Chapter 5

Biodiversity

5.0 BIODIVERSITY

5.1 INTRODUCTION

The Biodiversity chapter has been prepared by Altemar Limited. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI). The programme of work in relation to biodiversity assessment was designed to identify and describe the existing ecology of the area and detail designated sites, habitats or species of conservation interest that could potentially be impacted by the proposed development. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements, and designs mitigation measures to alleviate identified impacts.

A separate Natura Impact Statement in accordance with the requirements of Article 6(3) of the EU Habitats Directive, has been produced to identify potential impacts of the development on European (Natura 2000) sites, Annex species or Annex habitats. It concludes that " *In a strict application of the precautionary principle, it has been concluded that effects on the Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA are likely from the proposed works in the absence of mitigation measures, as a result of direct hydrological connection to the Skerries Islands SPA via the onsite drainage ditch and Mill Stream (Skerries_10), potential downstream impacts from the project during the reprofiling, landscaping and drainage works and from noise impacts on the qualifying interests of Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA, during construction. For this reason, a NIS was prepared to provide the necessary information to enable the competent authority to assess whether the proposed project, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites conservation objectives, will adversely affect the integrity of the European Site. All other European sites were screened out at initial screening.*
Following the implementation of the mitigation measures outlined, the construction and presence of this development will not have adverse effects on the integrity of Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA, alone in combination with other plans and projects.

5.1.1 Background to Altemar

Altemar Ltd. is an established environmental consultancy that is based in Greystones, Co. Wicklow that has been in operation in Ireland since 2001. Bryan Deegan MCIEEM is the Managing Director of Altemar Ltd. and holds a M.Sc. Environmental Science, BSc (Hons.) in Applied Marine Biology and a National Diploma in Applied Aquatic Science. He has over 27 years' experience as an environmental consultant in Ireland and was the ecologist for all aspects of this project. Previous projects where Altemar were the lead project ecologists include the Lidl Ireland GmbH regional distribution centres in Newbridge and Mullingar, 18 airside projects for daa at Dublin Airport and 7 fibre optic cable landfalls in Ireland including the New York to Killala cable project in 2015. Bryan Deegan is the sole "External Expert" that provides support to Inland Fisheries Ireland in relation to environmental assessment.

5.2 STUDY METHODOLOGY

A pre-survey biodiversity data search was carried out. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6 inch maps and satellite imagery. A habitat survey of the site was undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Field surveys were carried out as outlined in Table 5.1. All surveys were carried out in the appropriate seasons.

Table 5.1. Field Surveys

Area	Surveyors	Survey Dates
Terrestrial Ecology/ Aquatic Ecology	Bryan Deegan (MCIEEM) of Altemar	28th May 2020 12th September 2020 12th August 2021
Bat Survey	Bryan Deegan (MCIEEM) of Altemar	28th September 2019/ 12th September 2020
Mammal /Wintering Bird/ Amphibian Survey	Bryan Deegan (MCIEEM) of Altemar	17th March 2020/ 3rd March 2021

Desk studies were carried out to obtain existing biodiversity information. The assessment also extends beyond the immediate development area to include those species and habitats that are likely to be impacted upon by the project. There is a drainage ditch within the proposed development site and there are proposed works that will impact upon this drainage ditch. The potential zone of influence (ZOI) was set at a radius of 2km from the proposed Project. Where there was a potential for the ZOI to be influenced by natural biodiversity corridors e.g. rivers or woodland these were also take into account and the assessment was extended Details of the proposed development are provided in Chapter 2 of this EIAR. The proposed layout, drainage strategy and landscape design were reviewed to inform this assessment. Further, Chapter 2, Development Description, Chapter 5, Land and Soils and Chapter 6 Water of this EIAR were reviewed.

5.2.1 Proximity to designated conservation sites and habitats/species of conservation interest

The designated conservation sites within 15km of the site were examined for potential impact. Sites beyond 15km had no direct or indirect pathways. This assessment included sites of international importance; Natura 2000 sites (Special Areas of Conservation (SAC), candidate Special Areas of Conservation (including candidate sites of Community importance and sites of Community importance) (cSAC), Special Protection Areas (SPA) and candidate Special Protection Areas (cSPA)) and Ramsar sites and sites of National importance ((Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA). Up to date GIS data (2020 NPWS data shapefiles) were acquired and plotted against the proposed development site. A data search of rare and threatened species within 10km of the proposed site (GIS shapefile), which in our professional opinion is deemed appropriate, was provided by NPWS. Additional information on rare and threatened species was researched through the National Biodiversity Data Centre maps. Works are proposed to the drainage ditch on site and it is considered that there is a direct hydrological pathway to Natura 2000 sites (Skerries Islands SPA) at low tide, as the drainage ditch enters the intertidal environment that extends to the Skerries Island SPA. As a result, an AA Screening Report and a Natura Impact statement was carried out for the project and is included with the supporting documentation for this application.

5.2.2 Terrestrial and Avian Ecology

A pre-survey data search was carried out. This included a literature review to identify and collate relevant published information and ecological studies previously conducted and comprised of information from the following sources; the National Parks and Wildlife Service, NPWS Rare and Protected Species Database, National Biodiversity Data Centre, EPA WMS watercourses data, in addition to aerial, 6 inch, satellite imagery. Following the desktop study, walk-over assessments of the site were carried out on the 28th September 2019, 17th March 2020, 28th May 2020, 12th September 2020 and 12th August 2021. The presence of mammals is indicated principally by their signs, such as resting areas, feeding signs or droppings - though direct observations are also occasionally made. Habitat mapping was carried out according to Fossitt (2000) using AcrGIS 10.5 and displayed on Bing satellite imagery or street mapping. Any rare or protected species or habitats were noted. A comprehensive Wintering Bird Assessment was also carried out on numerous dates during 2020 and 2021 (Appendix 5.3). As part of the fieldwork an invasive species assessment was carried out. Birds noted on site were classed based on the Birds of Conservation Concern In Ireland classification, of red, amber and green, which is based on an assessment of the conservation status of all regularly occurring birds on the island of Ireland.

5.2.3 Bat Fauna

Onsite trees were inspected for bats and/or their signs using a powerful torch (141 Lumens) – Petzl MYO RXP. The site survey was supplemented by a review of Bat Conservation Ireland's (BCIreland) National Bat Records Database. Bat detector and emergent surveys were carried out on the 28th September 2019 and on the 12th September 2020 (Appendix 5.1).

5.2.4 Rating of Effects

The terminology for rating impacts is derived from the EPA Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (2017) (Table 5.2)

Table 5.2 Impact description terminology

- **Magnitude of impact and typical descriptions.**

Magnitude of impact (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Quality of Potential Impacts on Biodiversity

	Impact Description
Negative /Adverse Impact	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

	Impact Description
Neutral Impact	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Impact	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Significance of Impacts

Significance of Impact	Description of Potential Impact
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable2 changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An impact which obliterates sensitive characteristics.

Duration of Impact

Duration of Impact	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration

Probability of Effects

Probability of Impact	Description
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

5.2.5 Difficulties Encountered

No difficulties were encountered in relation to the preparation of the Biodiversity report. The bat surveys were undertaken within the active bat period (April to September) and a detector survey was possible. Insects were observed in flight during the bat survey.

5.2.6 Consultation.

Consultation was carried out with the project team in relation to the preparation of the Landscape strategy and Construction Environmental Management Plan (CEMP). Consultation with IFI was also carried out in relation to the drainage ditch on site (Appendix 5.2).

5.3 THE EXISTING RECEIVING ENVIRONMENT

5.3.1 Zone of Influence

The potential ZOI of the project was deemed to be the area within a radius of 2km from the proposed Project. Where there was a potential for the ZOI to be influenced by natural biodiversity corridors e.g. rivers or woodland these were also take into account and the assessment was extended. There is potential for downstream impacts on the existing drainage ditch and watercourse and the Skerries Islands SPA in the absence of mitigation measures. The site outline is shown in figure 5-1.

5.3.2 Designated sites

As can be seen from Figures 5-2 (SAC's within 15km), 5-3 (SPA's within 15km), 5-4 (NHA and pNHA within 15km), 5.5 (Watercourses proximate to the site.).

There are three European sites (Rockabill to Dalkey Island SAC – 2.8km, Skerries Islands SPA – 1.0km, Rockabill SPA – 3.4km) within 5km and one National conservation site within one kilometre of the proposed development site (Skerries Islands NHA).

The distance and details of all the conservation sites within 15km of the proposed development are seen in Table 5.3a and Table 5.3b. It is important to note that the nearest site with a direct hydrological pathway downstream is a minimum of 1.0 Km. Significant settlement, dilution and mixing would occur within the marine environment prior to reaching the designated sites. However, at low tide there is potential pathway to Skerries Island SPA from the water entering the intertidal from Mill Stream and the drainage ditch on site.

Table 5-3a. European sites within 15km of the proposed development

European Site	Distance	Direct Hydrological / Biodiversity Connection
Special Areas of Conservation		
Rockabill to Dalkey Island SAC	2.8 km	**No**
Rogerstown Estuary SAC	5.4 km	**No**
Lambay Island SAC	9.3 km	**No**
Malahide Estuary SAC	9.7 km	**No**
Special Protection Areas		
Skerries Islands SPA	1.0 km	**Yes, potentially at low tide**
Rockabill SPA	3.4 km	**No**
Rogerstown Estuary SPA	5.4 km	**No**
Lambay Island SPA	8.9 km	**No**
Malahide Estuary SPA	10.3 km	**No**
River Nanny and Shore SPA	11.3 km	**No**

Table 5-3b. Nationally designated sites within 15km of the proposed development

Designation	Site Name	Distance	Direct Hydrological / Biodiversity Connection
NHA	Skerries Islands	1.0 km	**Yes, potentially at low tide**
pNHA	Loughshinny Coast	1.5 km	**No**
pNHA	Rogerstown Estuary	5.5 km	**No**
pNHA	Knock Lake	5.7 km	**No**
pNHA	Bog of the Ring	6.2 km	**No**
pNHA	Rockabill Island	7.4 km	**No**
pNHA	Portraine Shore	8.2 km	**No**
pNHA	Lambay Island	9.3 km	**No**
pNHA	Malahide Estuary	9.7 km	**No**
pNHA	Laytown Dunes / Nanny Estuary	13.3 km	**No**

