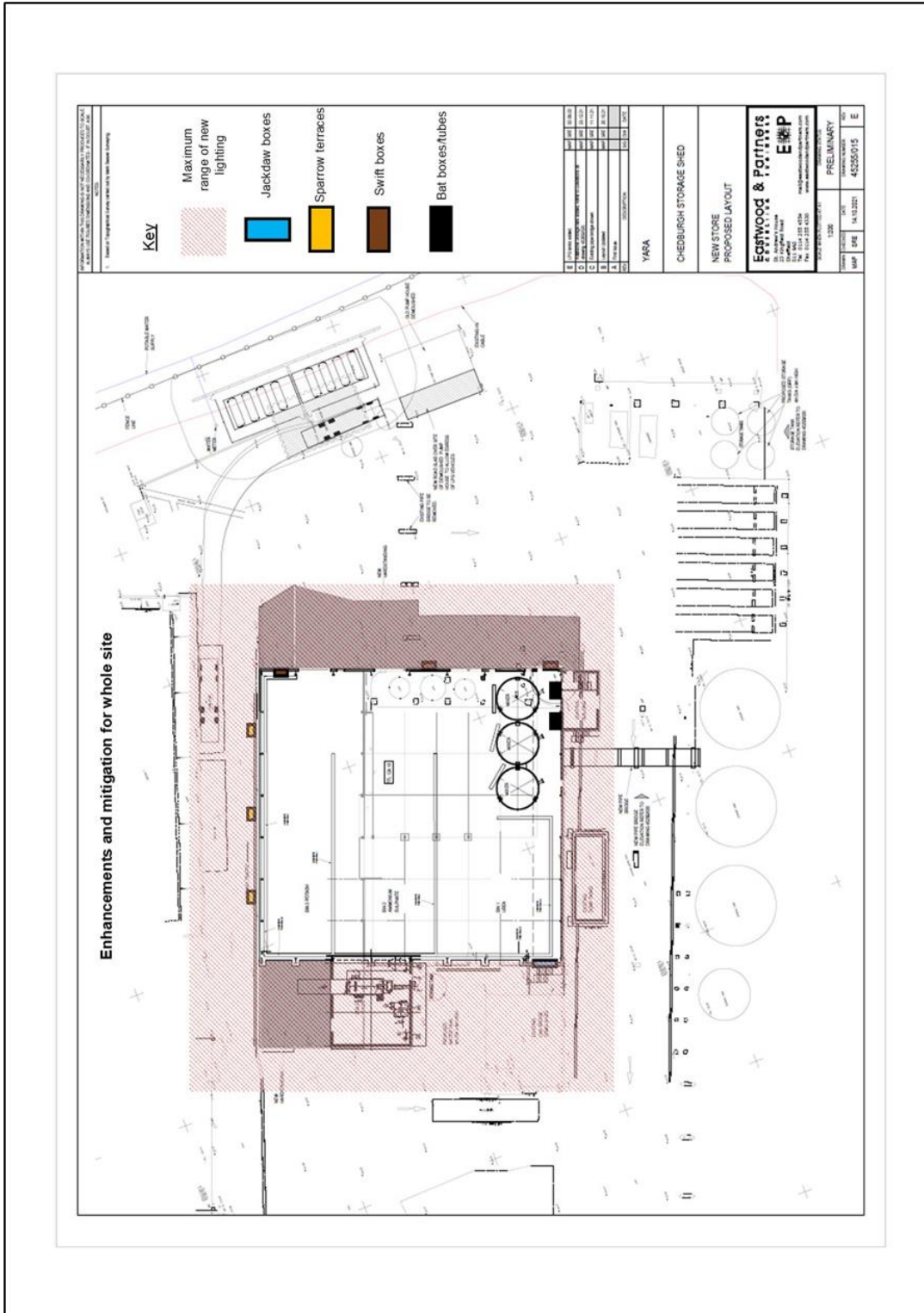
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Appendices

Appendix A: Enhancements and mitigation for whole site



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