HYBRID ECOLOGY LTD
joined up thinking

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Jonathan Smith
Dedham Parish Council
C/o Knights Manor
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24th February 2021

Dear Mr. Smith,

Re: Preliminary Ecological Appraisal – The Drift, Dedham – Proposed bollard lighting

1.0 Introduction:

Hybrid Ecology Ltd was instructed by Dedham Parish Council to carry out a Preliminary Ecological Appraisal at The Drift, Dedham (grid reference TM0582833004) in relation to proposed bollard lighting. The site location is provided in Appendix 1 and proposed lighting plan is provided in Appendix 2.

This site is situated to the south of Dedham in Essex and contains an avenue of lime trees on a surfaced footpath, through the middle of a recreation ground. The footpath is well used; linking two areas of the town and The Council wish to provide lighting along the path for safety reasons.

This report has been written broadly in accordance with the report writing guidelines produced by the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM 2017a, 2017b). In accordance with the client brief, this survey and report aims to:

- Identify any statutory or designated sites within the zone of influence of the proposed development.
- Assess and record the type and quality of habitats present on site.
- Identify any potential for protected species presence and make detailed recommendations for further surveys and/or mitigation where appropriate to inform further design.
- Assess how proposed works may impact the overall ecological value of the site, to include species and habitats of note in a local or national context.

Note that any minor amendments to the scheme are unlikely to alter the conclusions and recommendations of this report.

Personnel

Recommendations included within this report are the professional opinion of an experienced ecologist based on the client's proposals for the site, the site survey and features within the surrounding environment. The survey and report have been carried out/written by Gemma Holmes who is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and licensed great crested newt and bat surveyor (Licence references: 2016-27305-CLS-CLS and 2015-19096-CLS-CLS).

Limitations

There were no limitations to the survey that would affect the validity of this report nor its use to inform a lighting strategy.

2.0 Methods:

2.1 Desktop study

Designated sites and species records

The Multi Agency Geographical Information for the Countryside (MAGIC) tool was used to identify any conservation designations (at European or local level) or priority habitats on or adjacent to the site that could be affected by the lighting strategy. They include Sites of Special Scientific Interest, Local Wildlife Sites and ancient woodland. Essex Field Club (EFC) was instructed to carry out a search for legally protected wildlife within a 2km radius of the site.

2.2 Field survey

Habitat Survey

A site walkover was carried out on 17th February 2021 to identify habitats present on and adjacent to the site and to assess their ecological importance.

Protected species

The survey also included an assessment of the site's potential to support any legally protected species; or Species and Habitats of Principal Importance, as identified by Section 41 of the Natural Environment and Rural Communities Act (2006). Where best practice guidelines exist, these have been used to assess the likelihood that individual species will be present, for example Bat Surveys: Good Practice Guidelines (BCT 2016) and Habitat Suitability Index for Great Crested Newt (Oldham et al, 2000). The survey included a ground-level inspection of all trees for potential bat roost features, in accordance with BCT, 2016.

3.0 Results:

3.1 Desktop study

Designated sites

The site is not the subject of a conservation designation nor does it adjoin a designated site.

The site is within the Dedham Vale Area of Outstanding Natural Beauty (AONB), which was designated in 1970. The Natural England Landscape Character Assessment 86 describes the AONB as, "*…an ancient landscape of wooded arable countryside with a distinct sense of enclosure. The overall character is of a gently undulating, chalky boulder clay plateau, the undulations being caused by the numerous small-scale river valleys that dissect the plateau. There is a complex network of old species-rich hedgerows, ancient woods and parklands, meadows with streams and rivers that flow eastwards.*" Whilst the position within the AONB should be acknowledged, there is no reason this small-scale lighting proposal would impact the overall natural significance or ecological functionality of the AONB. The lighting has been designed to be unintrusive and to have minimal effect on the surrounding environment.

The closest statutory designation is the Stour and Orwell Estuaries Special Protection Area (SPA), which is 2km to the east at its closest point. There is no reason this lighting proposal would impact the SPA.