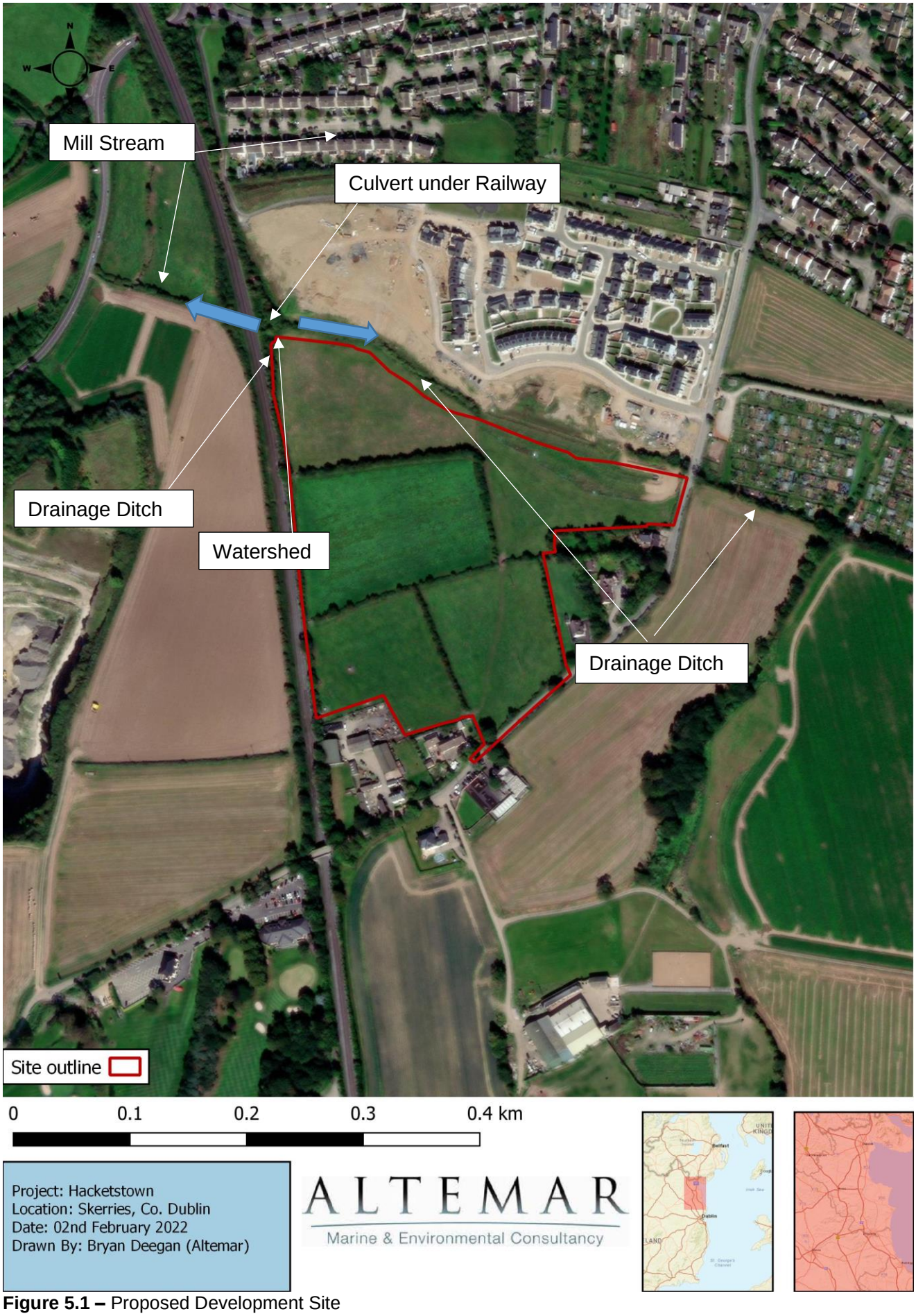

Figure 5.1 – Proposed Development Site

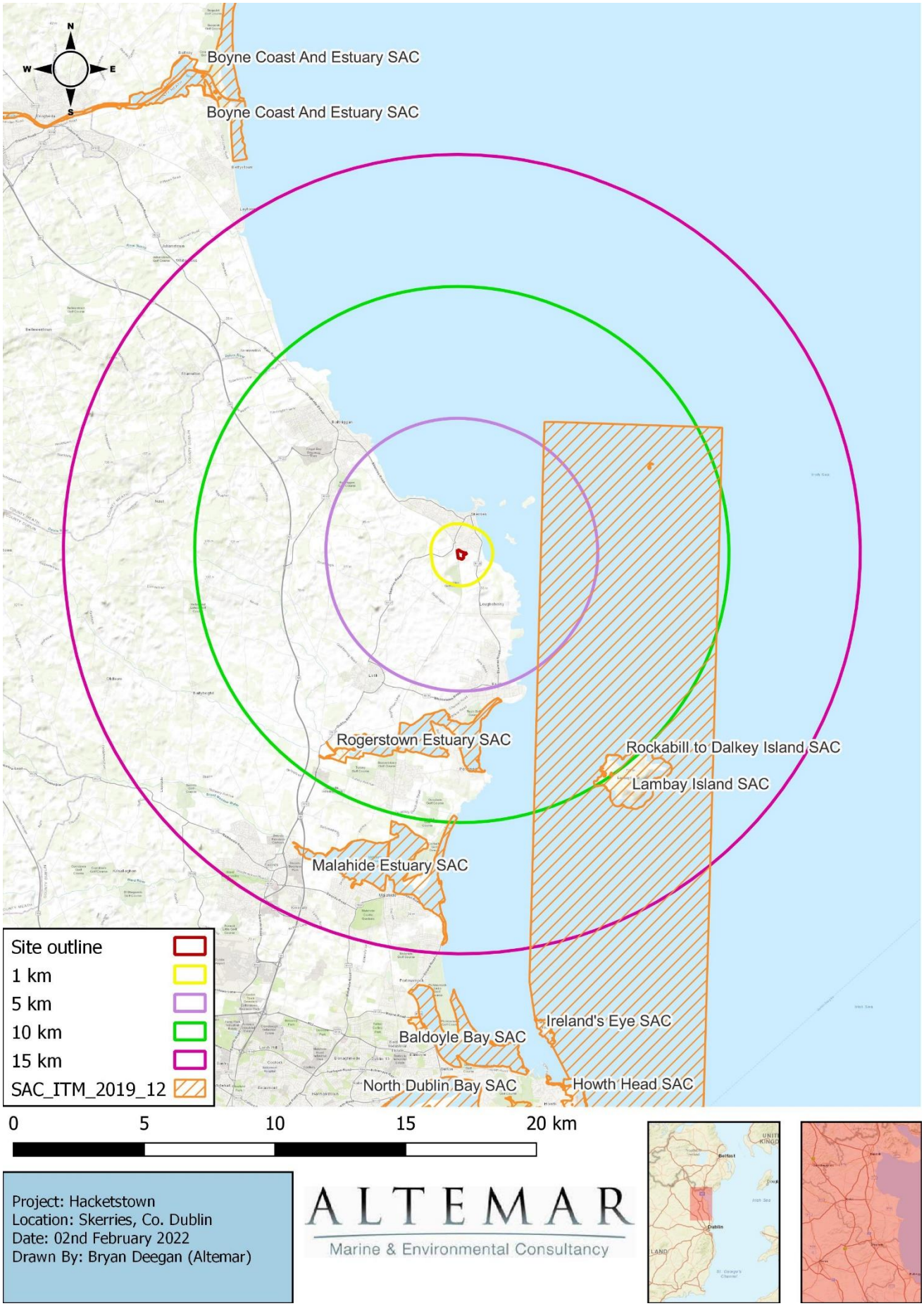

Figure 5.2 – Special Areas of Conservation within 15km.

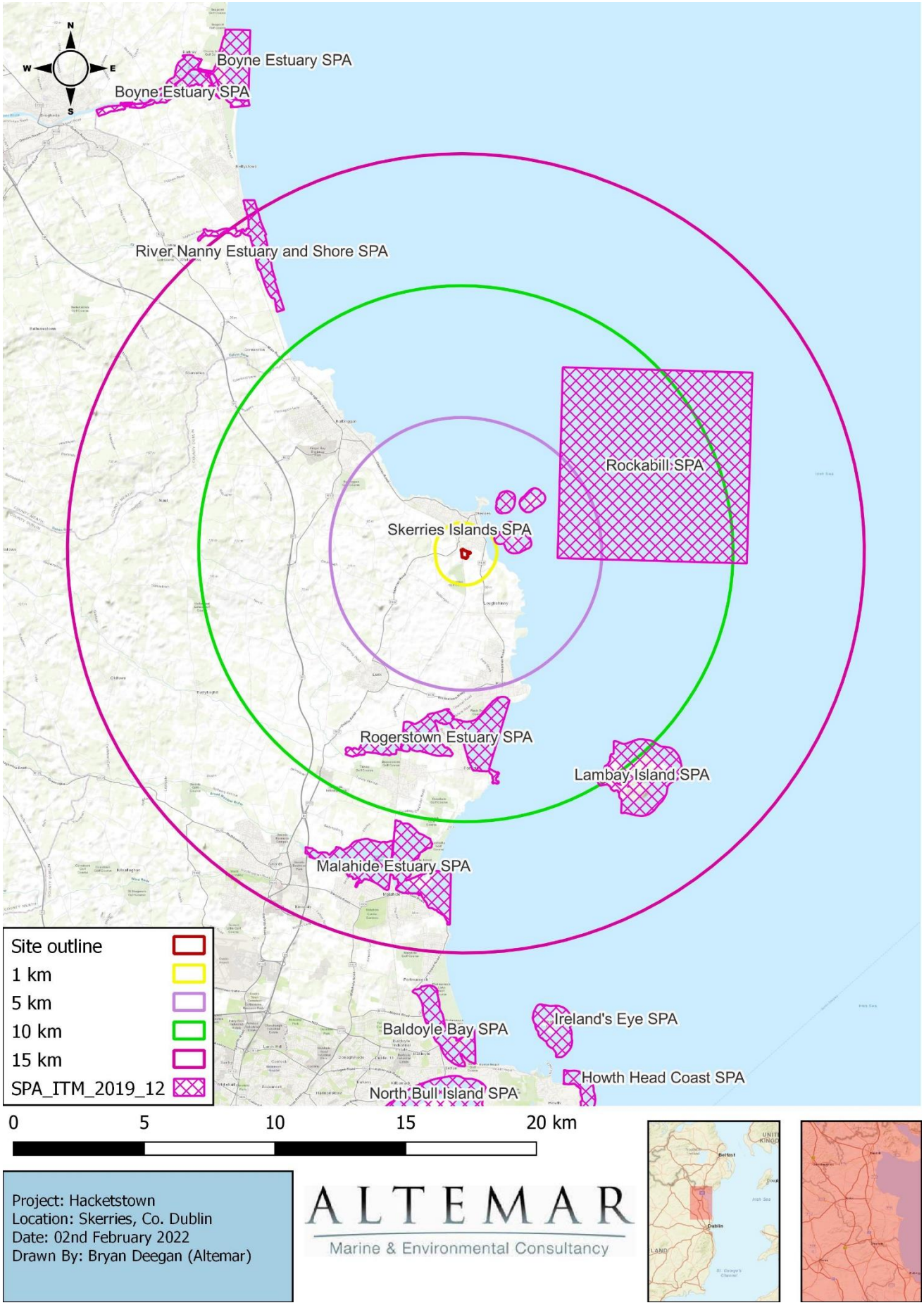

Figure 5.3– Special Protection Areas within 15km.

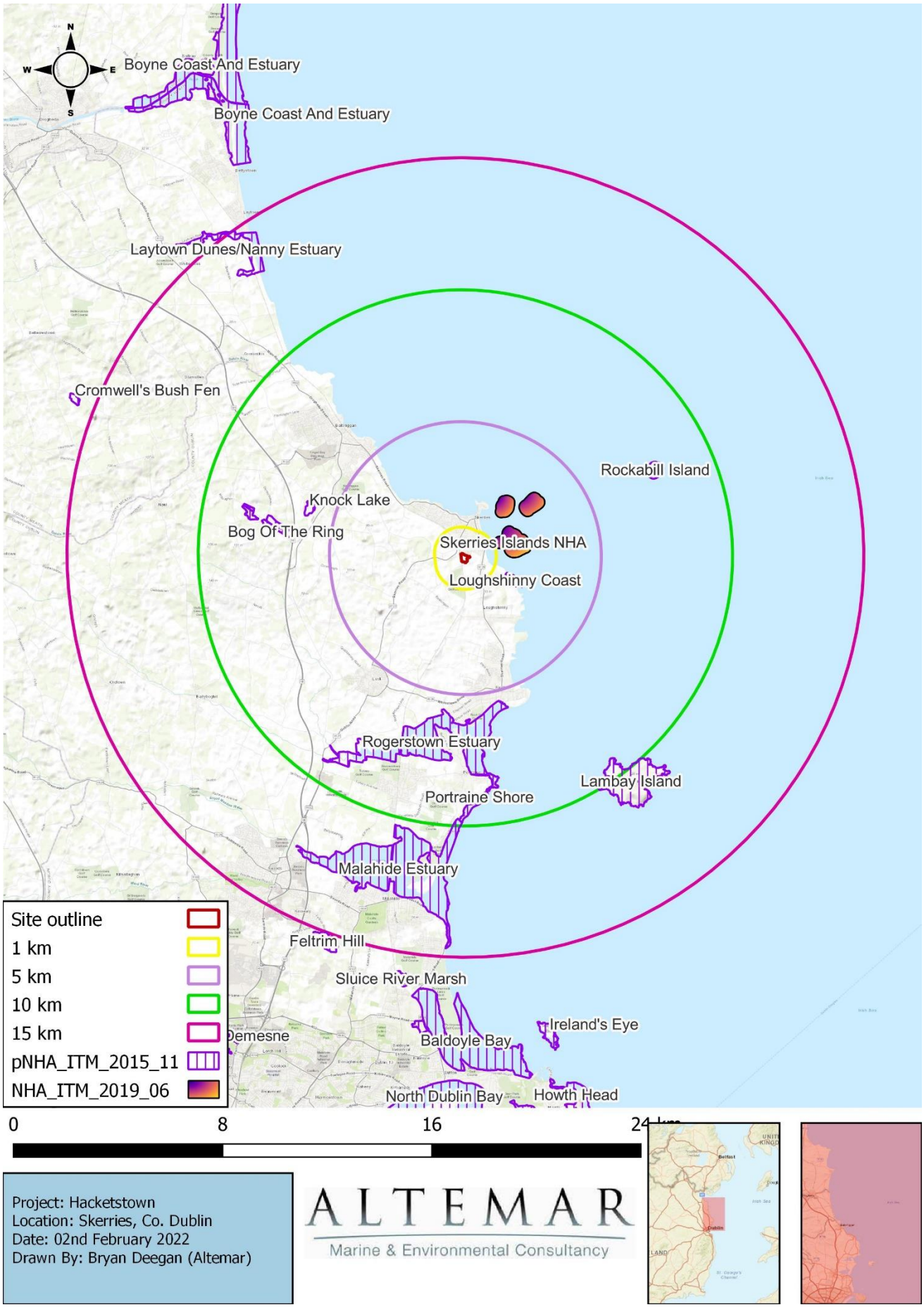

Figure 5.4 – Natural Heritage Areas and proposed Natural Heritage Areas within 15km**.**

Figure 5.5 – Watercourses (drainage ditch on site entering the Mill Stream and Irish Sea directly).

5.3.3 Species data.

It should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records as fine resolution. Species recorded within the 10km grid include are seen in Table 5.4.

Table 5.4a. National Biodiversity Data Centre Records within the 10km^2 grid.

