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Planning and Development (Housing) and Residential Tenancies Act 2016

Planning and Development (Strategic Housing Development) Regulations 2017.

Ecological Impact Assessment of a Proposed 272 Unit Residential Development at Boycetown, Kilcock, Co. Kildare.

Niamh Ní Bhroin BSc, PhD

1st September 2022.

Company Registration No: 433571
VAT No: IE9665750K
Directors: N. Ní Bhroin BSc, PhD
P. Hussey BA, BComm, HDipEd

Dúlra is Dúchas Teoranta, 2022

1.0 Introduction

Planning permission is being sought for a Strategic Housing Development south and east of the R148 and adjoining the M4 (Dublin to Sligo Motorway), Junction 8 roundabout, Boycetown, Kilcock, Co. Kildare. The site covers an area of 9.75 hectares. The planning application is being lodged to An Bord Pleanála.

The proposed development site is located to the west of Kilcock Town on the R148 Dublin to Kinnegad regional road. Formerly the N4, national primary route from Dublin to Sligo, the construction of the M4 motorway from Dublin to Sligo has led to the recategorisation of the road from national to regional status. The slip road from Junction 8 of the motorway defines the western boundary of the site. The M4 motorway embankment forms the boundary of the site to the south. To the north the boundary of the site is defined by the R148 with a drainage ditch identifying the boundary of the site to the east.

Adjoining structures to the proposed development site include St. Joseph's Cemetery Kilcock and the St. Patrick's Church (former) Church of Ireland (National Inventory of Architectural Heritage website). To the east of the northern section of the proposed development site is the housing estate Boycetown Court. Directly northwest of the proposed development site is Musgraves Retail Partners Ireland – Distribution Centre.

Land management other than the built environment surrounding the proposed development site includes improved grassland and hedgerow to the north of the proposed development site on the far side of the R148. The southern section of the eastern boundary of the proposed development site consists of a drainage ditch and mature hedgerow. The western boundary of the proposed development site consists of hedgerow and treeline with the embankment to the south resembling immature woodland. Mature hedgerows and treeline run east to west and north to south across the proposed development site forming fields of grassland. Along the eastern boundary of St. Patrick's Church (former) the boundary consists of large trees and garden shrubs.

2.0 Description of the proposed development

The Notice of Strategic Housing Development reads as follows:
I, Teresa Monaghan, intend to apply to An Bord Pleanála for permission for a strategic housing development at this site:
Site to south of the R148 and east of the R158 abutting the M4 Junction 8 roundabout, Boycetown, Kilcock, Co. Kildare (9.75 hectares).
The proposed development (30,839 sq.m GFA) will consist of the demolition of a detached, vacant cottage (gfa 69sq.m) and the construction of 272 residential units (149 no. houses, 65 apartments and 58 duplexes), childcare facility and foul pumping station along with associated ancillary works and site works.
The 149 no. dwellings consist of:

- *40 no. 4 bed 2 storey houses (House Type A1, A2, A3, A4, A5)*
- *8 no. 4 bed 3 storey houses (House Type E1, E2)*
- *90 no. 3 bed 2 storey houses (House Type B1, B2, B3, C1, C2)*
- *11 no. 2 bed 2 storey houses (House Type D1)*

The proposed apartments and duplexes are provided in 7 no. blocks (Blocks A, B, C, D, E, F, G) ranging in height from 3 to 4 storeys, with the exception of 1no. Duplex Block (Type N1), which is a 3 storey, end of terrace unit. Block A and Block B contain Rooftop terraces at 4th floor level.

The Duplex Blocks (Type J1, Type, J2, Type J3, Type J4, Type K1, Type L1, Type M1, Type N1) are all 3-storey and contain 58 units divided as follows:

- *6no. 1 bed ground floor apartment units (Units L1-A)*
- *23no. 2 bed ground floor apartment units (Units J1-A, J2-A, J3-A, J4-A, K1-A, M1-A, N1-A)*
- *1no. 2 bed duplex unit (two-storey unit) (Units K1-B)*
- *25no. 3 bed duplex units (two-storey units) (Units J1-B, J2-B, J3-B, J4-B, L1-B)*
- *3no. 4 bed duplex units (two-storey units) (Units M1-B, N1-B)*

The 65 apartments are located within Blocks A, B, C and D divided as follows:

- *17no. 1 bed units (Type F1, Type F2, Type F3, Type F4, Type F5, Type F6)*
- *37no. 2 bed units (Type G1, Type G2, Type G3, Type G4, Type G5-A, Type G5-B, Type G6, Type G7, Type G8)*
- *11no. 3 bed units (Type H1, Type H2)*

Block D also contains a childcare facility (gfa.526.2 sqm) and includes a dedicated outdoor play area (c.210 sq.m).
Ancillary works including 1 no. vehicular entrances off the R148 to the north and 1 no. vehicular entrance off the R158 to the west, a spine road which will link with the permitted spine road on the adjoining lands to the south-east under PL09.306826, internal roads, footpaths, cycle lanes, car parking (465 no. spaces), cycle storage/parking (426 no. spaces), 2 no. bus stops, bin storage, public open space, hard and soft landscaping, natural play area,

play equipment, boundary treatments, public lighting, 3 no. substations (14sq.m each) and controlled pedestrian crossing on the R148.

All associated site and infrastructural works including underground wastewater pump station (a wetwell); welfare building 6.25sqm and 3m in height; 472m of 125mm OD rising main and 250m of gravity sewer along the R148; an underground emergency storage tank, capacity 230 m3 approx.; above ground lifting gantry; valve and flowmeter chambers; a chemical dosing facility for odour control; Passive Carbon Unit; Kiosks; above ground surge vessel (<13 m3); Landscaping, fencing and access off the R148. The proposed development includes all necessary ancillary pipework and manholes, diversion of existing utilities; new power supply and water connection for the pump station, ducting, mechanical and electrical services, plant, instrumentation, automation, controls and equipment. It also includes all associated site development works, hardstanding areas and access and site drainage. The proposed development includes works on lands owned by Kildare County Council to facilitate access and drainage infrastructure.