The closest priority habitat as mapped by Natural England is "wood-pasture and parkland" 85 metres to the south-west of the site. Since the proposal does not involve any tree removals or impacts to off-site habitats nor ecological connectivity, there will be no impact on priority habitats as a result of the lighting proposal.

Species records are included in Section 3.3.

3.2 Field survey: Phase 1 Habitat Survey

Photographs of the site and surrounding habitats providing a context to the text below are provided in Appendix 3.

The site comprises an avenue of lime *Tilia sp*. trees of varying ages along a surfaced footpath. Trees have been surveyed by James Choat and the associated tree survey plan is included in Appendix 4. Most trees are early-mature, and there are some young replacements. To the east/west of the footpath is a large recreation ground comprising mown lawn. To the north-east of the footpath is a toilet block which has a passive infra-red sensor (PIR) light installed on the south-eastern corner. To the south-west of the footpath is a cricket pavilion.

Habitats: Development impacts and mitigation

The habitats on the site are limited in scale and diversity and therefore provide low ecological value at site level only. Note that none of the habitats on site are "irreplaceable" in an ecological context. Notwithstanding, the proposal does not require any habitat removal. Retained trees will be protected in accordance with British Standard BS 5837 (2012) Trees in Relation to Design, Demolition and Construction – Recommendations and arboricultural advice.

3.3 Field survey: Protected Species

Please note this section provides information on species likely to be present, or potentially present based on the habitats on/adjacent to the site, local knowledge and biological records. A brief summary of legislation is provided. For full details on wildlife legislation, please see: Legislation.gov.uk

Bats

Legislation:

All UK bats are legally protected from killing, injury, roost destruction, roost obstruction and disturbance under European legislation (Conservation of Habitats and Species Regulations (2019, EU Exit) and domestic legislation (Wildlife and Countryside Act 1981, as amended). Bats roost in building voids (e.g. lofts) and crevices (e.g. under weatherboards) and in tree cavities such as woodpecker holes.

Records:

No records for bats have been returned on the site. The closest bats recorded to the site include serotine (0.3km), Natterer's (0.3km) brown long-eared bat (0.3km), Daubenton's bat (0.6km) and noctule (0.6km).

Assessment:

There are no buildings on or adjacent to the site that could be affected by this proposal.

All trees on and adjacent to the site were inspected from ground-level for potential roost features (woodpecker holes, bark wounds, knot holes, hazard beams etc.). Three potential roost features (PRFs) were found, but on closer inspection all PRFs were occluded – meaning they hold no value to roosting bats as there is no internal crevice or void than could offer shelter.

The proposed lighting scheme is a low-level bollard specification and will be timed to only activate when triggered. The lights will operate from dusk until dawn. Since there are no potential roost features on the trees, there is no risk of bats emerging from a roost and immediately encountering a change in ambient lighting at dusk, nor is there any risk of bats being disturbed during the works.

The lighting method is as follows (please see Appendix 2 for the lighting plan):

- Illuminated bollards to be installed at the eastern edge of the path at approximately 9.5m centres as manufacturer's horizontal luminance drawings.
- PIR sensors to be installed at either end of the path.
- PIR sensors to be located on wall of public toilet and post of proposed boom swing gate adjacent to cricket pavilion.
- Dusk-to-dawn sensor to be installed. Sensor to have override capability to enable lighting to remain off outside normal evening hours of use.

Development impacts and mitigation:
It is unlikely that any bats foraging within or commuting through the area would be impacted by the bollard lighting for the following reasons:

- There is no vertical spill, therefore any bats foraging/commuting can readily fly above the bollards with no ill-effect or disturbance.

- Horizontal spill terminates before the edge of the tree canopies, therefore the dark environment around the trees will be maintained as existing.

- Unless bats are emerging from a roost (which requires a descent before flying upwards again), they tend to fly *at height* to avoid obstructions, and are therefore more likely to fly along the eastern and western edges of the tree canopies (which will be retained in the same dark environment) than through the middle of the tree avenue.