The following Protected Species were noted under the National Biodiversity Data Centre records as having been sighted within the 10km^2 grid (grid reference O25):
European Otter *(Lutra lutra),* Common Porpoise *(Phocoena phocoena),* Common Seal *(Phoca vitulina),* Grey Seal *(Halichoerus grypus),* Minke Whale *(Balaenoptera acutorostrata),* Northern Bottlenose Whale *(Hyperoodon ampullatus),* Striped Dolphin *(Stenella coeruleoalba),* Brown Long-eared Bat *(Plecotus auritus),* Daubenton's Bat *(Myotis daubentonii),* Lesser Noctule *(Nyctalus leisleri),* Nathusius's Pipistrelle *(Pipistrellus nathusii),* Pipistrelle *(Pipistrellus pipistrellus sensu lato),* Soprano Pipistrelle *(Pipistrellus pygmaeus),* Common Frog *(Rana temporaria),* Pine Marten (*Martes martes),* Smooth Newt *(Lissotriton vulgaris),* Eurasian Marsh Harrier *(Circus aeruginosus)*, White-tailed Eagle *(Haliaeetus albicilla),* Common Lizard *(Zootoca vivipara),* Eurasian Badger *(Meles meles),* Eurasian Pygmy Shrew *(Sorex minutus),* West European Hedgehog *(Erinaceus europaeus),* Great Northern Diver *(Gavia immer),* Little Egret *(Egretta garzetta),* Little Gull *(Larus minutus),* Peregrine Falcon *(Falco peregrinus),* European Golden Plover *(Pluvialis apricaria),* Greater White-fronted Goose *(Anser albifrons),* Arctic Tern *(Sterna paradisaea),* Bar-tailed Godwit *(Limosa lapponica)*, Common Kingfisher *(Alcedo atthis),* Common Tern *(Sterna hirundo),* Corn Crake *(Crex crex),* Dunlin *(Calidris alpina),* Hen Harrier *(Circus cyaneus),* Little Tern *(Sternula albifrons),* Mediterranean Gull *(Larus melanocephalus),* Merlin *(Falco columbarius),* Red-throated Diver *(Gavia stellata),* Ruff *(Philomachus pugnax),* Sandwich Tern *(Sterna sandvicensis),* Short-eared Owl *(Asio flammeus),* Whooper Swan *(Cygnus cygnus),* Roseate Tern *(Sterna dougallii),* Rock Pigeon *(Columba livia),* Common Pheasant *(Phasianus colchicus),* Common Wood Pigeon *(Columba palumbus),* Mallard *(Anas platyrhynchos),* Grey Partridge *(Perdix perdix),* Common Coot *(Fulica atra),* Common Pochard *(Aythya ferina),* Eurasian Teal *(Anas crecca),* Eurasian Wigeon *(Anas penelope),* Northern Pintail *(Anas acuta),* Tufted Duck *(Aythya fuligula),* Jack Snipe *(Lymnocryptes minimus),* Common Snipe *(Gallinago gallinago)*, Eurasian Woodcock (*Scolopax rusticola),* Northern Shoveler *(Anas clypeata)*, Gadwall *(Anas strepera),* Long-tailed Duck *(Clangula hyemalis),* Red-breasted Merganser *(Mergus serrator)*, Common Scoter *(Melanitta nigra),* Greater Scaup *(Aythya marila),* Common Goldeneye *(Bucephala clangula),* Eurasian Curlew *(Numenius arquata),* Northern Lapwing *(Vanellus vanellus),* Barn Swallow *(Hirundo rustica),* Barnacle Goose *(Branta leucopsis),* Black Guillemot *(Cepphus grylle)*, Black-tailed Godwit *(Limosa limosa),* Brent Goose *(Branta bernicla)*, Common Grasshopper Warbler *(Locustella naevia),* Common Greenshank *(Tringa nebularia)*, Common Guillemot *(Uria aalge),* Common Kestrel *(Falco tinnunculus),* Common Linnet *(Carduelis cannabina),* Common Sandpiper *(Actitis hypoleucos)*, Common Shelduck *(Tadorna tadorna),* Common Starling *(Sturnus vulgaris)*, Common Swift *(Apus apus),* Eurasian Oystercatcher *(Haematopus ostralegus)*, Eurasian Tree Sparrow *(Passer montanus),* European Shag *(Phalacrocorax aristotelis)*, Great Black-backed Gull *(Larus marinus),* Great Cormorant *(Phalacrocorax carbo)*, Great Crested Grebe *(Podiceps cristatus),* Great Skua (*Stercorarius skua)*, Grey Plover *(Pluvialis squatarola),* House Martin *(Delichon urbicum)*, House Sparrow *(Passer domesticus),* Lesser Black-backed Gull *(Larus fuscus)*, Lesser Whitethroat *(Sylvia curruca),* Little Grebe *(Tachybaptus ruficollis),* Manx Shearwater *(Puffinus puffinus),* Mew Gull *(Larus canus),* Mute Swan *(Cygnus olor),* Northern Gannet *(Morus bassanus),* Northern Goshawk *(Accipiter gentilis),* Northern Wheatear *(Oenanthe oenanthe),* Razorbill *(Alca torda),* Red Kite *(Milvus milvus),* Ringed Plover *(Charadrius hiaticula),* Sand Martin *(Riparia riparia),* Sky Lark *(Alauda arvensis),* Slavonian Grebe *(Podiceps auritus),* Spotted Crake *(Porzana porzana),* Spotted Flycatcher *(Muscicapa striata),* Stock Pigeon *(Columba oenas),* Water Rail *(Rallus aquaticus),* Barn Owl *(Tyto alba),* Black-headed Gull *(Larus ridibundus),* Common Quail *(Coturnix coturnix),* Common Redshank *(Tringa totanus)*, Herring Gull *(Larus argentatus)*, Red Knot *(Calidris canutus)*, Twite *(Carduelis flavirostris)*, Yellowhammer *(Emberiza citrinella)*, Black-legged Kittiwake *(Rissa tridactyla).*

No species of conservation importance have been noted within the site outline from the National Biodiversity Data Centre.

Table 5-4b Species found by NPWS within 10km.

Green-winged Orchid (*Orchis morio*), Henbane (*Hyoscyamus niger*), Basil Thyme (*Clinopodium acinos*), Red Hemp-Nettle (*Galeopsis angustifolia*), Meadow Barley (*Hordeum secalinum*), Oysterplant (*Mertensia maritime*), Hairy Violet (*Viola hirta*), Irish Hare (*Lepus timidus subsp. Hibernicus*), Viviparous Lizard (*Lacerta vivipara*), Grey Seal (*Halichoerus grypus*), Common Frog (*Rana temporaria*), Rough Poppy (*Papaver hybridum*), Corncockle (*Agrostemma githago*), Blue Fleabane (*Erigeron acer*), Small Cudweed (*Filago minima*), Common Lizard (*Zootoca vivipara*), Rib-leaf Moss (*Tortula atrovirens*), Corn Chamomile (*Anthemis arvensis*), Irish Stoat (*Mustela erminea subsp. Hibernica*), Shepherd's-needle (*Scandix pecten-veneris*), West European Hedgehog (*Erinaceus europaeus*)

The closest species recorded by NPWS to the site was the Green-winged Orchid (*Orchis morio*) of which there were four separate sightings in a grid area approximately 0.7 km south-east and a single sighting of Grey Seal (*Halichoerus grypus*) at 1.5 km south east of the site. No species of conservation importance have been noted on site by NPWS.

5.3.4 Site Survey

Site assessments were carried out on the 28th September 2019, 17th March 2020, 28th May 2020, 12th September 2020 and the 12th August 2021. Habitats within the proposed development site were classified according to Fossitt (2000) based on the 12th August 2021 assessment (Figure 5.6) and the species noted within each habitat are described. Bat surveys, that included a bat emergent/detector survey were also carried out on the 28th September 2019 and the 12th September 2020.

The site contains of habitats that are bisected by a drainage ditch. The habitats to the north and in the vicinity of the drainage ditch appear to have been disturbed in the recent past while the habitats to the south of the ditch are more traditional improved agricultural grassland and hedgerow habitats. The site is located proximate to and overlooked by a recently developed housing estate. The habitats to the north of the drainage ditch would be considered relatively poor in in biodiversity consisting primarily of the recolonising species. Few features of biodiversity value are located on site with the exception of the hedgerows, in poor condition, and the drainage ditch on site. Nonetheless these features are currently being used for foraging bats (Appendix 5.1) and frogs were noted on site proximate to the drainage ditch. Habitats observed on site, based on Fossitt habitat mapping (Figure 5.6) are detailed below:

WL1- Hedgerows

Hedgerows are located along the drainage ditch (Plate 1) and in the vicinity of the embankment area. Species including elder (*Sambucus nigra)*, blackthorn (*Prunus spinosa)*, hawthorn *(Crataegus monogyna),* holly *(Ilex aquifolium),* dog-rose *(Rosa canina),* bramble *(Rubus fruticosus agg.),* ash *(Fraxinus excelsior),* ivy *(Hedera helix),* honeysuckle *(Lonicera periclymenum),* cleavers *(Galium aparine)* butterfly-bush *(Buddleja davidii),* hedge bindweed *(Calystegia sepium),* willows *(Salix sp) and wild carrot (Daucus carota).* As seen in Appendix 5.1, bats were observed foraging along several of the hedgerows.

Plate 1. WL1-Hedgerows.

FW4- Drainage Ditch

The onsite drainage ditch is located within the site outline and flows eastwards. It is proposed to cross the drainage ditch with an access road. The upstream part of the drainage ditch was tunnelled by hedgerows on both sides and had a paucity of biodiversity. Where the hedgerows were no longer present the ditch was choked with aquatic vegetation consisting mainly of bulrush (*Typha latifolia*), lesser duckweed (*Lemna minor*) and water-cress (*Nasturtium officinale*). On the 12th August 2021 a further assessment of the watercourse was carried out downstream of the proposed works. The watercourse is heavily silted, sluggish and choked with debris and vegetation in numerous locations. A larger watercourse enters the drainage ditch 100m downstream from the south and increases the flow. No species of conservation importance or instream fish fauna were noted in the watercourse. Consultation was carried out with Inland Fisheries Ireland in August 2021 (Appendix 5.2). As seen in Appendix 5.2 Inland Fisheries Ireland stated that "*On inspection of the stream at Hacketstown, Skerries on August 19th 2021, IFI conclude that while it is a stream and can be identified on the OSI 6" map, it has little or no significant fisheries value. However, we welcome the 10m buffer zone of the stream which will protect it from the impact of adjacent land uses and maintain biodiversity*."

Plate 2. Drainage Ditch

Plate 3. Drainage ditch downstream of the proposed development site (August 2021)

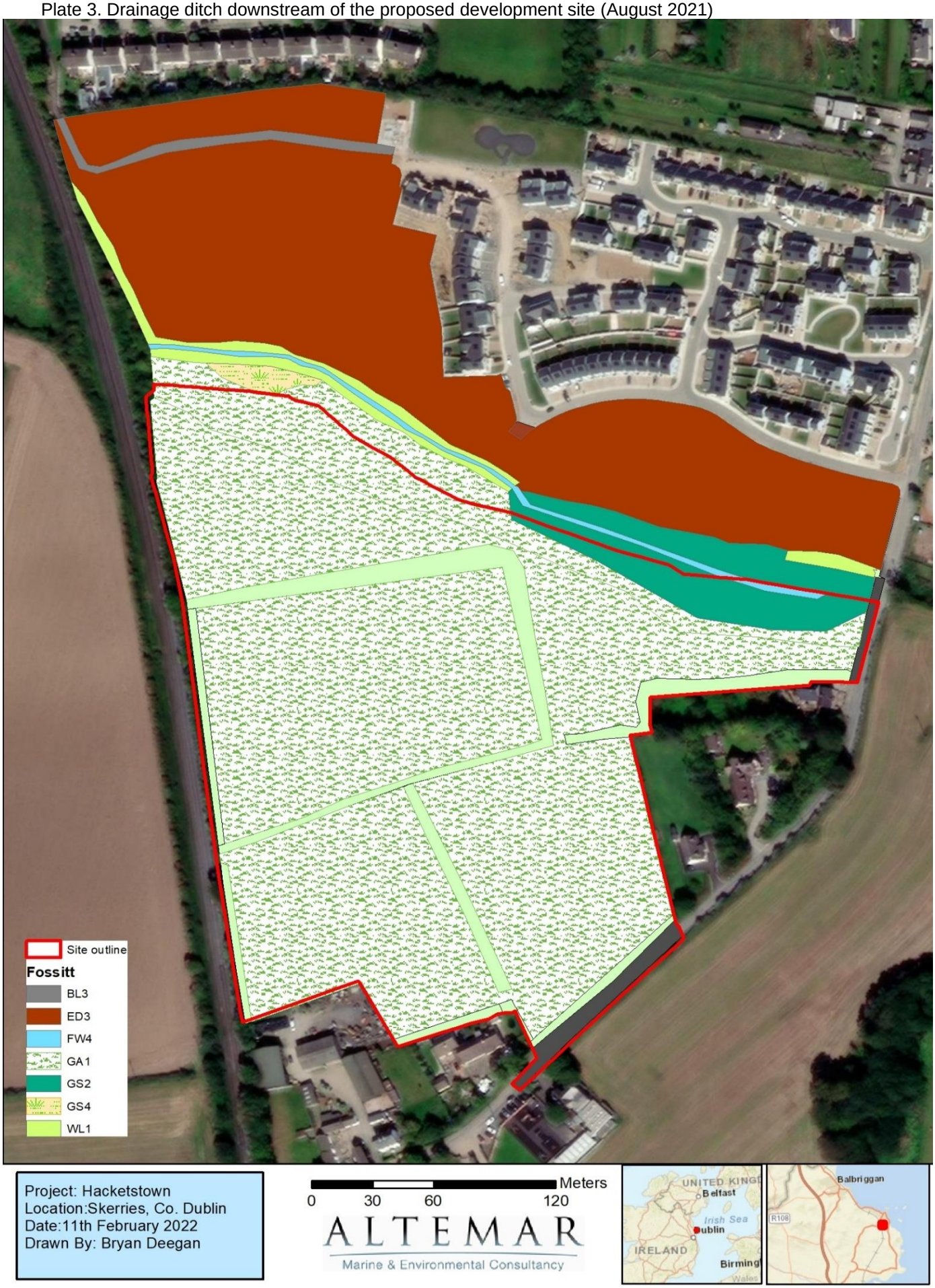

Figure 5.6. Fossitt Habitats on site (See habitat descriptions for the explanation to the Fossitt codes)

GA1-Improved Agricultural Grassland.

Improved agricultural grassland is located in the southern and central portions of the site. The fields appear to have been fertilised and cut, but no livestock were present on site. On all site visits the sward was relatively long, but not unkempt (Figure 5.6). Biodiversity in these areas was poor and the fields were dominated by, clover (*Trifolium repens*), plantains (*Plantago spp*.), thistles (*Cirsium arvense, C. vulgare*), creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum sp*p.), docks (*Rumex spp*.). In one area of the site near the drainage ditch (on the edge of the northern boundry) wet grassland was noted, with rushes (*Juncus* spp) present. It was within this area that frogspawn was noted during the March 2020 survey.