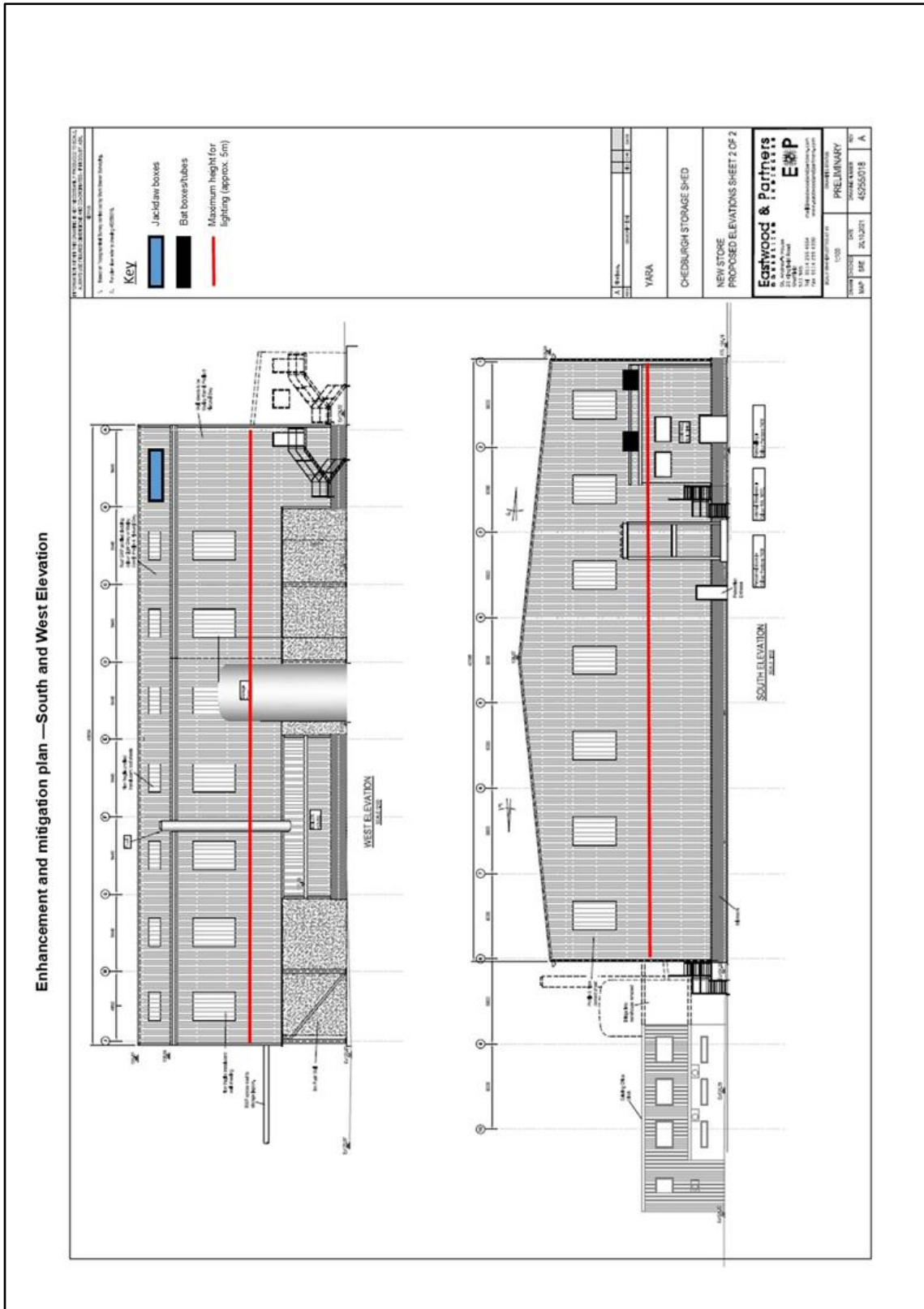
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Appendix B Enhancements and mitigation – South and West elevation



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