- Since the edges of the canopies will be unlit, there is no risk of severance to commuting habitat and no reason that bats commuting through the area would be affected.

- Lighting will only be active when triggered, therefore for the majority of the night the dark environment will be maintained as existing.

Furthermore, the Bats and Artificial Lighting 2018 Guidelines recommend the use of specialist low-level bollard lighting as an appropriate specification in an environment where bats are known to be present.

For the above reasons, the proposed lighting strategy is unlikely to impact bats and mitigation is not required.

Nesting birds

Legislation:
All nesting birds receive legal protection from direct harm during nesting season. Schedule 1 listed birds (e.g. barn owl, kingfisher) are also protected from "disturbance" at or near an active nest.

Records:
Barn owl has been recorded 1.1km and 1.8km from the site. Other noteworthy birds recorded locally include kingfisher (0.5km) and red kite (0.5km).

Assessment:
The trees on site may attract nesting birds. No hollows or large cavities were identified that could support a larger nesting bird, such as barn owl or tawny owl. It is likely that generalist garden birds nest in trees bordering the recreation ground and birds of prey including tawny owl are likely to be encountered locally due to the surrounding rural habitat and abundance of prey resource.

Development impacts and mitigation:
Any tree work required in relation to this proposal should be undertaken outside the bird breeding season (March and September inclusive) in accordance with best practice. Where this is not practical, the areas should be inspected by an ecologist prior to tree work to ensure the absence of active nests. If active nests are found, the works will have to be delayed until the nest(s) become inactive (typically 2-3 weeks depending on the species).

Great crested newt

Legislation
Great crested newt uses terrestrial habitat between approximately July and February inclusive. This species is legally protected from direct harm, and the protection extends to the habitat they use for breeding, shelter and hibernation.

Records:
No great crested newt records were returned within 2km of the site.

Assessment:
There are no ponds on the site. The immediate habitats consist of trees and amenity lawn which is regularly mown and highly unlikely to be a receptor for this species. Notwithstanding, even if great crested newt were present in the local environment, a lighting scheme would not impact the life cycle activities of this species.

Development impacts and mitigation:
No impacts are predicted. Mitigation is not required.

Reptiles

Legislation:
All reptile species (common lizard, slow worm, grass snake and adder) receive legal protection from direct harm. (Note this protection does not extend to habitat, provided the individual is not harmed or killed as a result of the activity).

Records:
Adder and common lizard have been recorded 0.5km and 1.1km from the site respectively.

Assessment:
The site is in a well-managed environment containing trees and hard standing with large areas of amenity lawn to the east and west. Since the proposal will not impact any naturalised, rough habitat such as long grass, log piles or buried rubble, there is no risk of impact to this species group.

Development impacts and mitigation:
No impacts are predicted. Mitigation is not required.

Badger

Legislation:
Badger is legally protected by the Protection of Badgers Act 1992.

Records:
No badger records were returned from EFC.

Assessment:
There are no setts on or within 30 metres of the site, and this proposal would not affect the ability of badger to naturally disperse and forage in the wider environment.

Development impacts and mitigation:
No impacts are predicted. Mitigation is not required.

Since the site is limited in scale and contains limited habitats/habitat diversity, there is not a reasonable likelihood of any other species being present/affected. Further survey/assessment is not required in respect of any other legally protected or priority species.

4.0 Conclusions and recommendations:

The site is not the subject of a conservation designation, and no mitigation is required in relation to conservation sites or priority habitats.

The proposed lighting is not reasonably likely to impact habitats or species to warrant further surveys or detailed mitigation measures.

Timing restrictions apply to tree work in relation to nesting birds and the avenue of retained lime trees will be protected in accordance with best practice (BS 5837 2012 Trees in Relation to Design, Demolition and Construction – Recommendations) and arboricultural advice.

With the above in place and all other advice in this report followed, there is no reason the lighting proposal will result in adverse effect to habitats or species.

Biodiversity net-gain

Where possible and practical, the Council could consider installing bat boxes on the mature lime trees to the north of the site to improve roosting opportunities locally. Bat boxes should be installed above 2 metres and facing south, south-east or south west in accordance with best practice. Boxes should be woodcrete or woodstone for longevity. An example is below.