Plate 5. Improved Agricultural Grassland (GA1)

Plate 5. Wet Grassland (GS4)

GS2-Dry Meadows and Grassy Verges

Significant reprofiling works appear to have been previously undertaken on the eastern end of the drainage ditch. This area has been planted and is now recolonised. Species noted included rape (*Brassica napus*), wild teasel (*Dipsacus fullonum*), oxeye daisy (*Leucanthemum vulgare*), great willowherb (*Epilobium hirsutum*), rosebay willowherb (*Chamaenerion angustifolium*), thistles (*Cirsium arvense, C. vulgare*), common ragwort (*Senecio jacobaea*), perennial sowthistle (*Sonchus arvensis*), creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum spp*.), docks (Rumex spp.), lady's bedstraw (Galium verum), plantains (*Plantago spp*.), selfheal (Prunella vulgaris),nettle (*Urtica dioica), Alder (Alnus glutinosa)* cat's-ear (*Hypochaeris radicata*), groundsel (Senecio vulgaris), cow parsley (*Anthriscus sylvestris*), wild carrot (*Daucus carota*) and bramble (*Rubus fruticosus*). No species of conservation importance were noted.

Plate 6. GS2-Dry Meadows and Grassy Verges.

Bats
There were no seasonal or climatic constraints as surveys were undertaken within the active bat season in good weather conditions with temperatures of 13ºC and 16°C after dark. Winds were very light and there was no rainfall. No evidence of a bat roosts was found in any of the onsite trees. Emergent and detector surveys were carried out. No bats were noted emerging from onsite trees. Foraging activity of soprano pipistrelle (*Pipistrellus pygmaeus*) was noted along the hedgerows of the site.

Evaluation of Habitats
The proposed development site is primarily a series of agricultural grassland surrounded by hedgerows in addition to areas that have undergone recent construction activity and reprofiling. The drainage ditch (acting as a biodiversity corridor) and hedgerows would be seen as the most important habitats on site, not because of the species noted but, by the linear nature of the elements providing biodiversity corridors and bat foraging routes to the surrounding areas. No other habitats of conservation significance were noted within the site outline.

Plant Species
The plant species encountered at the various locations on site are detailed above. No rare or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded in the vicinity of the proposed site. No invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb, Himalayan balsam or giant hogweed were noted on site.

Terrestrial Mammals
Badgers have been noted within the 10km^2 grid by the NPWS. No badgers or badger activity was noted on site. Otters (*Lutra lutra*) activity or holts were not noted on site. No evidence of deer was noted on site. Hedgehogs

(*Erinaceus erinaceus)* have been recorded by NPWS within the 10km square. No hedgehogs were seen during the site visit, but may be present on site. No protected terrestrial mammals including those covered under Annex IV of the Habitats Directive, (with the exception of the soprano pipistrelle activity) were noted on site or in the immediate vicinity of the site. Evidence of rabbit and fox activity was noted on site.

Amphibians/Reptiles
The common frog (*Rana temporaria*) was not observed on site. However, frogspawn was noted beside the drainage ditch. There are features within the site boundary that could be important to frogs including the wet grassland and drainage ditch. The common lizard (*Zootoca vivipara*) or smooth newt (*Lissotriton vulgaris*) were not recorded on site.

Birds
No rare or bird species of significant conservation value were noted during the field assessment. No qualifying interests of nearby SPA's or red listed bird species of conservation importance were noted on site.
The following bird species were noted in the vicinity of the proposed development:

Table 5.5: Bird Species noted in the vicinity of the proposed development.

Common Name	***Scientific Name***	***Status***
Woodpigeon	*Columba palumbus*	*Green*
Wren	*Troglodytes troglodytes*	*Green*
Robin	*Erithacus rubecula*	*Green*
Blackbird	*Turdus merula*	*Green*
Blue tit	*Parus caeruleus*	*Green*
Starling	*Sturnus vulgaris*	*Green*
Great tit	*Parus major*	*Green*
Rook	*Corvus frugilegus*	*Green*
House Sparrow	*Passer domesticus*	*Amber*
Barn Swallow (not nesting)	*Hirundo rustica*	*Amber*
Jackdaw	*Corvus monedula*	*Green*
Magpie	*Pica pica*	*Green*
Pheasant	*Phasianus colchicus*	*Green*
Goldfinch	*Carduelis carduelis*	*Green*

As outlined in Appendix 5.3 "*Curlew, Brent geese and lapwing were observed travelling over the proposed development towards improved grassland to the northwest and southwest. These fields comprise short grasses such as those on the Skerries golf course, which are favourable to this species. No target species were observed foraging on the grassland of this proposed development area, which comprises semi-natural grassland with grass sward heights that are longer than that preferable by most target species*."

As outlined in Appendix 5.3 "*Following a comprehensive desk study by MKO, initial site visit and consultation, a list of "Target species" likely to occur at the site was compiled. The survey work carried out on the site was specifically designed to survey for these identified target species in accordance with relevant survey guidance, e.g. I-WeBS methods. The target species list was drawn from:*

- *Annex I of the Birds Directive,*
- *Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of*
- *likely significant effects,*
- *Red listed birds of Conservation Concern in Ireland.*
- *Species protected under the fourth schedule of the Wildlife Acts 1976-2012.*
-

All species within these categories were considered as target species for the purpose of these surveys."

5.4 POTENTIAL IMPACT OF THE PROJECT

This section of the EIAR examines the potential causes of impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The terms (Table 5.2) are derived from EPA EIAR Guidance and are used in the assessment to describe the predicted and potential residual impacts on the ecology arising from the construction and operation phases of the proposed development, including the cumulative impacts from the proposed development and other proposed projects.

The proposed development entails 345 no. residential units. There is potential for pollutants, dust and silt laden run off to enter the proximate watercourses to the site, via surface water runoff. The watercourse which flows to the east of the site, outfalls to the intertidal/marine environment proximate to Skerries Island SPA.

5.4.1 Construction Impacts

In the absence of mitigation, the construction of the proposed development, would impact on the existing ecology of the site and the surrounding area. These construction impacts include impacts that may arise during the site clearance, re-profiling of the site and the building phases of the proposed development including the works proximate to and within the drainage ditch.

In the absence of mitigation measures, there is potential for silt laden and contaminated runoff. In addition, a drainage ditch is on site running from west to east. Furthermore, there is a watershed at the eastern edge of the rail embankment into which a culvert runs from east to west under the rail line and potentially carries run-off from the embankment area towards the Mill Stream (Skerries_010). There is potential for silt laden runoff and contamination to enter both the onsite watercourse and Mill Stream (Skerries_10) with potential for downstream impacts.

Construction phase mitigation measures are required on site particularly as there is a drainage ditch proximate to the proposed development and as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt laden and contaminated runoff.

Designated Conservation sites

The proposed development is not within a designated conservation site. It should be noted that there is a direct hydrological pathway to the Skerries Islands SPA, located downstream of the proposed development site. There are no features of interest of this conservation site that would be expected to be or have been seen on the proposed development site. Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. As outlined in Appendix 5.3 "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:*

Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.

Water pollution

The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al.,2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out. The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments."

Runoff during site demolition, re-profiling, the construction and operation of project elements could impact the onsite drainage ditch and Mill Stream (Skerries_10), with water quality or downstream impacts on Skerries Islands SPA, at low tide, 1.0 km from the proposed development site. Impacts on the onsite watercourse and Mill Stream (Skerries_10) would be seen as the primary vector for impacts on conservation sites.

Biodiversity

The impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. Loss of habitat and habitat fragmentation may affect some common mammalian species.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a standard pre-construction site inspection prior to construction commencing on site.

Flora

No protected flora was noted on site. Site clearance will remove the flora species on site including hedgerows.

Potential Impacts: Medium adverse / site / Negative Impact / Not Significant / Short term

Bat Fauna

As bats are not roosting on site, no specific mitigation measures are required in relation to confirmed roosts and a derogation licence is also not required for the felling of trees. An ash tree (18) is deemed to be of bat roosting potential and is to be felled. As a precaution a pre construction inspection of this tree should be carried out. Light spill during construction has the potential to impact on foraging.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a pre-construction inspection of tree 18 and control of light spill during construction.

Amphibians-Frogs

Frog activity was noted just outside the site outline in the wet grassland. The drainage ditch on site which is ideal frog habitat, would be susceptible to silt and petrochemicals from works on site..

Potential Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a pre-construction inspection and control of light spill during construction.

Aquatic Biodiversity

Construction is likely to result in the silt and petrochemicals entering drain on site with downstream impacts on aquatic biodiversity. As outlined in consultation with IFI (Appendix 5.2) ", the drain "has little or no significant fisheries value."

Potential Impacts: Moderate adverse / local / Negative Impact / short term. Mitigation is needed in the form of control of silt and petrochemical and dust during construction.

Bird Fauna

Clearance, reprofiling and construction of the site will result in the loss of nesting and foraging habitat for birds of conservation importance. As outlined in Appendix 5.3 "No target species were observed foraging on the grassland of this proposed development area, which comprises semi-natural grassland with grass sward heights that are longer than that preferable by most target species" In addition, "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:*

Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.

Water pollution

The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al.,2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out. The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments."

Potential Impacts: Slight Adverse not significant/National -International/Negative/Moderate effects/Long term/likely . Mitigation is needed in relation to the ensuring the removal of woody vegetation only outside of bird nesting season.

5.4.2 Operational Impacts

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. The biodiversity value of the site would be expected to improve as the landscaping matures, particularly in the drainage ditch buffer zone. It would be expected that the ecological impacts in the long term would be positive once landscaping has established.

Designated Conservation sites within 15km
The development has the potential to cause pollution via surface water and downstream impacts. No significant impacts on designated sites are likely during operation. There will be increased activity on site which will cause localised disturbance within the site. As outlined in Appendix 5.2 "*The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." In addition, it should be noted that the Skerries Golf Club is located on the far side of the railway embankment which is vegetated and would reduce the impact of noise and lighting from the proposed development. No mitigation in relation to noise or disturbance is required during operation.

Potential Impacts: Low Adverse / International / Not significant / long-term. Standard operational measures are required in relation to silt and petrochemical interception.

Biodiversity

Biodiversity value of the site will improve as landscaping matures.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

Flora

No protected flora was noted on site. Landscaping will increase flora diversity on site. A 10m wide riparian buffer will be landscaped as per landscape plan

Potential Impacts: Low Adverse/Site/Negative/Not Significant/Long term/permanent. Positive impacts would be seen in the vicinity of the riparian corridor.

Bat Fauna

The proposed development will change the local environment as new structures are to be erected and the existing vegetation will be removed. No bat roosts will be lost due to this development and the species expected to occur onsite should persist. Some foraging areas may be lost. As landscaping matures in the riparian corridor foraging activity would also be expected to increase. Lighting has been discussed and modified during design to limit the potential impact on bat foraging.

Potential Impacts: Low adverse / International /. Negative Impact / Not significant / long term. Mitigation is required in the form of bat boxes.

Aquatic Biodiversity

Operation will have no significant effects on this habitat. Lighting of the riparian buffer will comply with bat lighting guidelines. Standard controls will be in place. Standard controls in relation to silt and petrochemicals are required.

Potential Impacts: Low adverse / local / Negative Impact / Not significant / long term

Bird Fauna

Operation will result in increased activity in the area. The maintenance of the riparian buffer and hedgerows are seen as beneficial to birds on site. Given the location of the SPA 1km from the proposed development and the location of the Skerries Golf Course on the far side of the elevated railway line

Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

5.4.3 Potential Cumulative Impacts

There are several proposed developments located in the area immediately surrounding the subject site. Previous planning permission was granted on site with the planning reference F21A/0287, details of this application are outlined in the table below. The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal[1]:

Table 5.6. In combination effects evaluated.

Ref. No. of previous permission on site	Address	Proposal
F21A/0287	Golf Links Road & Ballygossan Park, Hacketstown, in the townland of Milverton & Townparks, Skerries, Co Dublin	The proposed development consists of advance infrastructure works on a 2.5 ha site at Hackettstown, Skerries to facilitate future residential development on lands zoned for residential use to the north and south of subject site. These infrastructural works include: (1) Construction of a new link road, crossing the Regional Drainage Facility and providing access to the future residential zoned land to the south from the existing Ballygossan Park to the north. (2) Construction of Regional Drainage Facility (RDF) for the surface water management of the Hackettstown residentially zoned lands. (3) Foul, Surface Water and Water Supply Services to facilitate future development at Ballygossan Park Phase 2. (4) Foul, Surface Water and Water Supply Services to facilitate the future development of lands to the south. (5) Planting and Landscaping of open space areas, including provision of footpaths and viewing point, provision of public lighting on Link Road/Footpaths. (6) Diversion and undergrounding of existing overhead power lines. (7) Utilisation of existing field gate on Golf Links Road as a temporary access road for construction traffic.
Ref. No.	Address	Proposal
F20A/0324	Junctions of Townparks & Holmpatrick, Skerries, Co Dublin	Permission for reconstruction of the Miller's Lane/Shenick Road/Golf Links Road junction to provide for a four armed mini roundabout; Upgrading and extension of the two-lane flared approach to the junction on both the northern (Dublin Road) and south-eastern (Miller's Lane) arms of the existing three-arm roundabout junction; The provision of Zebra Crossing facilities on all arms of both junctions; The implementation of flat top calming ramps on all arms of both junctions (approximately 5m back from the roundabouts circulating carriageway); New street lighting system covering both junctions; The proposed development also includes upgrades to the junction of Downside Heights/Golf Links Road and a new cycle path along the Golf Links Road; New footpaths, cycle and pedestrian facilities, road gully's, road marking, signal and carriageway surfacing works; All ancillary site development works, landscaping and signage to support the development at the following junctions in Townparks and Holmpatrick, Skerries, Co Dublin: Miller's Lane/Shenick Road/Golf Links Road junction R127 Skerries Road/Miller's Lane/Dublin Road Roundabout, Downside Heights/Golf Links Road junction (and a section of the Golf Links Road).
Ref. ABP 308583-20	Ballygossan Park, Golf Links Road, Skerries, Co. Dublin. 'Ballygossan Phase 2'	149 no residential units (33 no. houses, 116 no. apartments), creche, and associated site works on lands referred to as 'Ballygossan Phase 2' refers to the lands to the north in the ownership of Noonan Construction which has been the subject of an SHD pre-application to the Board Considered Reasonable basis for application 26/01/2021

[1] https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de

Application reference number **F11A/0309** relates to the Ballygossan Park Phase 2 residential development which lies adjacent to the proposed development site on its northern edge. This proposed private development is a second phase of the existing Ballygossan Park development which has been completed. It is with this scheme that the proposed development has combined in order to develop the Regional Drainage Facility, which runs west-east between both sites, and will accommodate the runoff from development of both landholdings. In an Inspector's Report from An Bord Pleanala, it is stated that:

'[T]he proposed development, individually and in combination with other plans or projects, would not be likely to have significant effect on any European site and in particular specific site numbers 004122 (Skerries Island SPA), 000208 (Rogerstown Estuary SAC) and 004015 (Rogerstown Estuary SPA) in view of the sites' conservation objectives. Therefore, an appropriate assessment is not required.'