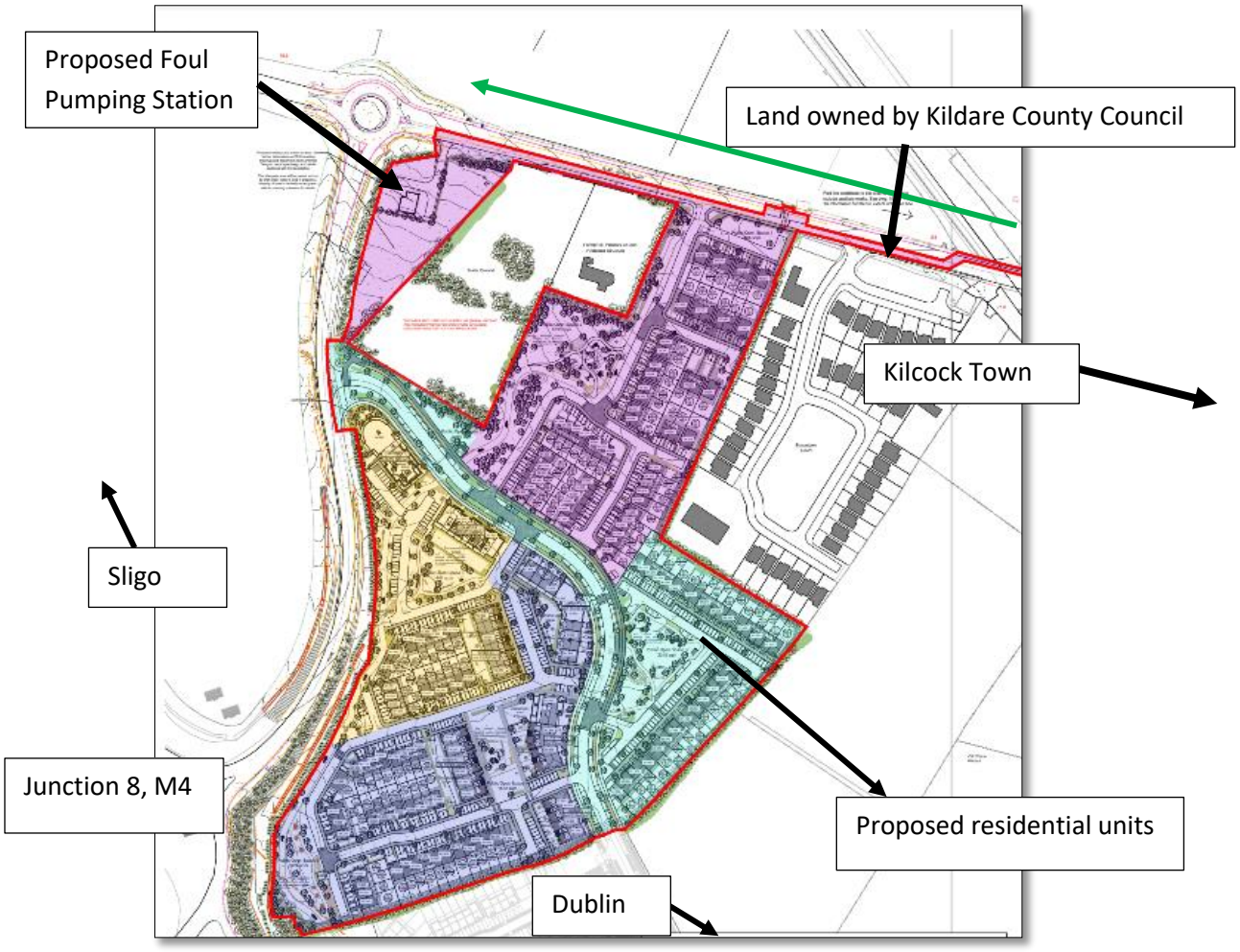

Fig. 1 Proposed development at Boycetown (source Paul Byrne Architects)

Elements of the proposed development that have been considered as part of the application process include:

- Treatment of wastewater generated at the proposed development site post construction.
- Surface water and Storm water management measures,
- Light installations and associated spillage.
- Landscaping of open spaces and tree planting

A Construction Environmental Management Plan has been prepared as part of this application (see accompanying planning documentation).

The proposed development will be constructed on a phased basis. Phase 1 will be completed first with the remaining phases in numerical order. Phase 1 will also include the construction of the foul pump station and all ancillary works. Construction of the distributor road will be undertaken in phase 2.

Development	**Development details**	**Units**
Phase 1 Houses 1-56 Pumping station and all ancillary works	• 30 no 4 bedroom houses • 26 no 3 bedroom houses	56 units
Phase 2 Houses 57-95 and Distributor Road	• 27 no 3 bedroom houses • 11 no 2 bedroom houses • 1 no 4 bedroom house	39 Units
Phase 3 Blocks C, D, E and F Duplex Block N1 Houses 98-133 (including childcare facility in block D)	• 3 no 4 bedroom duplexes (2 storey) • 19 no 3 bedroom duplexes (2 storey) • 1 no 2 bedroom duplex (2 storey) • 6 no. 3 bedroom apartments • 21 no 2 bedroom apartments • 6 no 1 bedroom apartments • 16 no 4 bedroom houses • 20 no 3 bedroom houses	92 units
Phase 4 Blocks A, B and G Houses 134-151	• 1 no 4 bedroom house • 17no. 3 bedroom houses • 6 no 2 bedroom apartments • 6 no 3 bedroom duplexes (2 storey) • 4 no 3 bedroom apartments • 34 no 2 bedroom apartments • 17 no 1 bedroom apartments	85 units
Total	**On completion phases 1-4**	**272 units**

Table 1 Details of the individual construction phases (source Paul Byrne Architects).

Construction will commence on the northern boundary along with installation of wastewater infrastructure. The distributor road constructed with phase 2 will open up the southern section of the site.