Crevice bat roost box (https://www.wildcare.co.uk/harlech-woodstone-bat-box-11266.html)

If you have any queries or require further information, please do not hesitate to contact me.

Yours sincerely,
Gemma Holmes BSc (Hons) ACIEEM
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References

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JNCC, 2010. Handbook for Phase 1 habitat survey: A technique for environmental audit. JNCC. Available at: http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf?_sm_au_=ijVN1vPTstvVv1Dt

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Appendix 1. Site location

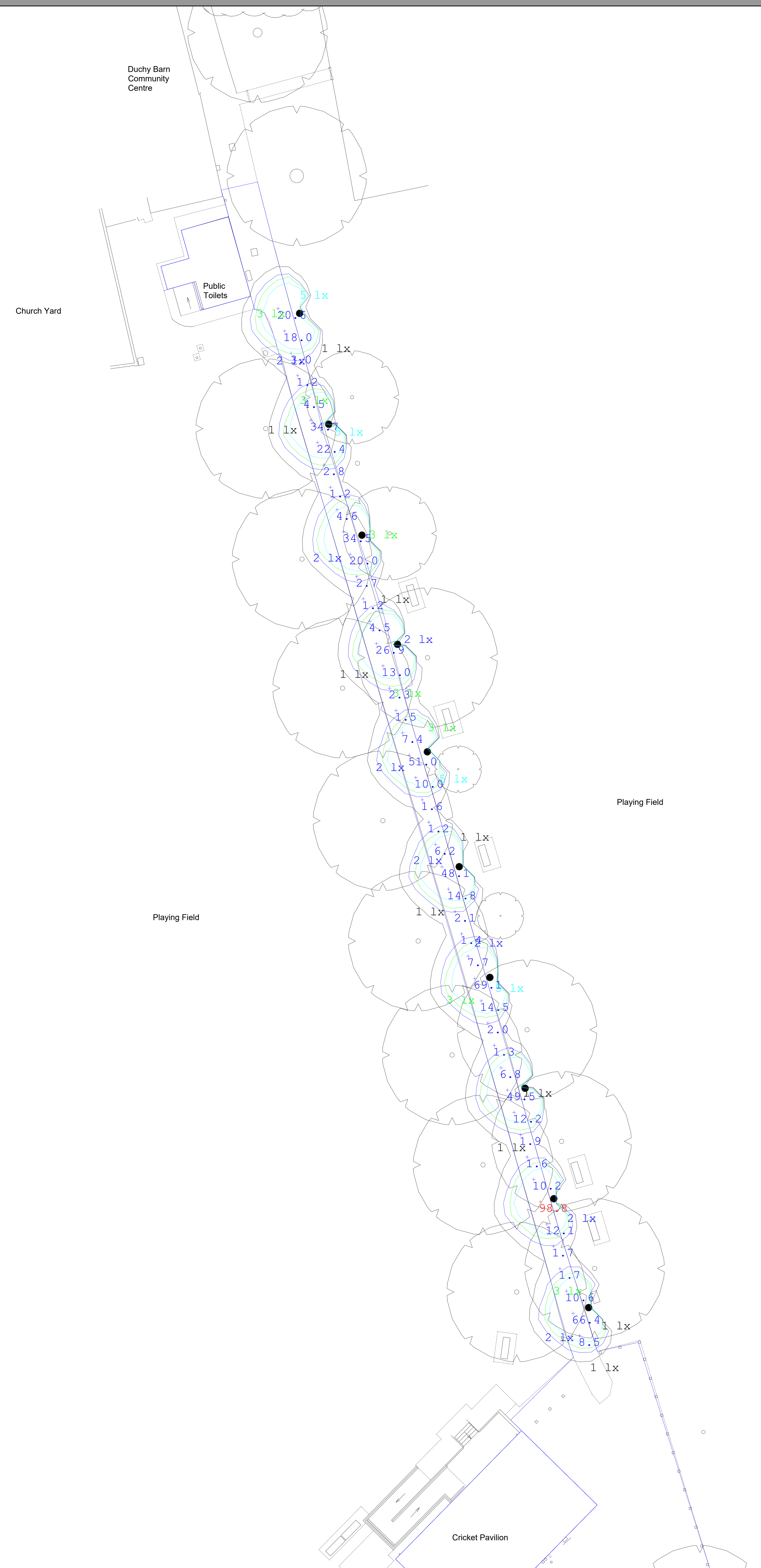
Appendix 2. Proposed lighting plan

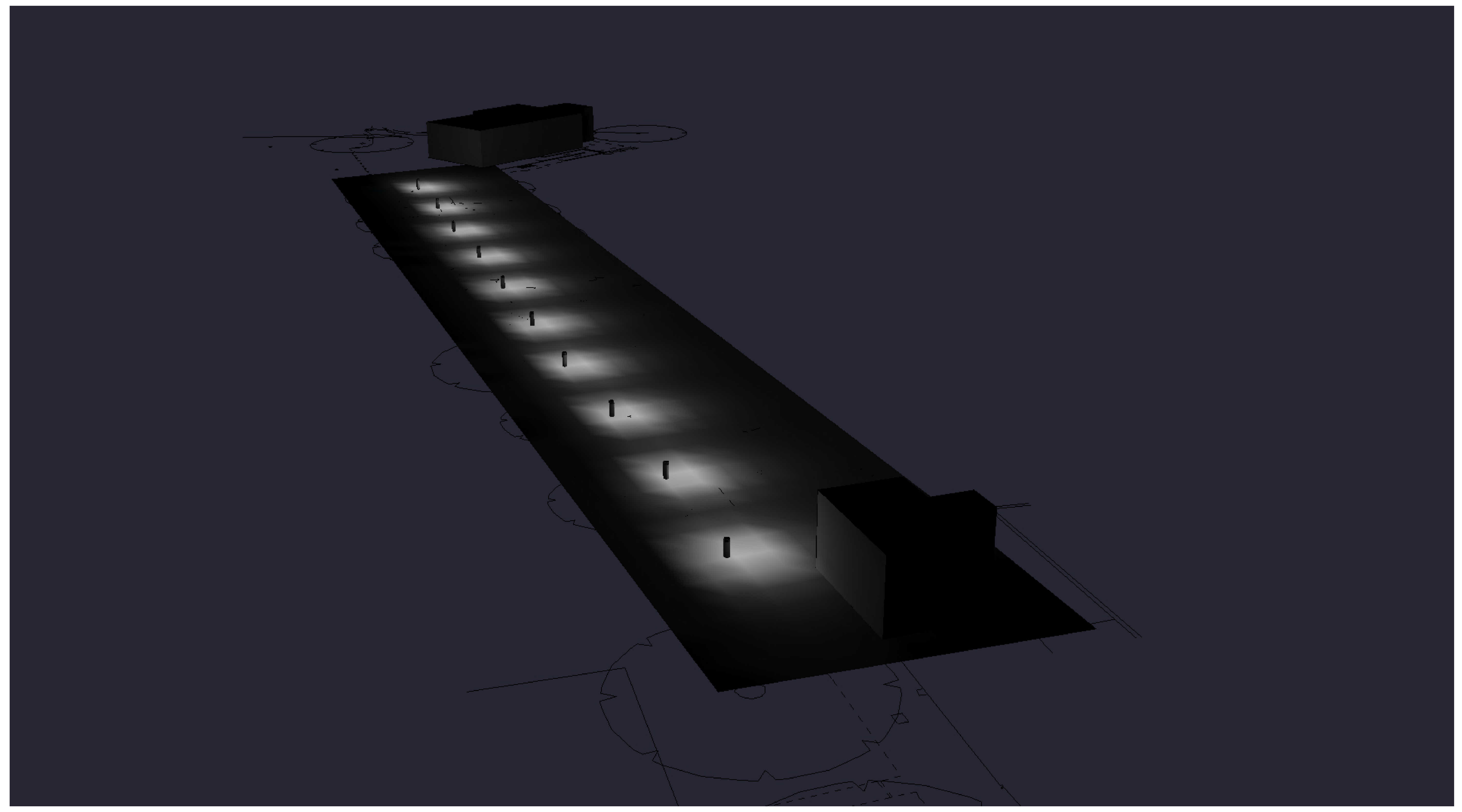
Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	Lum. Lumens
●	10	A	SINGLE	Klou IK 180 14w 3000K	650