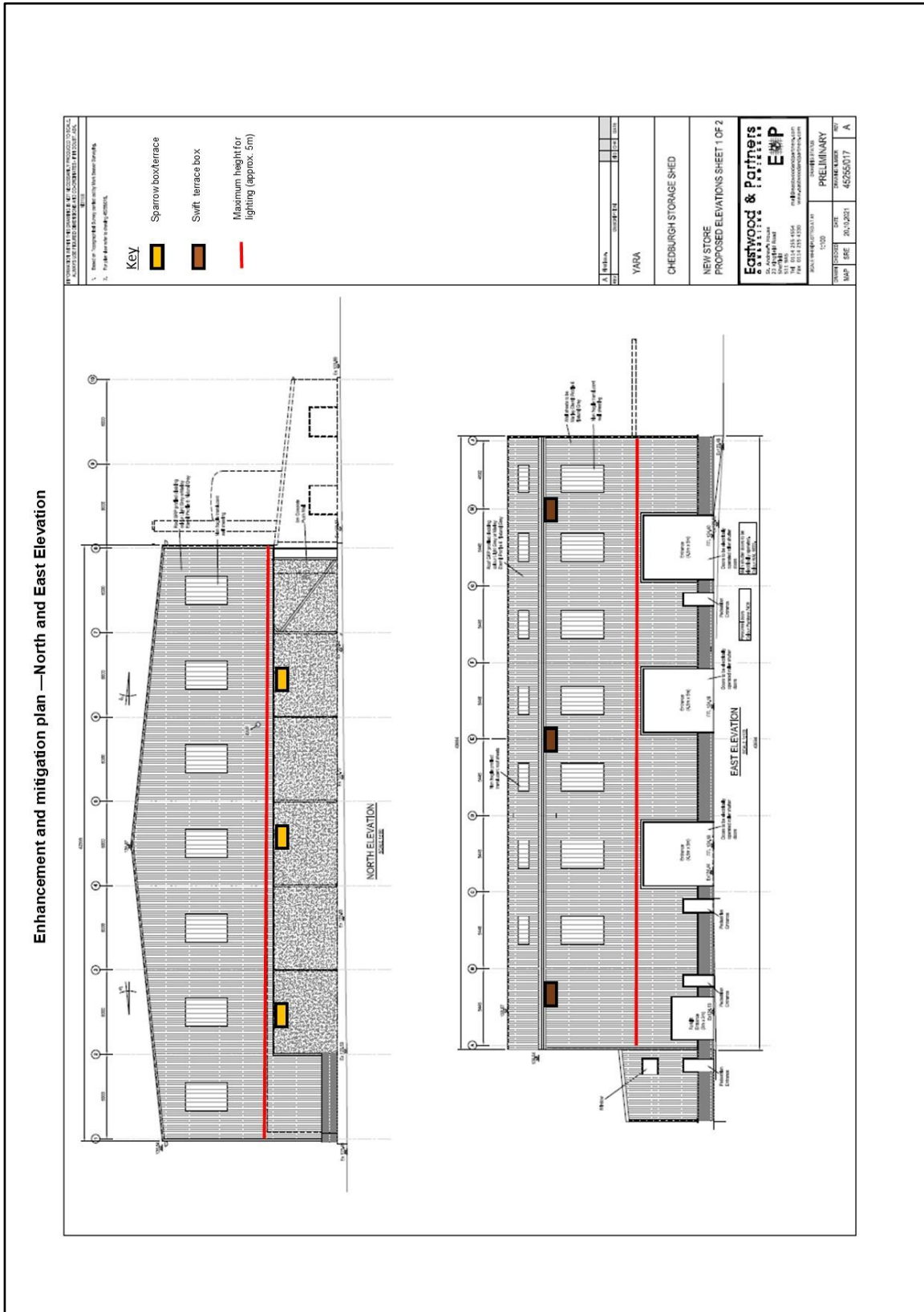
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Appendix C Enhancements and mitigation – North and East elevation



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