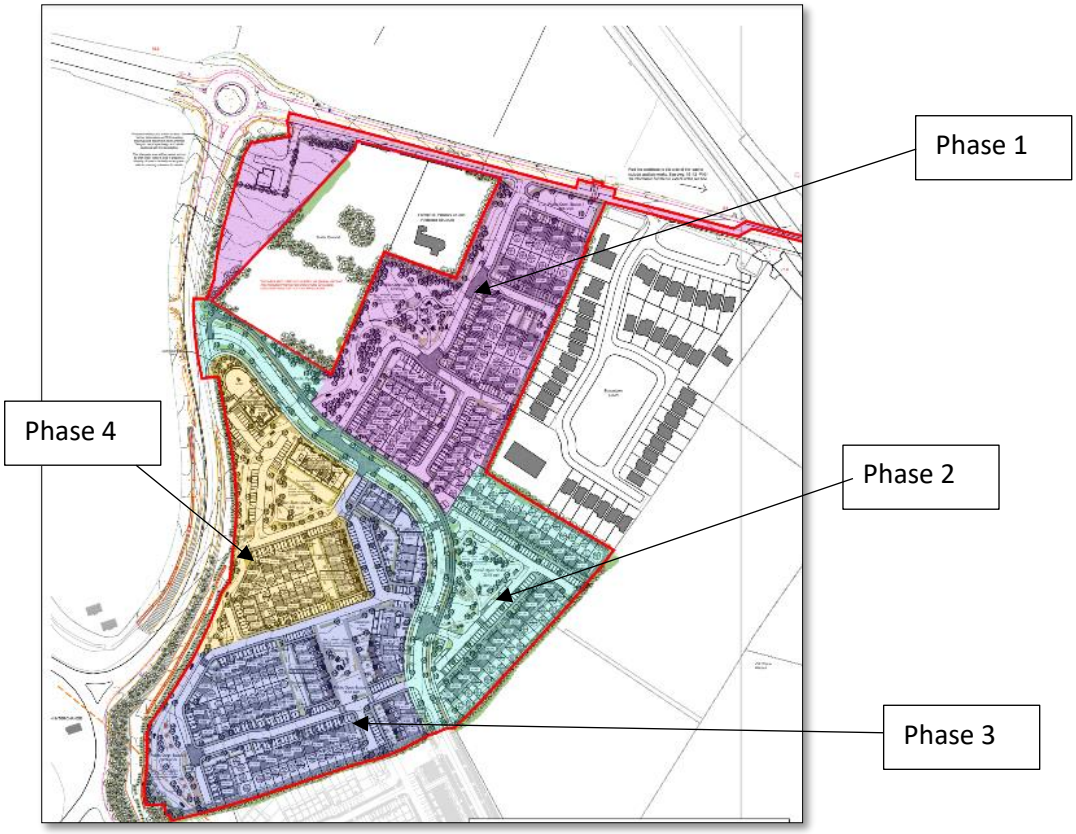

Fig. 2 A visual overview of the phases (source Paul Byrne Architects).

3.0 Site survey of the proposed development site

A site survey was undertaken on the 21st February 2021 and a follow-up site visit on the 24th August 2022 to view the proposed development site and to undertake a bat survey to assess the presence of bat activity locally.

3.1 Site Survey 21st February 2021

The survey followed a period of heavy rain. It should be noted that the survey was outside the optimum ecological period which runs from May to September, however, the timing allowed waterflows in the drainage ditch to be observed, and the absence of leaves on trees allowed the trunks of trees to be visually assessed. In the absence of leaves on trees there were direct views across the proposed development site, views of the cemetery from the proposed

development site and views of the structure of St. Patrick's Church (former) from the proposed development site also.

Flora and fauna was observed during the site survey to identify habitats on the proposed development site. There was no evidence of invasive species. No knotweed Japanese or other invasive knotweed species, no Rhododendron, no Gunnera and no Giant Hogweed. In summary the flora on proposed development site consisted of tree species as part of treelines and hedgerows. Understorey of springtime flowers was visible along the base of hedgerows. The leaves of flora associated with grazed agricultural grassland were also observed.

Details of habitats on the proposed development site was compared to the Kilcock Habitat map from the Kilcock Habitat and Green Infrastructure mapping report (2014).

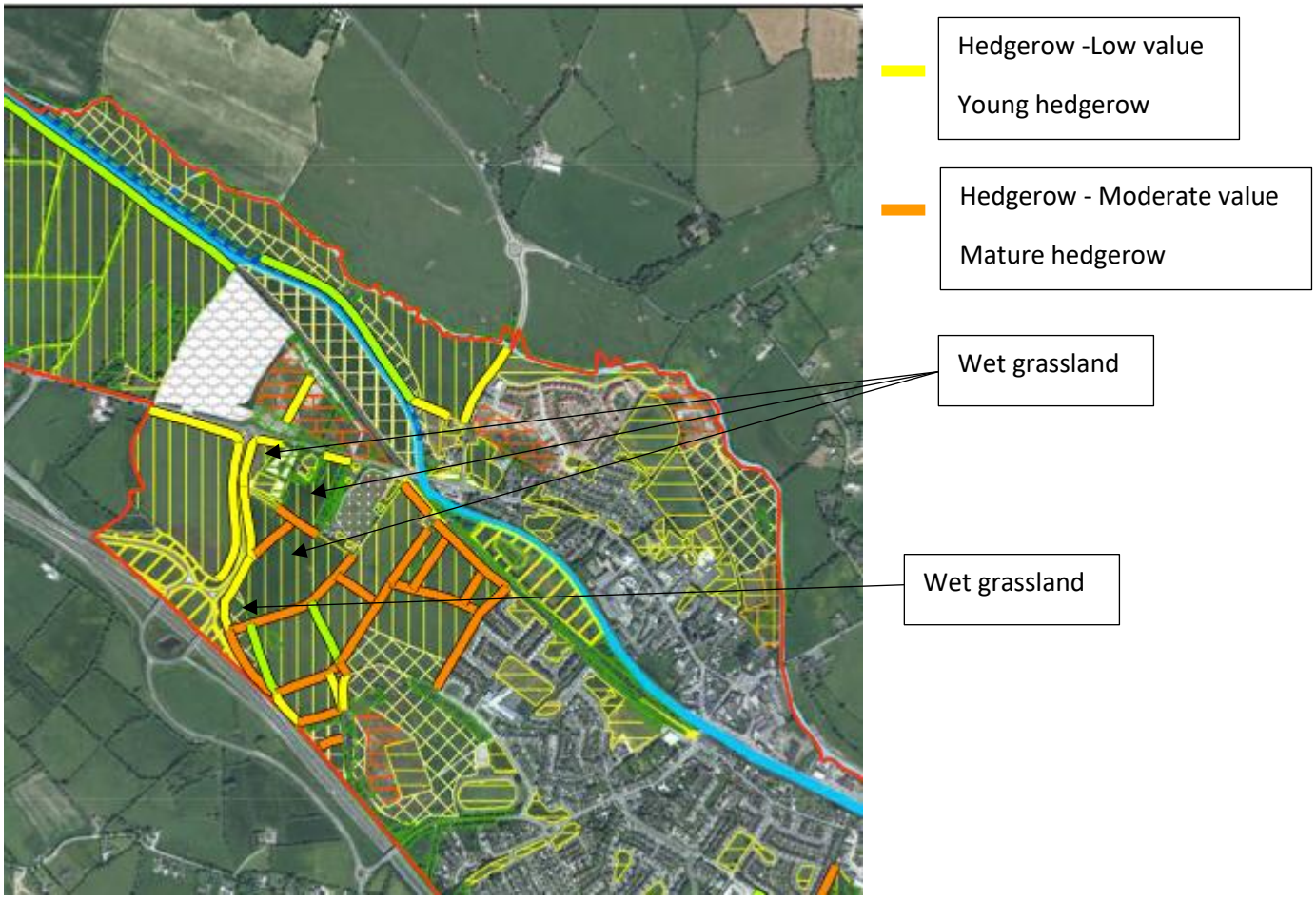

Fig. 3 Habitat map from the Kilcock Habitat and Green Infrastructure mapping report 2014.