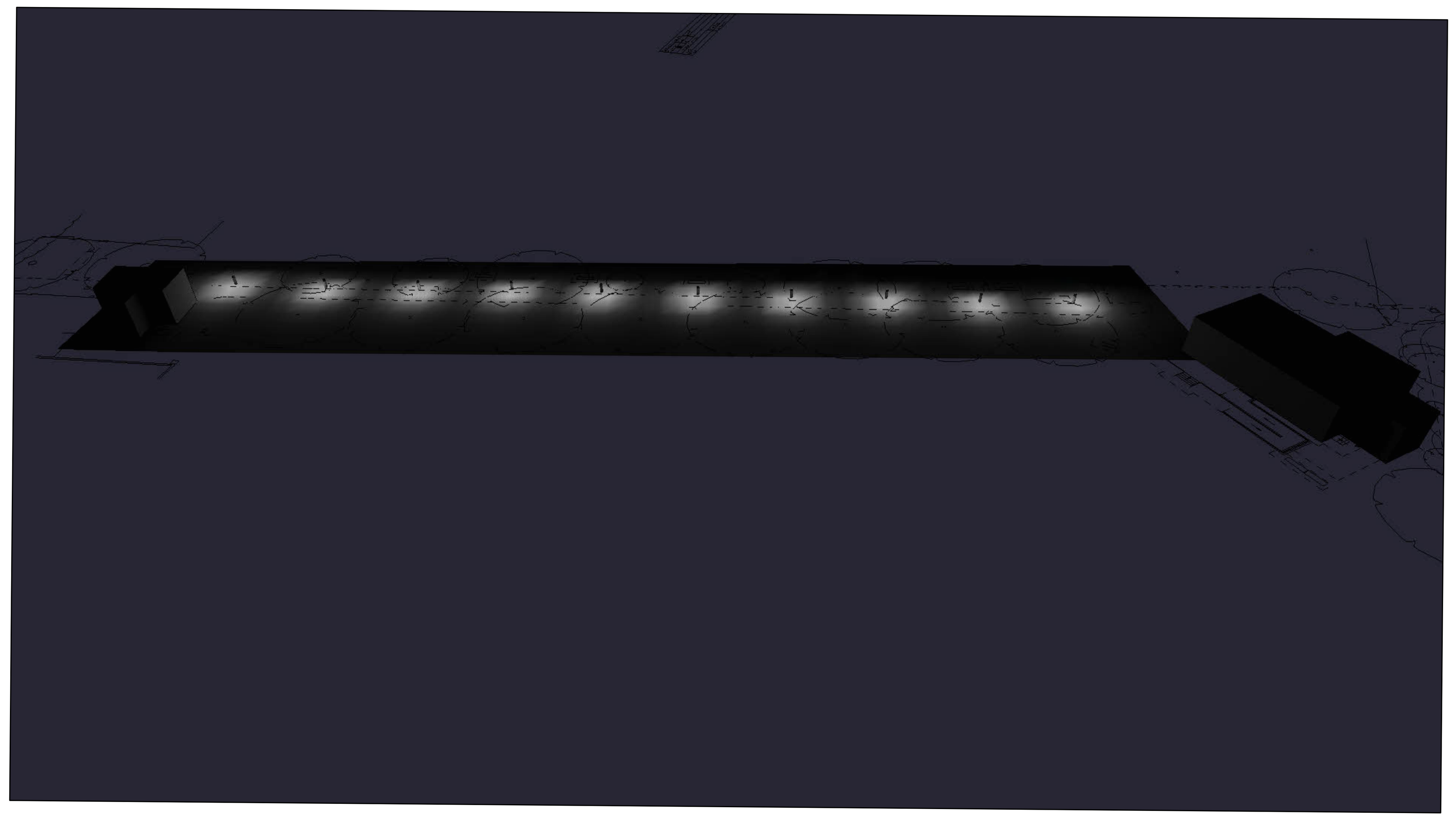
Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/M
Footpath	Illuminance	Lux	15.74	98.8	1.2	0.08	0.01