Planning permission for advanced infrastructure works adjacent to this site has previously been approved under planning ref no. F21A/0287. The sole purpose of these advanced infrastructure works was to facilitate the site for future residential developments.'

As outlined in Chapter 1 of this EIAR the project *"will be facilitated by advance infrastructural works. These works were the subject of a Section 34 application to Fingal County Council (FCC F21A/0287) and are currently on appeal to An Bord Pleanala (ABP Reg. Ref. 312189). They consist of a connecting road to the north, drainage infrastructure, cycle and pedestrian facilities, and associated landscaping (the "AI Works"). The Project, is assessed to ensure that all cumulative and in combination effects of the Project with other plans and projects within the zone of influence, including the Advance Infrastructure Works (Ref. ABP-312189-21), the prior application for off-site road improvements serving the wider area (ABP Reg. Ref. 309409; FCC Reg. Ref. F20A/0324), and the proposals by Noonan Construction for Ballygossan Park Phase 2 have been fully assessed in order to enable the competent authority to undertake a lawful environmental impact assessment ("EIA"),: In addition 'The Proposed SHD' relates to the current application which has been submitted to ABP and is set out in detail above. This is the project for the purpose of the EIAR.*

1. The 'advanced infrastructure works' is subject of a Section 34 application, and that which is currently under consideration by ABP (Ref. ABP-312189-21)

2. 'Ballygossan Phase 2' refers to the lands to the north in the ownership of Noonan Construction which has been the subject of an SHD pre-application to the Board (Ref. ABP 308583-20).

3. Off-site road improvements which were granted by ABP and FCC (ABP Reg. Ref. 309409; FCC Reg. Ref. F20A/0324) to provide the necessary upgrades to local road network.

The Project has been carefully considered as part of an overall development strategy for the lands located within the former Hacketstown LAP. This development strategy has been developed by the design team in consultation with both Fingal County Council and Noonan Construction (the developer of the adjoining Ballygossan Park to the north) to ensure future developments integrate and contribute to the sustainable development of the lands. This strategy responds to the characteristics and context of the site, for further information on the development rationale please see accompanying documentation including Architectural Design Statement prepared by OMP.'

It should be noted that Altemar are also the environmental consultants for the Noonan Construction-Ballygossan Park Phase 2 project and took into account the potential for overlap of the construction of the two projects. Both projects when complete would not be seen to have a significant cumulative impact on the qualifying interests of designated sites or biodiversity. All projects outlined were assessed for the potential cumulative impacts. As a result of this assessment, The proposed lighting and landscaping strategies for these projects complement one another in relation to retaining buffer zone surrounding the drain on site.it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. It is concluded that no significant cumulative impacts will be seen as a result of the proposed development alone or combination with other projects.

No projects in the vicinity of the proposed development would be seen to have a significant in combination effect.

5.5 'DO NOTHING' IMPACT

The site would continue to be farmed and the recolonising bare ground on site would increase in biodiversity value as a more stable flora establishes. The drainage ditch would remain on site.

5.6 MITIGATION MEASURES

Construction and operational Mitigation Measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (ZoI) including the onsite drainage ditch, Mill Stream (Skerries_10) and Skerries Islands SPA.

Designated Conservation sites within 15km

The proposed development is not within a designated conservation site. A potential pathway exists via surface water to the nearby Natura 2000 site (Skerries Islands SPA). The potential impacts on Natura 2000 sites are seen in Table 5.7. The construction works could lead to the transportation of silt and pollutants "downstream" to the Skerries Islands SPA via the drainage ditch on site and via the Mill Stream which connects to the culvert under the railway embankment. Construction phase mitigation measures are required on site particularly as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt laden and contaminated runoff. In addition, there is an existing drainage ditch that runs west to east across the northern boundary of the development site which will be impacted by the development of the site. There is potential for silt laden runoff and contamination to enter the watercourse with potential for downstream impacts. Mitigation measures are required to prevent downstream impacts. In addition, noise mitigation will be in place. These mitigation measures are described in Table 5.6 and illustrated in Figure 5.8.

Ecology

The impact of the development during construction phase will be a loss of existing habitats and species. During the site visit no flora, bird or terrestrial mammal species of conservation importance were recorded on site or in NPWS or NBDC records. However, spawn from the common frog (*Rana temporaria*) was noted in the wet grassland beside the drainage ditch, bordering the northern extent of the site. Trees and hedgerows will be removed to facilitate development. This will result in a loss of nesting and feeding resource for birds on site in addition to one tree of bat roosting potential. Additional planting will be carried out during the landscaping stage

Small mammals such as long-tailed field mouse, house mouse, brown rat are likely to be present. No evidence of mammal activity or badger setts were noted. Foxes are present on site. Frogs and reptiles were not observed on site; however, given the presence of an existing onsite drainage ditch and frogs spawn frogs are present on site. The common lizard may occur on site but was not observed. Some mortality may occur of species that are not of conservation significance during construction. Mitigation measures are required to protect the biodiversity on site and downstream from the proposed works impacts. These are described in Table 5.7.

Table 5.7. Sensitive Receptors/Impacts and mitigation measures.

Sensitive Receptors	Designed-in Mitigation
Skerries Islands SPA Qualifying Interests (Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184]) Watercourses Aquatic flora Fauna	Given the nature of the works, adjacent to an onsite drainage ditch and Mill Stream (Skerries_10), all of these effects would be expected to be localised in nature restricted to the immediate vicinity of the site. However, without the presence of mitigation measures there is a potential for downstream effects if significant quantities of pollution or silt were introduced into the onsite drainage ditches and Mill Stream (Skerries_10) with potential for downstream impacts on Skerries Islands SPA. The storage of topsoil or works in the vicinity of the drainage ditch on onsite could lead to dust, soil or silt laden runoff entering adjacent watercourses and drainage ditches. Contaminated surface water runoff on site during construction or operation may lead to silt or contaminated materials from site entering the onsite ditch and Mill Stream (Skerries_10) with downstream impacts on the SPA. If on-site concrete production is required or cement works are carried out in the vicinity of watercourses/drainage ditches there is potential for contamination of watercourses. The use of plant and machinery, as well as the associated temporary storage of construction materials, oils, fuels and chemicals could lead to pollution on site or in adjacent watercourses. **Construction Mitigation** • All works methodologies will have prior approval of a project ecologist. The project ecologist will have experience with instream works. • Best available technology (BAT) mitigation measures designed by project ecologist • Staging of project will be carried out to reduce risks to drainage ditches from contamination • Local drainage ditches and watercourses must be protected from dust, silt and surface water throughout the works. • Local silt traps established throughout site. • Mitigation measures on site include dust control, stockpiling away from drains • The project ecologist will be present for the culvert installation to ensure that sufficient measures will be in place. • Stockpiling of loose materials will be kept to a minimum of 20m from watercourses and drains. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, ditches or the watercourse, excavations and other locations where it may cause pollution. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality. • The excavation of the 10m buffer surrounding the drainage ditch should be carried out in dry weather with no runoff entering the drainage ditch. • Mitigation measures on site include dust control, stockpiling away from watercourses and drains • Pollution control and mitigation on site • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. A risk based approach will be taken. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. • During the construction works silt traps will be put in place in the vicinity of all runoff channels the stream to prevent sediment entering the drainage ditch.

Sensitive Receptors	Designed-in Mitigation
	• Petrochemical interception and bunds in refuelling area • Planting in the vicinity of the crossing should be put in place as soon as possible to allow biodiversity corridors to establish. • On-site inspections to be carried out by project ecologist. • Maintenance of any drainage structures (e.g. de-silting operations) must not result in the release of contaminated water to the surface water network. • No entry of solids to the associated stream or drainage network during the connection of pipework • Landscaping of the Riparian corridor will be carried out to the satisfaction of ecologist at an early stage of the project. • Full compliance with the water Pollution Acts will be carried out on site. • Silt traps established throughout site including a double silt fence between the site and the watercourse. • Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks. • The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained. • The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area. • A project ecologist will be appointed and consulted in relation to all onsite drainage during construction works. Consultation with the project ecologist will not involve the formulation of new mitigation measures for the purposes of protecting any European Site, and relate only to the implementation of those mitigation measures already stated in the submission or the formulation of mitigation for other purposes. • Dewatering of excavations may be necessary. Appropriate monitoring of groundwater levels during site works will be undertaken. Standard construction phase filtering of surface water for suspended solids will be carried out. Unfiltered surface water discharges or runoff are not permitted from the site into the onsite watercourse during the works. Trenched double silt fencing shall be put in place along boundary of the proposed development site with 10m buffer from the onsite drainage ditch. This fencing must be in place as one of the first stages on site and prior to the full site clearance. The silt fencing will act as a temporary sediment control device to protect the watercourse from sediment and potential site water runoff. The fencing will be inspected twice daily, based on site and weather conditions, for any signs of contamination or excessive silt deposits. • Concrete trucks, cement mixers or drums/bins are only permitted to wash out in designated wash out area greater than 50m from sensitive receptors including drains and drainage ditches. • Abstraction of water from watercourses will not be permitted. • Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis. • All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. Daily environmental toolbox talks / briefing sessions will be conducted to outline the relevant environmental control measures and to identify any environment risk areas/works. • Environmental risks due to construction and operation of the proposed development do potentially exist, particularly in relation runoff from sloping site, drains that could lead to the onsite watercourse. Ecological supervision will be required during diversion, excavation and enabling works stages. Silt interception measures will need to be in place to ensure that the watercourses are not impacted during works and in particular during the site clearance, in-stream works and reprofiling stages. Landscaping of the grassed areas of the site proximate to the onsite watercourse should take place immediately following re-profiling, to act as a buffer to protect the drainage ditch.

Sensitive Receptors	Designed-in Mitigation
	Air & Dust Dust may enter the onsite drainage ditch via air or surface water with potential downstream impacts. Mitigation measures will be carried out reduce dust emissions to a level that avoids the possibility of adverse effects on the onsite watercourse. The main activities that may give rise to dust emissions during construction include the following: • Excavation of material; • Materials handling and storage; • Movement of vehicles (particularly HGV's) and mobile plant. • Contaminated surface runoff *Mitigation measures to be in place:* • Consultation will be carried with an ecologist throughout the construction phase; • Trucks leaving the site with excavated material (if required) will be covered so as to avoid dust emissions along the haulage routes. • Speed limits on site (15kmh) to reduce dust generation and mobilisation. • The drainage ditch is to be protected from dust on site. This may require additional measures in the vicinity of the building during demolition e.g. placing of terram/protective material over the stream. *Site Management* • Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged. • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. *Monitoring* • Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces within 100 m of site boundary, integrity of the silt control measures, with cleaning and / or repair to be provided if necessary. *Preparing and Maintaining the Site* • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.