An investigative bat survey was undertaken along the roadside of the R148 at dusk on the 28th May 2021. The purpose of the survey was to determine the presence of bats locally and to get an idea of flight patterns around lit and unlit areas. The survey was conducted with a handheld heterodyne bat detector located on the western boundary of the cemetery at the vacant cottage on the R148. The investigation was undertaken following a cold, wet and

windy May where night temperatures were below 8^0C for a lot of the month, generally too cold for bats to fly and on other nights too wet with heavy rain showers. The weather conditions on the day of the 28th were bright and very warm. The temperature at the time of survey was 13^0C.

At 9.49 (dusk) a single bat was observed travelling across the field north of the proposed development site across the access gate into the hedgerow along the eastern boundary of the grounds of St. Patrick's Church (former). No bat activity was detected around the vacant cottage. Between the first detection and the switching on of street lights a bat foraged high up along the trees at the cemetery and looped around a horse chestnut tree in bloom along the western boundary of the cemetery. As the streetlights came on bat activity lessened and a bat could be observed to the rear of the cemetery where it was darker. It was striking the absence of insect life after dusk. There were no biting insects and no moths flying along the road which is unusual for the time of year.



Fig. 4 View of western section of the proposed development site looking south to north.



Fig. 5 View of the front field of the proposed development looking south to north.



Fig. 6 View of the southern section of the proposed development site along the motorway embankment



Fig.7 Land behind the cemetery bounded by the slip road from Junction 8

3.2 Site visit 24th August 2022.

A site visit to the proposed development site was undertaken on the 24th August to observe changes in land management and identify a suitable survey location for undertaking a bat survey.



Fig. 8 Proposed development site view from northern boundary, August 2022.



Fig.9 Field to north west of proposed development from northern boundary, August 2022.

At the eastern section of the proposed development site the grass had been cut and baled. Sheep were grazing the site. To the south west of the proposed development site horses were observed grazing the land. To the north east the area designated as open space in the Kilcock Local Area Plan was left unmanaged. Tall grasses and ruderal species dominated the site. The hedgerows supported new season growth.

A bat survey was undertaken in late August to identify if:

1. Bats were present in the vicinity of the proposed development site
2. Identification of bat species and
3. Assess and evaluate the number of bat passes.

The survey environmental detail was adapted from the All Ireland Daubenton's Bat Waterway Survey Day time and Night time Survey Form. A Day time survey of the proposed development site identified that hay bales and sheep were present in the eastern section of the proposed development site. Horses were grazing the southwestern section of the site and the north-western section was overgrown. For safety of egress in the dark it was decided to survey in front of St. Joseph's cemetery. A handheld device and a passive detector were used. The handheld frequency was manually moved up and down to get a positive identification of bat sounds. The passive detector was used as a control to detect the full spectrum of bat frequencies.

A night time survey was undertaken on the 24th August 2022. The static survey involved placing the Anabat monitor at a single location at the stile of the cemetery and a second location with the handheld heterodyne bat monitor. Based on the information collected it was decided to undertake a follow – up survey, with a pre-sunset survey to identify bat activity prior to sunset. Activity prior to sunset may suggest that bats are roosting locally. A dawn survey was not undertaken. A dawn survey would allow a bat count to be undertaken for bats returning to a roost. No roost location was identified during the February 2021 site visit when trees were bare and trunks were visible. No roost location was identified during the night time surveys.

The bat survey identified that bat species are present locally (see accompanying bat survey report). The bats identified are those found in urban areas and are more tolerant of light found in urban environments.

4.0 Locally Important habitats and species

In accordance with Guidance on Appropriate Assessment for Planning Authorities (2009) a 15km zone was applied around the proposed development area.