Kingfisher Lighting

Part of the Luceco PLC group of companies LUCECO







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The Drift Dedham	Scale 1:250 at A1	Project Number D39147E THE DRIFT DEDHAM
HEA Highway Electrical Association · HEMSA · Lighting Industry Association · ILP Institution of Lighting Professionals · SAPCA Ancillary Contractor — For our LED lighting designs a 0.9mf has been used. If this differs from the maintenance period for this project then you must advise us accordingly	Date 2 February 2021	Drawing No. D39147/PA/E
	Lighting Designer : Paul Askew	

A1

Appendix 3. Photographs

a) View to the north along footpath

b) View to the south along footpath

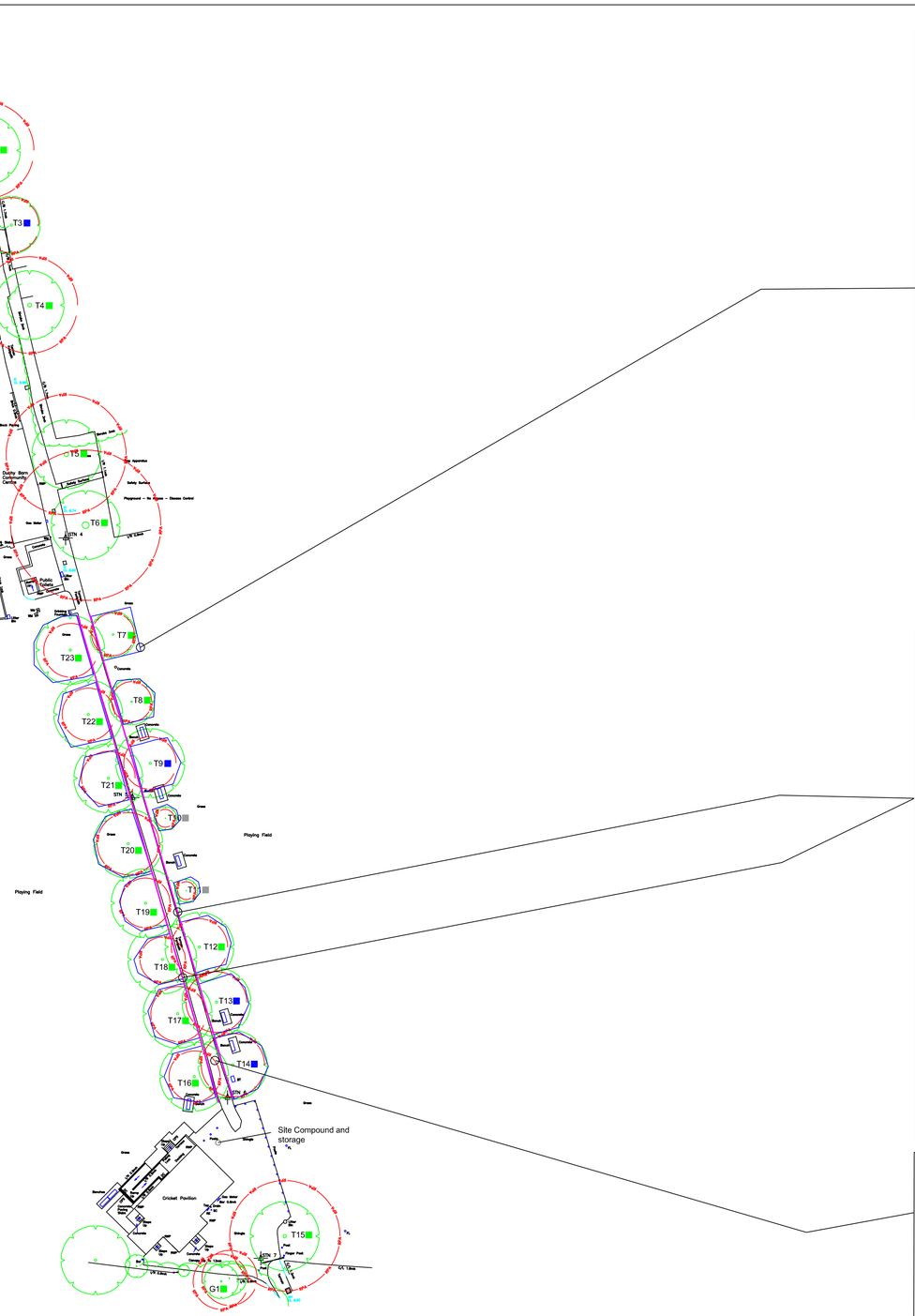
c) Mature lime trees to the north of the footpath, unaffected