Sensitive Receptors	Designed-in Mitigation
	• Cover, seed or fence stockpiles to prevent wind whipping. • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic. • Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions. • Maintain a vegetated strip and vehicle exclusion zone between the works and the onsite watercourse in consultation with the project ecologist. *Operations* • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. *Measures Specific to Earthworks* • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once. • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust. • The Contractor will be required to consult with an ecologist prior to the beginning of works to identify any additional measures that may be appropriate and/or required. *Storage/Use of Materials, Plant & Equipment* • Materials, plant and equipment shall be stored in the proposed site compound location; • Plant and equipment will not be parked within 50m of the onsite watercourse at the end of the working day; • Hazardous liquid materials or materials with potential to generate run-off shall not be stored within 50m of the onsite watercourse. • All oils, fuels and other hazardous liquid materials shall be clearly labelled and stored in an upright position in an enclosed bunded area within the proposed development site compound. The capacity of the bunded area shall conform with EPA Guidelines – hold 110% of the contents or 110% of the largest container whichever is greater; • Fuel may be stored in the designated bunded area or in fuel bowsers located in the proposed compound location. Fuel bowsers shall be double skinned and equipped with certificates of conformity or integrity tested, in good condition and have no signs of leaks or spillages;

Sensitive Receptors	Designed-in Mitigation
	• Smaller quantities of fuel may be carried/stored in clearly labelled metal Jeri cans. Green for diesel and red for petrol and mixes. The Jeri cans shall be in good condition and have secure lockable lids. The Jeri cans shall be stored in a drip tray when not in use. They will not be stored within 50m of the onsite watercourse; • Drip trays will be turned upside down if not in use to prevent the collection of rainwater; • Waters collected in drip trays must be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements; • Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips; • No plant used shall cause a public nuisance due to fumes, noise, and leakage or by causing an obstruction; • Re-fuelling of machinery, plant or equipment will be carried out in the site compound as per the appointed Construction Contractor re-fuelling controls; • All persons working will receive work specific induction in relation to material storage arrangements and actions to be taken in the event of an accidental spillage. Daily environmental toolbox talks / briefing sessions will be conducted for all persons working to outline the relevant environmental control measures and to identify any environment risk areas/works. **Noise and Vibration** As outlined in the Noise and Vibration Chapter of the EIAR (Chapter 10) the following mitigation will be in place: "*The following noise and vibration management measures shall apply to the proposed project to ensure that the threshold value for noise and vibration (as applied to buildings) are complied with:* • *A Site Representative shall be appointed for matters related to noise and vibration.* • *Any complaints received shall be thoroughly investigated.* • *A written complaints log shall be maintained by the Site Representative. This shall, at a minimum, record complainant's details (where agreed) the date and time of the complaint, details of the complaint including where the effect was observed, corrective and preventative actions taken and any close-out communications. This will ensure that the concerns of local residents who may be affected by site activities are considered during the management of activities at the site.* • *Noise monitoring with capability for real-time review both on-site and remotely by Project Management shall be conducted at nearby NSRs throughout. Monitoring will be conducted at NSR1 and 3 at a minimum. As development moves south, monitoring shall be conducted at NSRs 2 and 5.* • *In the event of exceedance of the limits at NSRs, works shall be ceased and measures implemented immediately to ensure that the limits are complied with and/or duration in minimised.* • *Noise monitoring with capability for real-time review will facilitate immediate mitigation at nearby NSRs especially when noisy activities are planned.* • *Due to the proximity of separate development sites, and where works are occurring in tandem, individual Site Representatives or their appointed noise and vibration representatives will be required to liaise on management of construction noise impact through real-time review of monitoring data to ensure that the limits are met cumulatively.*

Sensitive Receptors	Designed-in Mitigation
	• *Temporary acoustic screening shall be placed along the boundaries with NSRs where works take place close to the boundary. As a general rule of thumb, it is recommended that temporary screening break the "line of sight" from the sources to the affected windows of the nearest NSRs where possible. It is likely that screening will be required at NSR1 throughout the duration of the proposed works.* • *The screening should be of sufficient surface density (minimum 10 kg/m^2) to mitigate temporary noise impact associated with the construction phase.* • *The operation of certain pieces of equipment, where substitution etc cannot be carried out shall be managed through monitoring and timing of use to ensure that the threshold values/criteria specified are complied with.* • *During the construction phase all equipment shall be required to comply with noise limits set out in EC Directive 2000/14/EC as amended by Directive 2005/88/EC on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors. The directive covers equipment such as compressors, welding generators, excavators, dozers, loaders and dump trucks.* • *While piling is dictated by constraints such as ground conditions (although a worst-case scenario has been assessed in this chapter) the design and final method chosen shall ensure compliance with the threshold limits for noise and vibration as set out in this chapter and limits proposed by Irish Rail for the rail line.* • *Measures such as use of an acoustic shroud, damping of the hammer impact and enclosure of the hammer shall be considered for reducing noise impact if applicable to the final piling design.* • *At the time of tender, the contractor will be obliged to review all systems taking noise and vibration into account in the choice of equipment. As noted in BS5228-1, "the construction industry is generally innovative and constantly developing, and there may be proprietary systems available at the time of tender that were not known or available at the planning stage."* • *Vibration monitoring will be conducted when sources which potentially could cause vibration impact to buildings will be in use e.g. during piling at NSR5. In this regard, test monitoring will be conducted with the equipment on at low levels before increasing incrementally to operational levels if deemed necessary. Works will be ceased and mitigation measures implemented during the construction phase where monitoring detects vibration levels associated with the works above the relevant guidance values for building damage as set out in Section 10.5.1.2."* **Operational Mitigation** Landscape and drainage (swale) works will be inspected by the project ecologist post construction. Silt and petrochemical measures will be in place on the surface water network.

Sensitive Receptors	Designed-in Mitigation
Birds (National Protection)	• Compensatory hedgerows will be planted along the northern boundary to maintain and enhance a biodiversity corridor. • Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) will be followed. Should the removal of potential nesting habitats outside of bird breeding season not be possible, a pre-works check by a qualified ecologist will be undertaken to ensure nesting birds are absent. • 30 Nest boxes will be placed on site to compensate for temporary resource loss. These will be located within the compensatory hedgerow. • Noise mitigation measures will be carried out as previously out lined in the Noise Chapter.Removal of potential nesting habitats will take place outside of bird breeding season (March to August inclusive). Should this not be possible, a pre-works check by a qualified ecologist will be undertaken to ensure nesting birds are absent. • As outlined in the landscape plan the planting of the hedgerow will be with semi-mature trees to allow for the rapid establishment of the hedgerow and bird nesting resource.
Bats (international Protection)	• Landscaping as outlined in the Landscape masterplan will provide unlit replacement foraging corridors for bat species within the drainage ditch buffer zone. Tree planting will be done in consultation with the onsite ecologist to reinstate foraging corridors. • Lighting at all stages will be done sensitively on site with no direct lighting of hedgerows, treelines and drainage ditch, swale and buffer zone. • 6 bat boxes will be placed on site.
Hedgerows and Treelines (Local importance)	• Landscaping will provide additional nesting and food resource for birds equivalent to that lost during site clearance. • A semi mature hedgerow will be placed across the northern portion of the site above the swale to enhance the biodiversity corridor on site. This has been designed to guide biodiversity to the mammal passes under the road on site
Amphibians	• Preconstruction amphibian survey by ecologist. • Compensatory habitat within the drainage ditch/swale as a frog breeding area. This breeding area will be fenced off from the general public.

5.7 PREDICTED IMPACTS

Construction and operational mitigation measures will be carried out. These will ensure that water entering the onsite drainage ditch (which flows east) and the Mill Stream (which flows to the west), is clean and uncontaminated. Given the proximity of numerous sensitive receptors and the drainage ditch leading to the Skerries Islands SPA, the early implementation of ecological supervision on site at initial mobilisation and enabling works is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation. Bats are foraging on site and frogspawn was noted in the vicinity of the drainage ditch (bordering the northern boundary). The landscape strategy within the drainage ditch buffer zone is important to offset the loss of hedgerows and foraging areas for bats

With the successful implementation of mitigation measures to limit, noise during construction, surface water impacts on the drainage ditch and watercourse (Mill Stream) in addition to biodiversity mitigation/supervision and the successful installation and initiation of the foul treatment system, no significant impacts are foreseen from the construction or operation of the proposed project. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works. Positive impacts will be seen through the implementation of an improved drainage ditch buffer with greater potential for biodiversity than currently exists on site.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on biodiversity and designated conservation sites through the application the construction and operational phase controls, including ecological monitoring, as described above in section 5.6. In particular, these mitigation measures will satisfactorily address the potential impacts from noise and on downstream biodiversity and designated sites. No significant adverse impacts on the conservation objectives of Natura 2000 sites are likely following the implementation of the mitigation measures outlined above.

The mitigation measures described in this chapter will be complied with, to ensure that the proposed development does not have noise or “downstream” environmental impacts. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site, and ensure that it is not impacted during construction and /or operational phases of the proposed development.

5.8 INTERACTIONS

The biodiversity elements of this EIAR have involved consultation with a wide section of the Project Team particularly in relation to the Construction Management, design, drainage, lighting and landscape elements of the proposed Project. Enhancement measures were put in place where possible, particularly in the vicinity of the open space and riparian areas. There are numerous inter-related environmental topics described in detail throughout this EIAR document which are of relevance to the biodiversity chapter. There is potential for interaction between the biodiversity and other chapters outlined in the EIAR, during construction and operation. The mitigation measures that will be put in place for the proposed development will ensure that the impact on biodiversity would be negligible following the implementation of mitigation measures.

5.9 RESIDUAL IMPACTS CONCLUSION

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application of construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a slight Adverse / not significant on the ecology of the area and locality overall. This is primarily as a result of the loss of terrestrial habitats including hedgerows on site, supported by the creation of an improved biodiversity focused riparian corridor, additional biodiversity features, standard construction and operational controls and a sensitive native landscaping strategy. The implementation of SUDS drainage on site with riparian features will be beneficial to the onsite drainage ditch. It is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised.

5.10 MONITORING

Monitoring of the project by a project ecologist will be undertaken to oversee the implementation of the surface water management on site, ensure that frogs on site are not impacted by the proposed works and that the landscaping strategy enhances and compensated for the loss of bat foraging areas on site.

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ALTEMAR
Marine & Environmental Consultancy

Appendix 5.1 Bat fauna assessment for lands at Hacketstown in the townland of Milverton, Skerries, Co. Dublin.

25th March 2022

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Land Development Agency

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Document Control Sheet			
Client	Land Development Agency		
Project	Bat fauna assessment for lands at Hacketstown in the townland of Milverton, Skerries, Co. Dublin.		
Report	Bat Fauna Assessment		
Date	25th March 2022		
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan		14th February 2022
Planning	Bryan Deegan		25th March 2022

SUMMARY

Structure:	None. Proposed residential development on agricultural land.
Location:	The subject site, is a series greenfield lands located just outside of Skerries Town.
Bat species present:	Foraging of Soprano pipistrelle noted on site. None Roosting
Proposed work:	Residential development of 345 no. units, a public open space, 412 car parking spaces, childcare and community facility, one main vehicular access off the Golf Links Road, upgrades to the Golf Links Road including new pedestrian and cycle infrastructure with frontage on Golf Links Road and construction of a new internal link road to provide access to the adjacent lands to the north.
Impact on bats:	No impacts on roosting bats. No Foraging areas of hedgerows are to be lost. A derogation licence for the removal of roosting bats is not required. A single tree of bat roosting potential is to be removed. No bats were observed emerging from this tree of low-moderate roosting potential. This tree will require inspection prior to removal. Positive impact in the area of the drainage ditch subject to mitigation in relation to tree planting and light spill. Due to the loss of roosting potential on site 6 bat boxes are proposed to enhance the riparian buffer area for bat use.
Survey by:	Bryan Deegan MCIEEM
Survey date:	28th September 2019 and on the 12th September 2020.

INTRODUCTION

Site location

The proposed development site is located on Lands at Hacketstown, Skerries, Co. Dublin. The subject lands are accessed via Golf Links Road to the south and Ballygossan Park Phase 1 to the north. The site is bound by the Dublin – Belfast trainline to the west, the Golf Links Road to the east and south, and by individual houses to the east and south.

Proposed Development

Altemar Ltd. was commissioned by the Applicant to provide a bat fauna assessment for a a strategic housing development at this site located at Hacketstown in the townland of Milverton, Townparks and Hacketstown, Skerries, Co. Dublin

The development entails 345 no. residential units comprising of 84 no. 1-bed units, 104 no. 2-bed units (68 no. 2-bed apartments and 36 no. 2-bed duplexes), 157 no. 3-bed units (118 no. 3-bed duplexes and 39 no. 3 - bed houses) ranging in height from 2 no. – 4 no. storeys on a site of 6.7 ha. located at Hacketstown in the townlands of Milverton, Townparks and Hacketstown, Skerries, Co. Dublin. The subject lands are accessed via Golf Links Road to the south and Ballygossan Park Phase 1 to the north.

The proposed development is set out in 8 blocks which comprise the flowing:

- Block A1 comprises 39 No. units at 4 storeys in height (Comprising a mix of 26 No. apartments & 13 No. Duplexes)
- Block A2 comprises 33 No. units at 4 storeys in height (Comprising a mix of 22 No. apartments & 11 No. Duplexes)
- Block B1 comprises 16 No. units at 3 storeys in height (Comprising all 3 bed Duplexes)
- Block B2 comprises 16 No. units at 3 storeys in height (Comprising all 3 bed Duplexes)
- Block C comprises 42 No. units at 2-3 storeys in height (Comprising 15 No. apartments & 27 No. Duplexes)
- Block D comprises 32 No. units at 2-3 storeys in height (Comprising 12 No. apartments and 20 No. houses)
- Block E comprises 62 No. units at 2-3 storeys in height (Comprising 38 No. apartments & 24 No. Duplexes)
- Block F comprises 66 No. units at 2-3 storeys in height (Comprising 39 No. apartments & 27 No. Duplexes)
- Block G comprises 25 No units at 2-3 storeys in height. (Comprising 20 No. Duplexes and 5 No. houses)
- Block H comprises 14 No units at 2-3 storeys in height. (Comprising 14 No. houses)

- Public Open Space of c.16,670 sqm (25% of net developable area) is proposed including the parkland and main public square, in addition to the linear park of c.2,427 sqm;
- c.2,272 sqm communal open space is proposed to serve the apartments;
- 414 car parking spaces in total are proposed including 70 visitor spaces, creche set down and 3 for creche staff parking within undercroft and at surface level.
- 746 No. bicycle parking spaces comprising including 128 No. visitor spaces and 10 No. to serve the creche;
- Childcare and community facility of c.377 sqm. located in Block C;
- Upgrades to the Golf Links Road including new pedestrian and cycle infrastructure with frontage on Golf Links Road;

- Vehicular access off the Golf Links Road is to be provided to the south east of the subject site;
- In addition the proposal will provide a new internal link road which will connect to the adjacent lands to the north, for which a separate planning application has been made to Fingal County Council under Reg. Ref. F21A/0287 (ABP Reg. Ref. 312189-21);

The proposed apartments include the provision of private open space in the form of balconies and winter gardens to all elevations of the proposed buildings. The development also includes vehicular, pedestrian, and cycle accesses, bicycle stores, lighting, landscaping, amenity spaces, drop off areas, boundary treatments, refuse facilities, services, utilities, substation, internal roads, footpaths and shared surfaces and all associated ancillary and site development works.