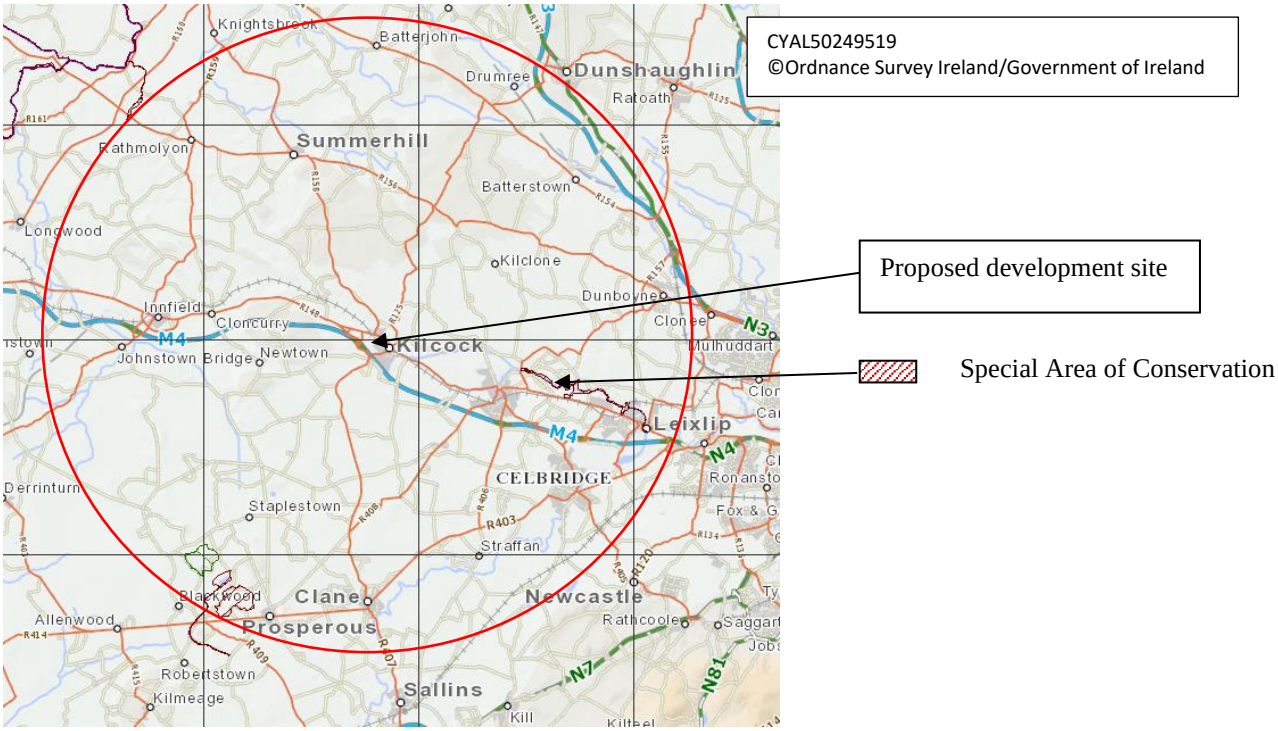

Fig. 10 Zone of 15km around the proposed development site, sourced from NPWS website

Four Natura 2000 sites were identified within the 15km zone namely Ballynafagh Bog SAC site code 000391, Ballynafagh Lake SAC site code 001387, River Boyne and River Blackwater SAC 002299 and Rye Water Valley / Carton SAC site code 001398 (NPWS website). Ballynafagh Bog, Ballynafagh Lake and the River Boyne are in different catchments to the development site and have no connection to it.

The Rye Water Valley / Carton SAC site code 001398 is the only relevant Natura 2000 designated site within the 15km surrounding the proposed development site. Designated in 1997 the site is situated at -6.536255657 longitude and 53.37993152 latitude and covers an area of 72.29ha extending from Maynooth Town (Carton Demesne), Co. Kildare to Leixlip Town, Co. Kildare (Natura 2000 factsheet). The conservation aspects of the designated site includes the priority habitat Petrifying springs with tufa formation listed in Annex I of the Habitats Directive and two species listed in Annex II of the Habitats Directive namely Narrow-mouthed Whorl Snail (*Vertigo angustior*) and Desmoulin's Whorl Snail (*Vertigo moulinsiana*).

There is no management plan for the Rye Water Valley / Carton SAC**.** The generic conservation objective for the site is:

To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

Favourable conservation status of a habitat is achieved when:

• its natural range, and area it covers within that range, are stable or increasing, and
• the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
• the conservation status of its typical species is favourable.

Favourable conservation status of a species is achieved when:

• population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
• the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
• there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis (NPWS, 2021).

There are three Qualifying Interest of the Rye Water Valley / Carton SAC as follows:

- Petrifying springs with tufa formation
- *Vertigo angustior* (Narrow-mouthed Whorl Snail)
- *Vertigo moulinsiana* (Desmoulin's Whorl Snail)

4.1 Qualifying interest of the SAC

One protected habitat listed on Annex I of the Habitats Directive and two Vertigo snail species as listed in Annex II of the Habitats Directive are the qualifying interest of the SAC.

Annex I Habitat - Petrifying springs with tufa formation
Petrifying springs with tufa formation are a hydrological feature characterised as a source of lime-rich groundwater that forms calcium carbonate deposits (or tufa) on contact with the interface between the soil surface and the air. This habitat type is usually small (notably small or linear formations) occurring in a variety of landscapes. Bryophyte communities are the dominant vegetation (EUNIS website, Fossitt, 2000).

Annex II species - Vertigo snails.
A total of eight species of Vertigo snails exist in Ireland. Of the eight, six species are thought to be under threat with three species listed in Annex II of the Habitats Directive namely *Vertigo geyeri*, *Vertigo angustior* and *Vertigo moulinsiana.* Young snails can usually be found all year round however the optimum time for reproduction is predominantly during humid conditions. Vertigo snails are thought to occupy habitats with little fluctuation in water supply or ion content (Moorkens & Killeen, 2011).

Vertigo angustior (Narrow-mouthed Whorl Snail) and Vertigo moulinsiana (Demoulin's Whorl Snail) are listed as the Qualifying Interest of the Rye Water / Carton Valley SAC.

4.2 Protected Flora and Fauna

A data request was submitted to National Parks and Wildlife Service in 2016 to identify protected species locally.

Latin name	Common name	Preferred habitat
Plant species		
Anthemis arvensis	Corn Chamomile	Tillage land
Carduus nutans	Musk Thistle	Grassland
Cladonia portentosa	Reindeer Moss	Peatland - Bog
Galeopsis angustifolia	Red Hemp-Nettle	Scree and loose rock
Groenlandia densa	Opposite-leaved Pondweed	Freshwater
Hyoscyamus niger	Henbane	Bare or disturbed ground
Scandix pecten-veneris	Shepherd's-needle	Tillage land
Scrophularia umbrosa	Green Figwort	Riparian woodland
Viola hirta	Hairy Violet	Limestone rock, grassland (lime)
Mammals		
Erinaceus europaeus	West European Hedgehog	Woodland, scrub, grassland
Lepus timidus subsp. *hibernicus*	Irish Hare	Grassland, open spaces
Martes martes	Pine Marten	Woodland
Meles meles	Badger	Woodland and farmland
Mustela erminea subsp. *hibernica*	Irish Stoat	Woodland, grassland, coast areas
Rattus rattus	Black Rat	Urban areas
Sciurus vulgaris	Eurasian Red Squirrel	Woodland
Amphibian		
Rana temporaria	Common Frog	Ponds, woodland and damp areas
Invertebrate		
Vertigo moulinsiana	Desmoulin's Whorl Snail	Peatlands - fens

Table 2 Protected species within 5km of the proposed development site, 2016.

Only Hare from the protected floral listed within 5km of the was observed during the site visit. The land management of the proposed development site is that of improved agricultural grassland.

4.3 Protected species identified on site.

Two protected species were observed during the site visit, a Hare during the Spring site visit and a Bat in early Summer. A single Hare was observed running from the wet grassland area to the very south of the proposed development site into the neighbouring fields to the east.