d) Occluded wound on early-mature lime tree, no potential for roosting bats.

e) Occluded wound on early-mature lime tree, no potential for roosting bats

a) Occluded wound on early-mature lime tree, no potential for roosting bats

Appendix 4. Tree survey plan



Tree Protection Barrier to BS5837: 2012

Protective barriers should be erected prior to the commencement of any site clearance, demolition or development . No storage within the construction exclusion zone (fenced areas)

The fencing should utilise a scaffold framework in accordance with the detail shown above.

Weldmesh panels should be set in rubber block supports and cable tied or clamped with scaffold clamps, to the adjacent panel.

The fencing should be erected at or beyond the extremities of the RPA as shown on the tree protection plan and should not be moved unless agreed with the project arboriculturist and local planning authority.

Informatives should be placed on barriers at 1.5m in height at 3m intervals, facing outwards, Informatives should clearly provide details of the protection zone and correct procedures.

Weatherproof informative to be placed on barriers

Construction Exclusion Zone

Access is not permitted

The trees beyond this protected zone are subject to planning conditions and statutory protection

Any breach of this zone will result in enforcement action by the Local Authority

Method statement for hand excavation – please refer to cross section provided.

- Remove 130mm of topsoil from path overrun and over existing subbase to a linear distance from the path edge of 450mm (see cross section provided). Brake out existing sub-base/foundation to depth of 310mm using handheld concrete breaker and mini tracked excavator to remove debris (hand barrowed and stored outside of RPA) all machinery to be working from the existing path surface.
- Hand excavate the remaining required 90mm of underlying soils below existing dense subbase, using hand held tools only; spade, shovel, fork, hand towel, soft brush and water. All removed debris to be hand barrowed and stored outside of the RPA's.
- Where roots are pliable relocate to side of pit or push downwards.
- Any exposed roots should immediately be wrapped in damp hessian to prevent desiccation and to protect them from rapid temperature changes.
- If required, sever any roots with a diameter less than 25mm (use a sharp tool to provide a clean cut across the cross section near to a root junction/growth point).
- Avoid severing roots greater than 25mm or clumps of roots (root mats). If this is necessary, then request an arboriculturist to attend the site to assess likely impact upon tree health and future stability.
- Install the ground cable ducting / sleeve into the excavated pit / trench.
- Prior to backfilling any roots should be removed from the protective wrapping and surrounded by sharp sand, or other loose granular fill, before soil or other material is replaced. The backfill is to be free from any contaminants or foreign objects.
- Monitor tree health during next growth season. Check leaf colour, size, density, and extension growth. Monitor again the following season.

Existing construction profile of path

Legend:

Tree reference
Tree and crown spread
Root protection area
Temporary barrier protection
Location for excavation

Notes:

This drawing was produced in colour, a monochrome copy should not be relied upon.

Project: Dedham Recreation Ground, Dedham

Drawing Title: Tree Protection Plan

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