Bat survey

This report presents the results of site visits by Bryan Deegan (MCIEEM) on the 28th September 2019 and the 12th September 2020 during which all hedgerows were inspected for signs of bat use or presence. No buildings are present on site. A bat emergent/detector survey was carried out on both site visits.

Survey methodology

The presence of bats is assessed with reference to their signs; principally staining, droppings, feeding signs such as invertebrate prey remains and the presence of bat fly *Nycteribiidae* pupae, although direct observations are also occasionally made. The nature and type of habitats present onsite are also indicative of the species likely to be present.

At dusk, bat detector surveys were carried out onsite using a *Batbox Duet* heterodyne/frequency division detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations.

Survey constraints

The detector surveys were undertaken towards the end of the active bat season in late September. Weather conditions were good with mild temperatures of 13°C and 16°C after sunset, which are well within the optimal range for survey. Winds were light and there was no rainfall. No constrants are noted in relation to the surveys carried out.

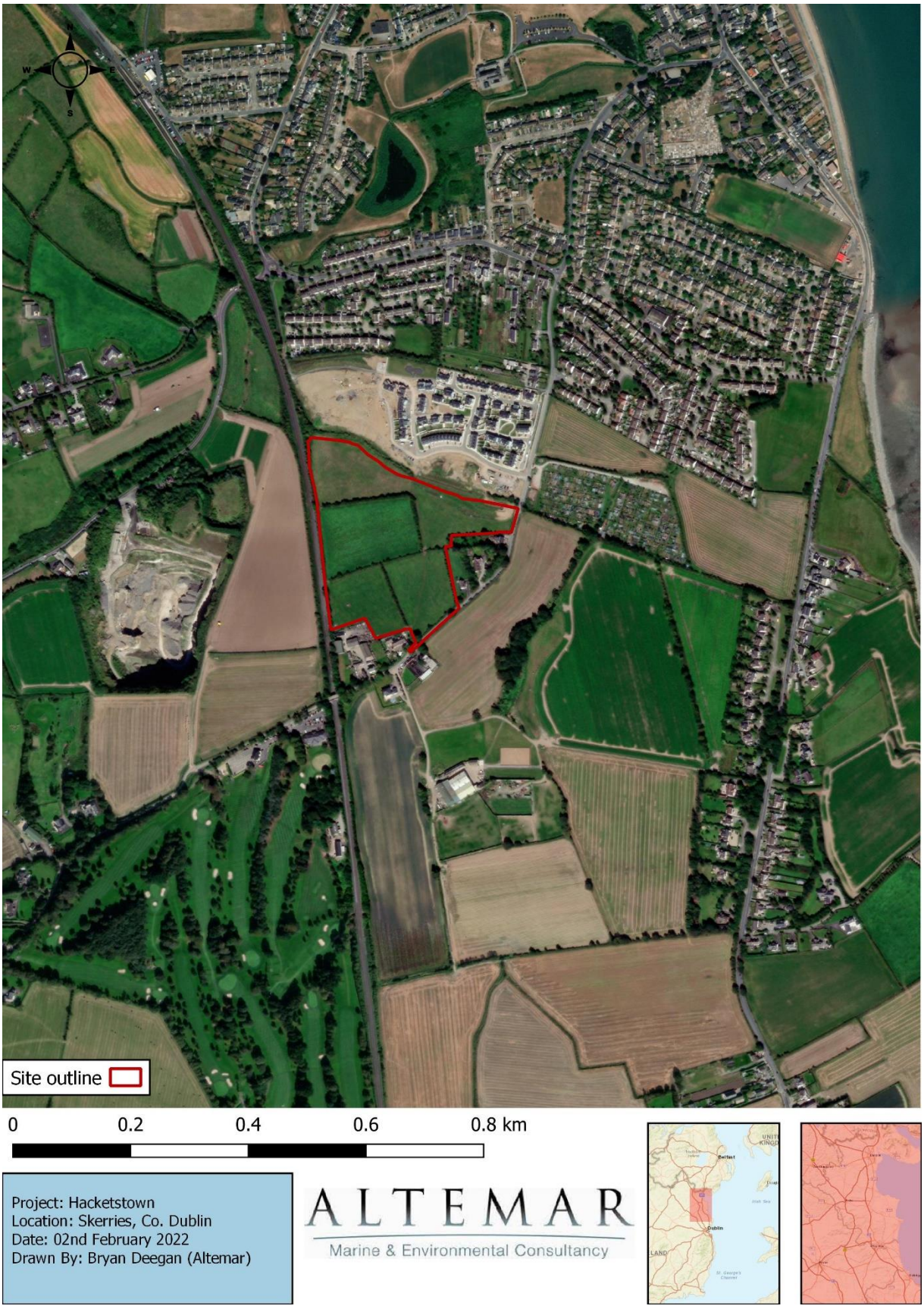

Figure 1. Site outline.

BAT ASSESSMENT FINDINGS

Review of local bat records

The review of existing bat records (sourced from *Bat Conservation Ireland's* National Bat Records Database) within a 2km of the study area reveals that one and possibly two of the nine known Irish species have been observed locally (grid reference O25P). These include a 2010 record of a pipistrelle (*Pipistrellus pipistrellus sensu lato) (Soprano and common combined)* and a soprano pipistrelle (*P. pygmaeus)* and were located within the proposed development site (100m^2 resolution). It is unclear from the record if this was one or two individuals. Within the 10km^2 grid 6 species of bat have been noted (Table 2).

Table 1: Status of bat species within a 2km grid which incorporates the study location

Common name	Scientific name	Presence	Source
Common/Soprano pipistrelle	*Pipistrellus pipistrellus sensu lato* (Common pipistrelle/ soprano pipistrelle unseparated).	Present	BCIreland
Soprano pipistrelle	*Pipistrellus pygmaeus*	Present	BCIreland

Table 2: Status of bat species within the NPWS 10km grid which incorporates the study location

Species name	Record count	Date of last record
Brown Long-eared Bat (Plecotus auritus)	5	30/08/2012
Daubenton's Bat (Myotis daubentonii)	2	25/06/2004
Lesser Noctule (Nyctalus leisleri)	14	09/06/2015
Nathusius's Pipistrelle (Pipistrellus nathusii)	1	17/08/2009
Pipistrelle (Pipistrellus pipistrellus sensu lato)	28	28/07/2014
Soprano Pipistrelle (Pipistrellus pygmaeus)	12	30/08/2012

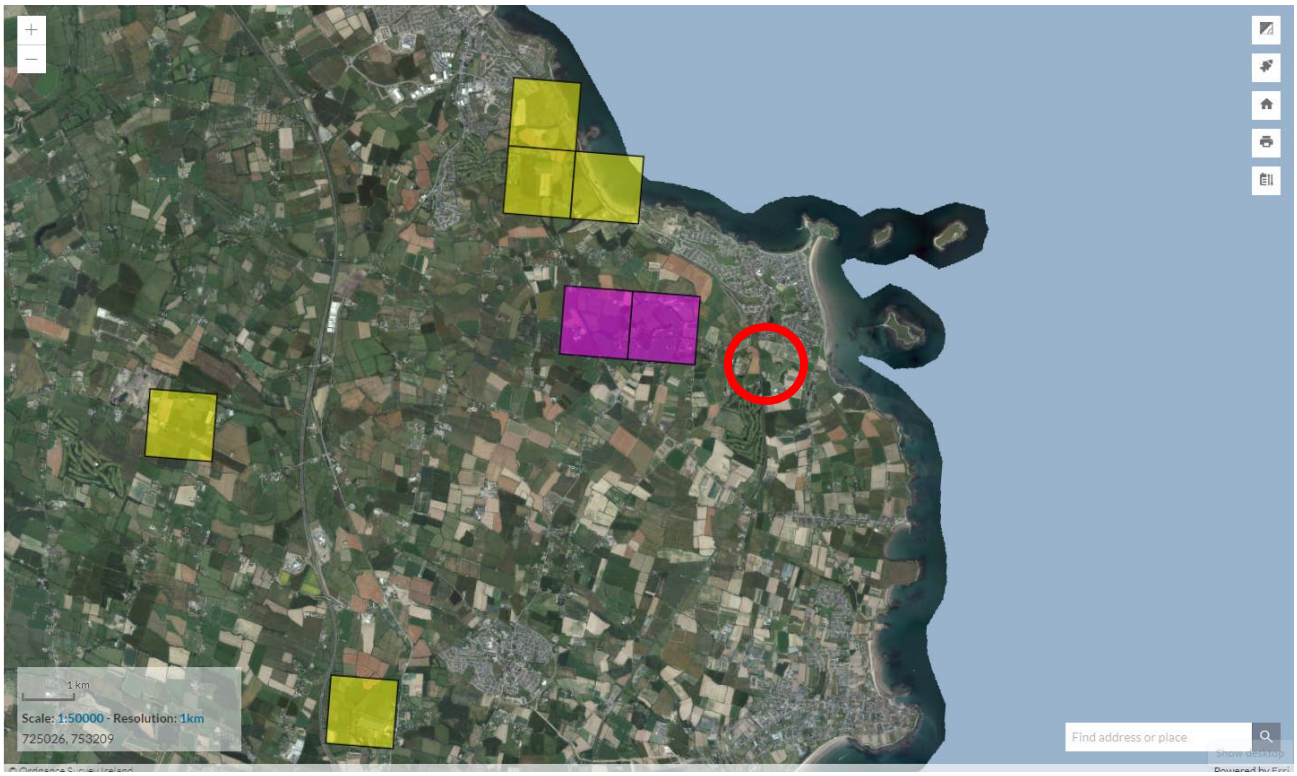

Figure 2. Daubenton's Bat (*Myotis daubentonii*) (purple), Brown Long-eared Bat (*Plecotus auritus*) (yellow) and both Daubenton's Bat and Brown Long-eared Bat (orange) (Source: NBDC) (site: red circle)

Figure 3. Lesser Noctule (*Nyctalus leisleri*) (purple), Natterer's Bat (Myotis nattereri) (yellow) and both Lesser Noctule and Natterer's Bat (orange) (Source: NBDC) (site: red circle)

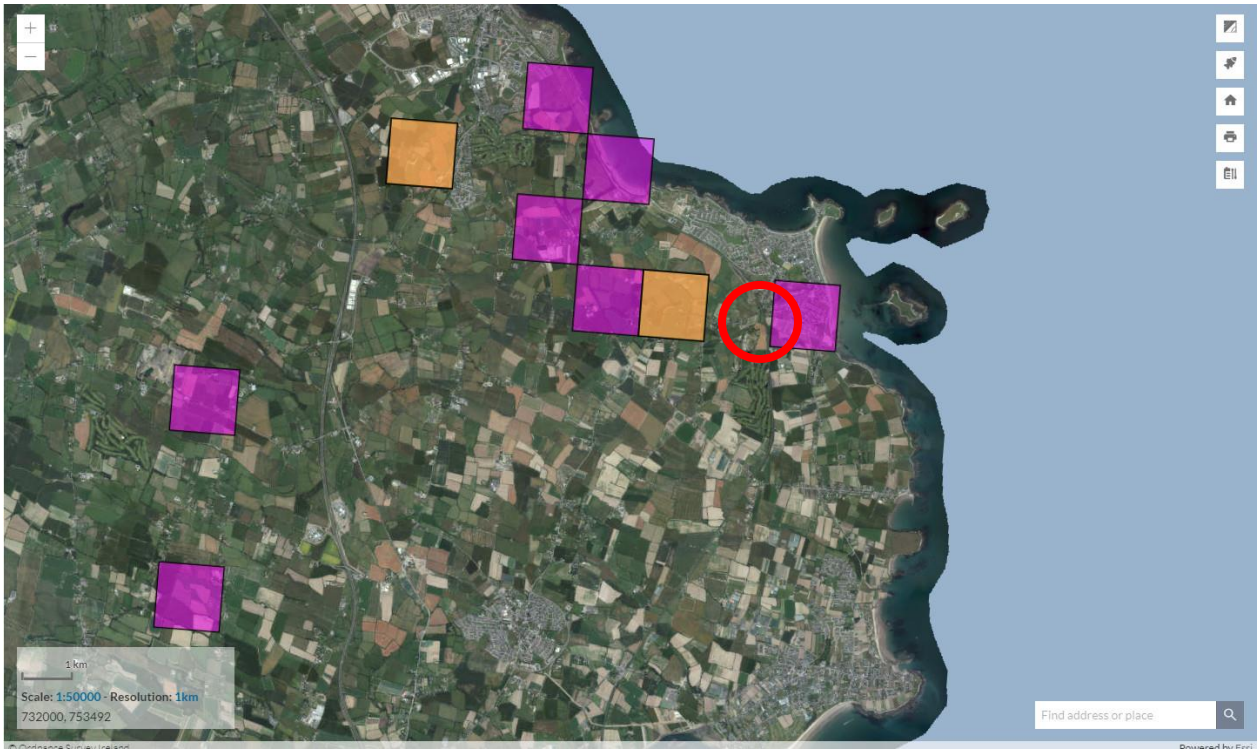

Figure 4. Soprano Pipistrelle (*Pipistrellus pygmaeus*) (purple), Nathusius's Pipistrelle (*Pipistrellus nathusii*) (yellow) and both Soprano Pipistrelle and Nathusius's Pipistrelle (orange) (Source: NBDC) (site: red circle)