Bats are provided protection in Ireland under the Wildlife Act 1976 and subsequent amendments. Section 23(5) of the Wildlife Act Any person who—:

> (*d*) wilfully interferes with or destroys the breeding place of any protected wild animal, shall be guilty of an offence

Threats to bat populations include habitat loss, habitat fragmentation and the reduction in habitat quality, reduction in insect populations through the use of insecticide, remedial timber treatment and directly through the loss of roosts. Riparian zones, woodland adjacent to watercourses and mature trees associated with hedgerows are used by bats as foraging and roosting sites. During the Summer months bats often colonise stone buildings for their maternity roosts but migrate to other locations that would have a more constant temperature during winter months (Bat Conservation Ireland website).

Bat activity was observed and recorded at the proposed development site but no roosting site was observed at the old house on the R148 as suggested in the Habitat Survey and Green Infrastructure for Kilcock (2014). There is no mention of bat roost at St. Patrick's Church (former).

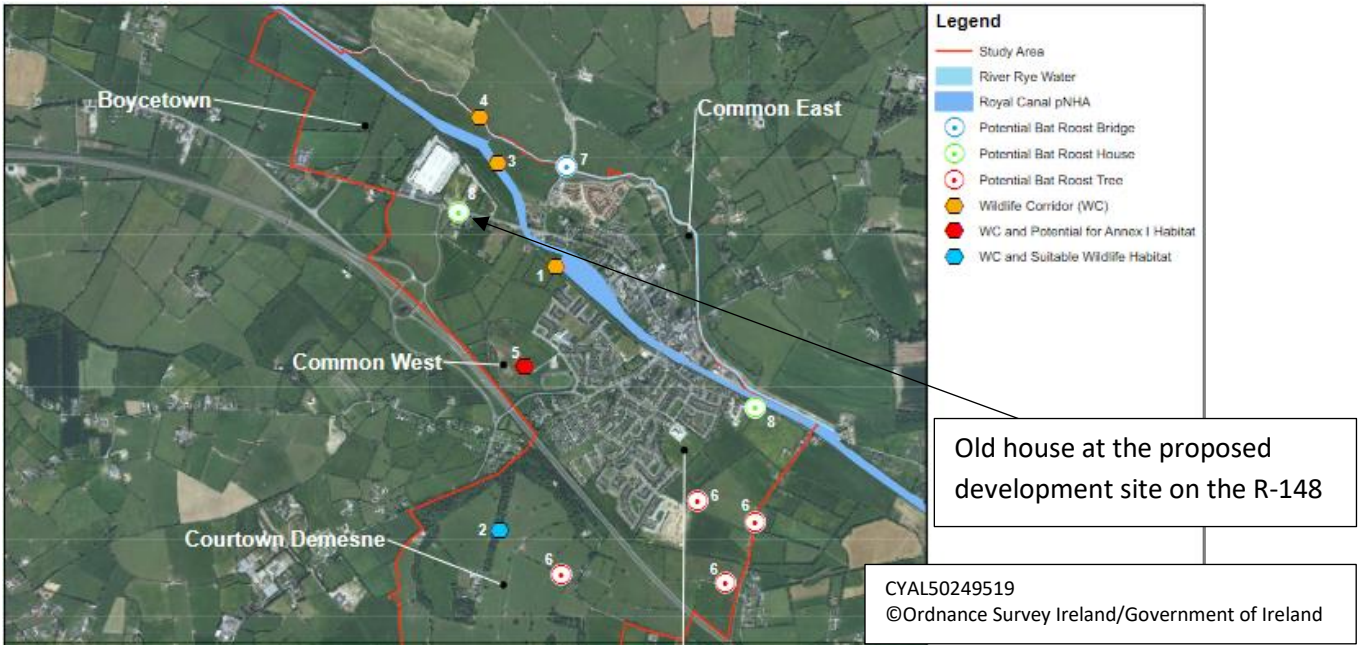

Fig. 11 Wildlife areas Kilcock, Habitat Survey and Green Infrastructure for Kilcock (2014)..

Bat activity has been observed by the Author in an urban area of Tullamore in the Summer 2021.



Fig. 12 Bat activity at Árd na Gréine, Tullamore urban environment (observations of author).

Bats during the summer months are observed shortly after dusk flying between houses that are at an irregular angle to each other. The bats follow along an unlit corridor avoiding a single street light in the turning circle. On reaching the unlit back gardens the bats circle over trees predating on the bigger species of emerging night time moths. Through the dim light of dusk the bats fly back forth until the majority of emerging moths have been consumed and proceed southwards in the direction of agricultural land.

The bats later return approximately at 1am but this time forage around the single light stand. Up to three species of bat are clearly seen flying through the cone of light as the bats forage on insects migrating to the light stand. These would be the less light sensitive species Common pipistrelles (*Pipistrellus pipistrellus),* Soprano pipistrelles (*Pipistrellus pygmaeus)* and Lesser noctules or Leisler's bat (*Nyctalus leisleri).* On the 1st September 2022 bat activity from 21.05 - 21.16 hours was observed along the back garden treeline. Two Pipistrelle bats were observed flying across the garden predating the emerging moths. The treeline provided a dark zone and foraging habitat for bats. Planted areas of urban gardens can provide foraging habitats for less light sensitive bat species.

Bat Conservation Ireland, 2010 have identified that bats can be prone to predation at dusk in lit environments. This could explain the movement along the dark corridor between houses and avoidance of the area around the light stand. Dark zones around roosts ensures that bat emerge at peak foraging times. Bats arrived in garden and circled over trees just as night time moths were emerging. The moths were predated before they had time to disperse from the trees. The bats opportunistically feed later in the night around the light fitting when the threat of predation had passed. The urban habitat would not be suitable for light sensitive species as light would pose an obstacle to movement and reduce foraging ability.

The proposed landscaping design by Landmark Designs Ltd. (see accompanying planning documentation) will provide additional planting along the boundary of the proposed development site and St. Patrick's Church (former). The proposed green area when crossed reference with the night lighting plan shows that a dark zone will be maintained, and this should support bat activity. The north western area of the proposed development site will provide bat habitat and foraging area. St. Joseph's cemetery will remain a dark zone according to the Sabre electrical services Ltd., night lighting map.

5.0 Impact of the proposed development

The proposed development will bring about a change in land management at the proposed development site. Grassland, hedgerows, treelines and drainage ditch will be replaced by buildings and artificial surfaces, flower beds and borders and scattered trees and parkland. In combination the proposed SuDS measures and the proposed landscaping plan will develop amenity areas and areas to benefit wildlife. Identification of the extent of light spillage on open spaces has the potential to develop as part of the Green Infrastructure of Kilcock.

There will be loss of habitat for the Hare but the agricultural lands to the north of the proposed development site will provide more suitable habitat for the species. For local bat species there should be suitable bat foraging habitat. As the night darkens the proposed development site will provide areas suitable for foraging when dark zone areas will be more distinguished. Initial night-time activity will probably centre around the large mature treelines along the proposed development site boundaries and the cemetery.

5.1 During construction

The proposed development will be constructed on a phased basis. Phase 1 will be completed first with the remaining phases in numerical order. Phase 1 will also include the construction of the foul pump station and all ancillary works. Construction of the distributor road will be undertaken in phase 2.

Construction will commence on the northern boundary along with installation of wastewater infrastructure. The distributor road constructed with phase 2 will open up the southern section of the site.

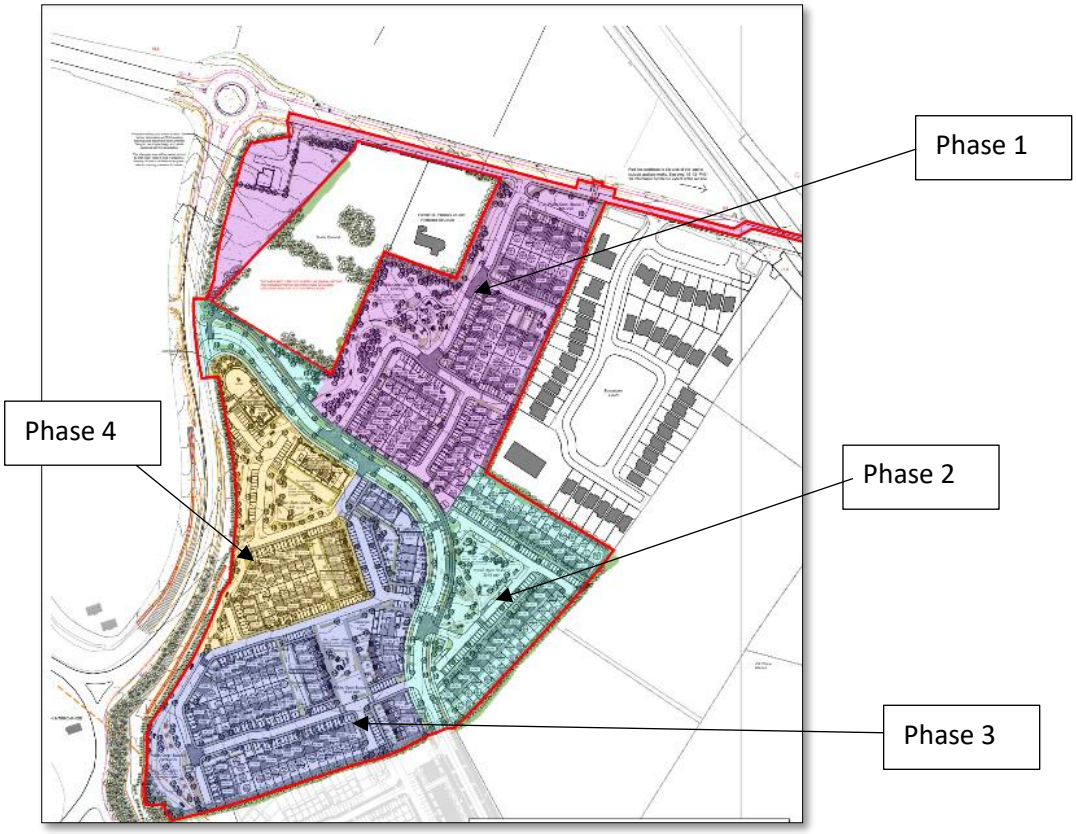

Fig. 13 A visual overview of the phases (source Paul Byrne Architects).

5.2 Post construction

Incorporation of the principles of Green infrastructure will minimise the impact at the proposed development site post construction. The working definition of Green Infrastructure is

> *A strategically planned and managed network featuring areas with high quality biodiversity (uplands, wetlands, peatland, rivers and coast) farmed and wooded lands and other green spaces that conserve ecosystem values which provide essential services to society (Comhar 2010).*

From an ecological perspective Green Infrastructure should include wildlife corridors that link or join into one another and also stepping stone habitat where nature is provided with a break in the landscape as it travels through urban areas.

Within the Kilcock Local Area Plan green infrastructure includes gardens and institutional grounds, green corridors for example the Royal Canal, Rye Water River, railway embankments road and cycling routes, natural and semi-natural sites, archaeological and historic sites and sites of natural or ecological, function spaces namely flood storage and sustainable drainage schemes and finally buildings and hard surfaces incorporating green roofs, green walls and planters. Wildlife corridors provide a connection between habitats preventing fragmentation but also a safe commuting zone for wildlife between sites. Wildlife corridors can be a very important source of food for foraging wildlife. The greater the length of corridor, the more connections to a diversity of habitats the greater species diversity that the corridor will support.

Surface water management measures will include permeable paving, tree pits and swales. These will have multiple benefits including retention of water to support vegetation and will benefit trees by irrigating the root zones. The proposed swales could through succession lead to a diversity of vegetation. Plants with a preference for wetter habitats will colonise the base of the swale and grass will colonise the slopes.

Reviewing the proposed landscape map, wildlife corridors and stepping stone habitats can be identified. The wildlife corridor on the western boundary of the eastern section of proposed development site will be especially important for bats that may be roosting in the former church. The stepping stone habitats will provide nocturnal species will an opportunity to access garden zones where planting schemes may support night time insects. Incorporation of swales will lead to the temporary storage of surface water run-off in times of heavy rainfall. These areas will lead to the creation of damper wetter areas that will allow the colonisation with wet grassland vegetation and the creation of alternative habitats which may suit amphibians.

The proposed lighting plan for the proposed development identifies the spillage of light from the proposed development. All lights will project downwards with no light emitting into the night sky. This will create a dark zone above the light stands. The wildlife corridors and stepping stone habitats will create dark zones across the proposed development site post construction. As the landscaping matures the vegetation will screen some areas from the

street lighting creating further opportunities from wildlife.

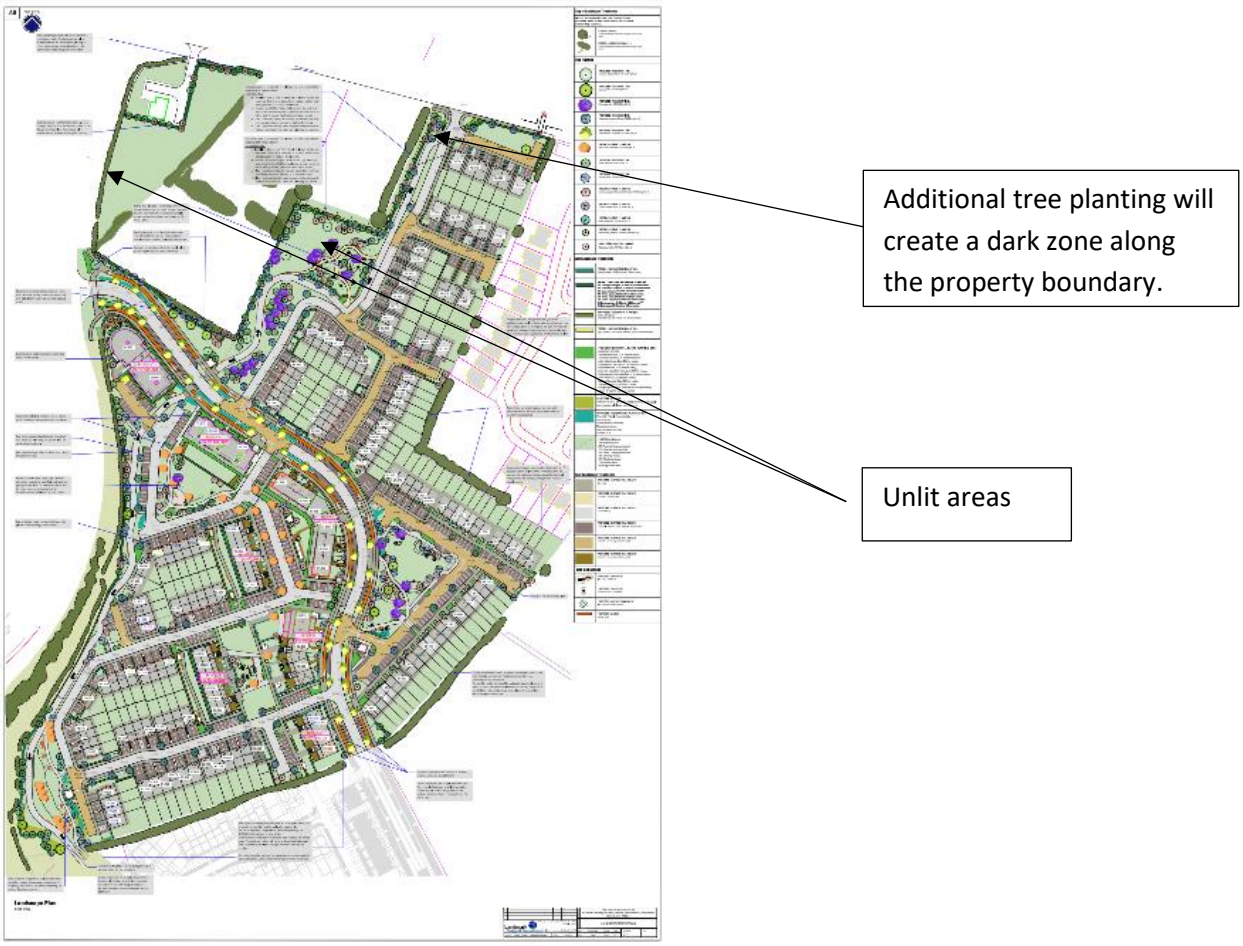

Fig. 14 Proposed landscaping plan by Landmark Design Ltd.

6.0 Recommendations to minimise the impacts on the receiving environment.

The following recommendation have been provided to minimise the impact of the proposed development on the surrounding environment.

- Measures should be undertaken to avoid silt, soil and sediment entering local watercourses during the construction phase.
- On installation of surface water and storm water management systems appropriate certification or compliance documentation should be provided to ensure the infrastructure is compliant with environmental and construction standards.
- During construction the Contractor should be compliant with the Construction Environmental Management Plan as agreed prior to commencement of construction.
- Where possible top soil stripped from the proposed development site should be used as part of the landscaping regime and or as a final soil finish on gardens.
- Landscaping should be undertaken as proposed to increase the amenity value and creation of opportunity for wildlife of the development post construction.

- Lighting should provide security for humans but should be designed with nocturnal activity in mind. Lighting should consider location of light stands, creation of dark zones around tree canopies and hedgerows, use of appropriate light temperature for light fittings and implement dimming policies as undertaken by Local Authorities.
- Lights should not be positioned that will lead to the lighting up of the tree canopy. Light spillage (categorised as light that shines onto an unintended area), light glare (commonly associated with powerful lights such as flood lights making the illuminated area difficult to see) and sky glow (the orange light glow evident in the sky over towns and cities) should be minimised (Cork County Council, 2020).
- Prior to felling and tree maintenance by an Arborist, mature trees should be inspected for signs of bat activity, for example oil staining around hollows. Decaying or broken branches can be suitable bat habitats.
- Rewilding of areas should be reviewed. The no mow May policy provides vital wildflowers to support wildlife however grass that grows too tall and too strong can crowd out later flowering wildflowers. No mow May should not extend to July and August. There needs to be a succession of flowering plants through the season.
- **On grant of planning cctv should be placed on the proposed development site to ensure that large mature trees are not felled (by others) prior to commencement of construction. Anecdotal evidence indicates some opportunistic felling of trees by unconnected parties on development sites prior to commencement of work on site. Treelines and hedgerow to be kept could be clearly identified so that these sections will be retained.**

7.0 Conclusion

The proposed development will be constructed on lands zoned as New Residential (Kilcock Local Area Plan 2015-2021). The proposed lighting plan has identified dark zones to support local wildlife especially for nocturnal species such as bats. The proposed landscaping plan proposes to increase planting to create amenity space for residents and improve the existing wildlife corridors in line with the Green Infrastructure initiative. Incorporation of attenuation and swales will ensure surface water percolates to ground recharging groundwater sources and also support planting schemes in the form of tree pits at the proposed development post construction.

Assessment of the elements of the proposed development show that every effort has been made to minimise the impact of the proposed development on the receiving environment.

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