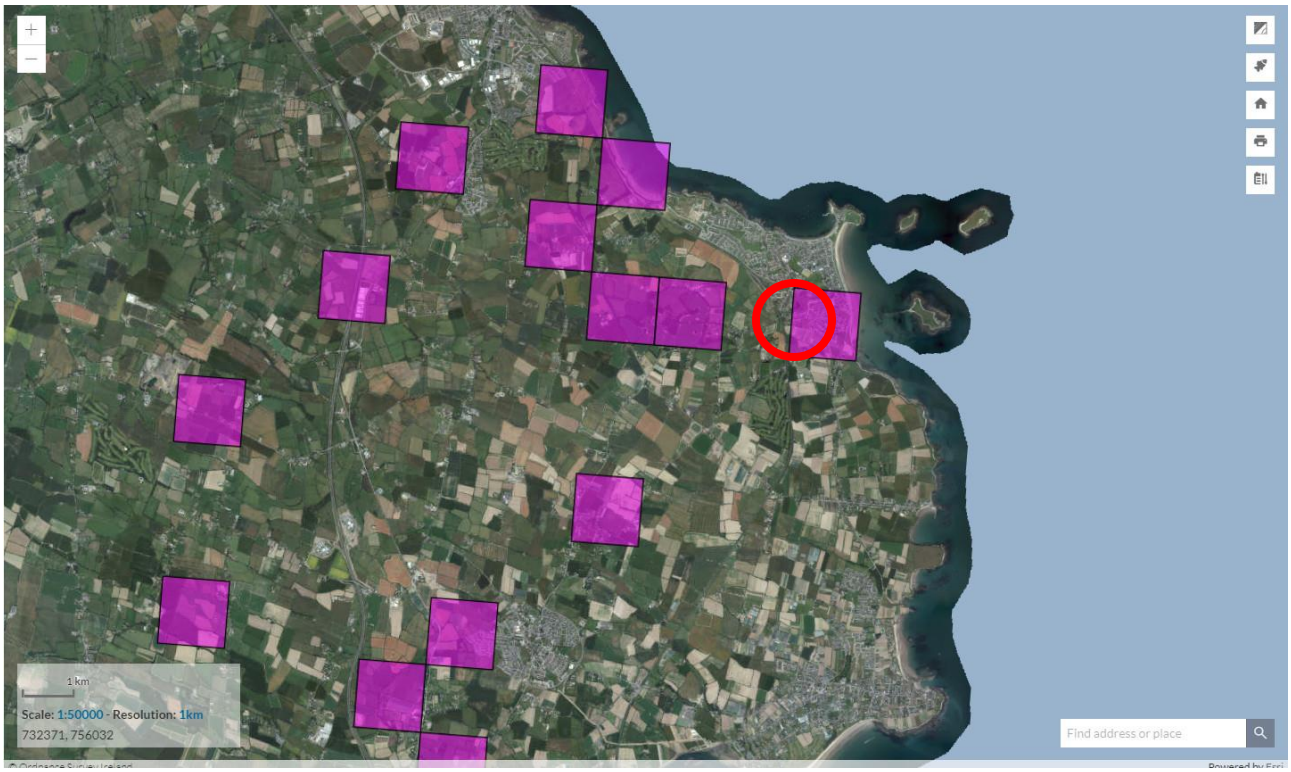

Figure 5. Pipistrelle (*Pipistrellus pipistrellus sensu lato*) (Species Aggregate) (purple) (Source: NBDC) (site: red circle)

Structure /Roost survey

No buildings or structures of roosting potential were present on site. In relation to bat roosting potential the site was poor. The site comprised of several fields surrounded by mature hedgerows. The hedgerows were of poor roosting potential due to the small size of the trees across the majority of the hedgerows. However, two ash (*Fraxinus excelsior*) (Figure 2) were deemed to be of low-moderate roosting potential due to the mature nature of the trees, clad in dense ivy (*Hedera helix*) growth. However, few cracks or hollows were noted in the trees.

Detector survey

In 2019 two bats (soprano pipistrelle) were noted foraging on site along the field boundaries seen in Figure 6 and an additional soprano pipistrelle was noted foraging in 2020. No bats were detected emerging from any of the onsite trees. It should be noted that bright floodlights were notedwithin the construction compound to the north of the site. Large flood lights are present within the construction compound which spilled onto the farmland areas.

Figure 6. Soprano pipistrelle feeding activity (yellow) and two Ash of bat roosting potential.

Figure 7. Proposed Lighting Services Layout

Figure 8. Tree Impact & Protection Plan

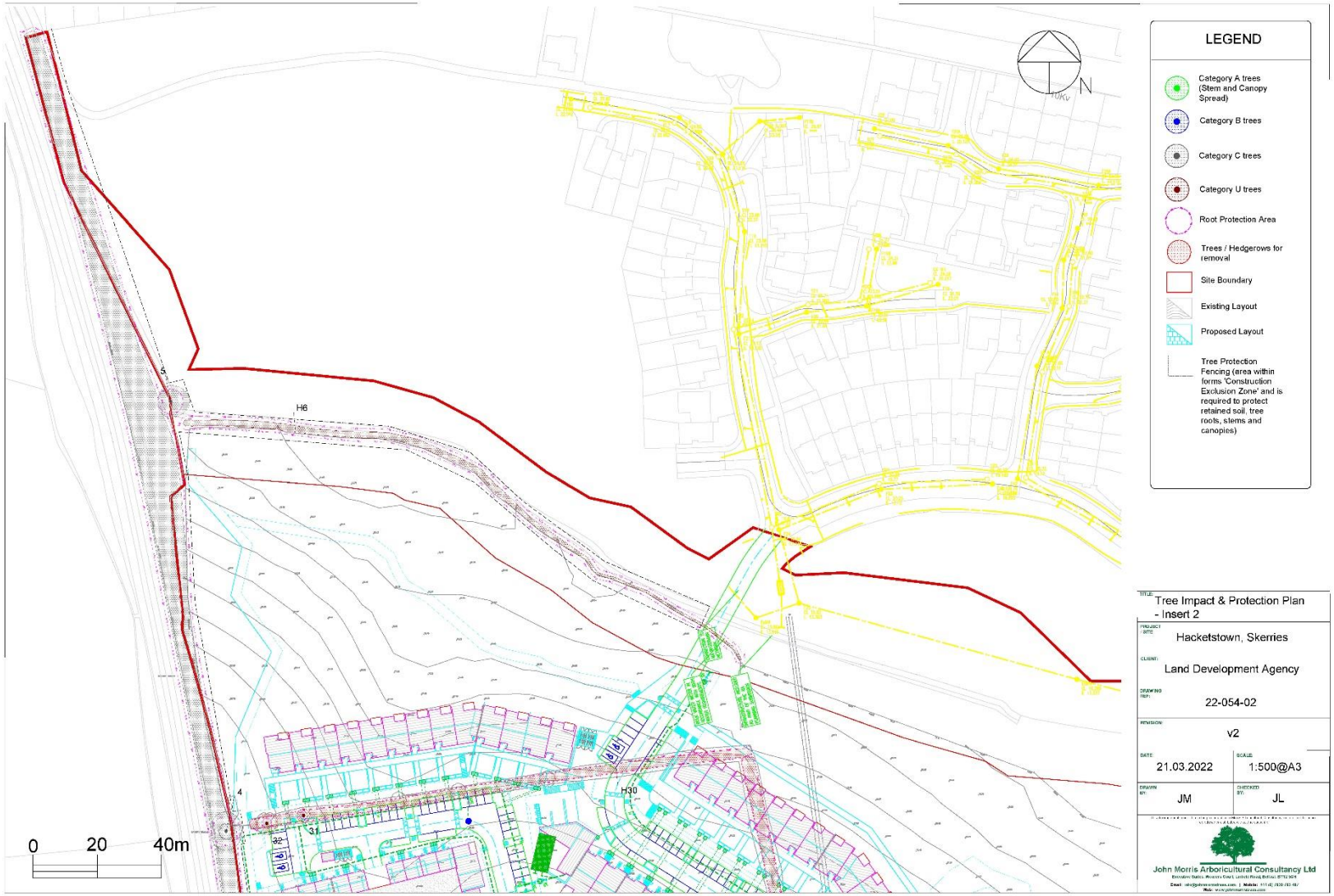

Figure 8. Tree Impact & Protection Plan

POTENTIAL IMPACTS OF PROPOSED REDEVELOPMENT ON BATS

No buildings are noted on site. No roosts or bats emerging onsite trees were observed. The hedgerows on site have few features that would act as potential roosting areas with the exception of two ash trees, that have low-moderate potential for bat roosting. One of these trees (18) is to be removed. The other tree (8) is to be retained. The development would result in a loss of foraging habitat as the hedgerows would be removed.

MITIGATION MEASURES

As no evidence of a definitive bat roost was noted onsite, no mitigation measures in regard to these animals are needed during the proposed works. There is also no requirement for a *National Parks and Wildlife Service* derogation licence application to allow the planned works. The exterior hedgerows and embankment vegetation will be retained where possible and in particular the two large ash trees noted in Figure 2. A pre-construction bat inspection will be carried out on the tree of bat roosting potential that is to be removed (Tree 18).

Of potential importance to bat foraging will be the landscaping features of the relandscaped drainage ditch and swale area. It would be expected that this area will have significant potential for bat foraging once complete. This area will be sensitively lit for bats. All lighting in this area is facing away from the riparian corridor and will have backlight controls fitted. As outlined in the External Lighting Planning Compliance Report by axiseng “The light fittings along the also consider the bat lighting guidelines – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010)”. It is also recommended that as an enhancement measure that 6 bat boxes are placed on the western area of the site in the vicinity of the drainage ditch.

PREDICTED AND RESIDUAL IMPACT OF THE PROPOSAL

There is no evidence of a current or past bat roost therefore no significant negative impacts on these animals are expected to result from the proposed development. However, foraging activity within the area will be lost unless sufficient hedgerow planting is carried out and the site is sensitively lit in the vicinity of the drainage ditch.

REFERENCES

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979
EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992
European Communities (Birds and Natural Habitats) Regulations 2011 Government of Ireland, Dublin
Kelleher, C. and Marnell, F. 2007 *Bat Mitigation Guidelines for Ireland – Irish Wildlife Manuals No. 25*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin
Marnell, F., Kingston, N. and Looney, D. 2009 *Ireland Red List No. 3: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin
Wildlife Act 1976 and Wildlife Amendment Acts 2000 and 2010. Government of Ireland.

LEGAL STATUS AND CONSERVATION ISSUES – BATS

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Acts (2000 and 2010). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat *Rhinolophus hipposideros* is further listed under Annex II. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.
The current status and legal protection of the known bat species occurring in Ireland is given in the following table.

Common and scientific name	Wildlife Act 1976 & Wildlife (Amendment) Acts 2000/2010	Irish Red List status	Habitats Directive	Bern & Bonn Conventions
Common pipistrelle *Pipistrellus pipistrellus*	Yes	Least Concern	Annex IV	Appendix II
Soprano pipistrelle *P. pygmaeus*	Yes	Least Concern	Annex IV	Appendix II
Nathusius pipistrelle *P. nathusii*	Yes	Not referenced	Annex IV	Appendix II
Leisler's bat *Nyctalus leisleri*	Yes	Near Threatened	Annex IV	Appendix II
Brown long-eared bat *Plecotus auritus*	Yes	Least Concern	Annex IV	Appendix II
Lesser horseshoe bat *Rhinolophus hipposideros*	Yes	Least Concern	Annex II Annex IV	Appendix II
Daubenton's bat *Myotis daubentonii*	Yes	Least Concern	Annex IV	Appendix II
Natterer's bat *M. nattereri*	Yes	Least Concern	Annex IV	Appendix II
Whiskered bat *M. mystacinus*	Yes	Least Concern	Annex IV	Appendix II
Brandt's bat *M. brandtii*	Yes	Data Deficient	Annex IV	Appendix II

Also, under existing legislation, the destruction, alteration or evacuation of a known bat roost is a notifiable action and a derogation licence has to be obtained from the *National Parks and Wildlife Service* before works can commence.
It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate.

All bat species found in Ireland are listed under Annex IV of the EC (Birds and Natural Habitats) Regulations 2011 – 2021 and as a result works which would capture or kill them, damage or destroy their roosts or disturb them at important parts of their life cycle cannot take place without first obtaining a Derogation Licence. This licence is issued under Regulation 54 of the Regulations and strict criteria must be met before such a licence can be approved.

Any person considering applying for a derogation licence should familiarise themselves with the document referenced above. They should also refer to the following document "Bat Mitigation Guidelines for Ireland" which provides information on bat survey requirements and mitigation measures for bats when carrying out works which may disturb them.. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in Circular Letter NPWS 2/07 "*Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 - strict protection of certain species/applications for derogation licences*" issued on behalf of the Minister of the Environment, Heritage and Local Government on the 16th of May 2007.
Furthermore, on 21st September 2011, the Irish Government published the European Communities (Birds and Natural Habitats) Regulations 2011 which include the protection of the Irish bat fauna and further outline derogation licensing requirements re: European Protected Species.

Appendix 5.2 – Communication with Inland Fisheries Ireland.

From: Roisin O'Callaghan <Roisin.OCallaghan@fisheriesireland.ie>
Sent: Friday 20 August 2021 10:52
To: Bryan Deegan <bryan@altemar.ie>
Cc: Gretta Hannigan <Gretta.Hannigan@fisheriesireland.ie>
Subject: LDA AIA RFI Landscape Outputs

Dear Bryan,

On inspection of the stream at Hacketstown, Skerries on August 19th 2021, IFI conclude that while it is a stream and can be identified on the OSI 6" map, it has little or no significant fisheries value. However, we welcome the 10m buffer zone of the stream which will protect it from the impact of adjacent land uses and maintain biodiversity.

Please contact me if you wish to discuss further.

Kind Regards,

Roisin

Roisin O' Callaghan

Fisheries Environmental Officer
Iascach Intíre Éireann
Inland Fisheries Ireland

Appendix 5.3 - Winter Bird Survey Report 2020/2021

MKO Planning and Environmental Consultants

Winter Bird Survey Report 2020/2021

Altemar Bird Surveys, Hackettstown, North Co. Dublin

DOCUMENT DETAILS

Client:	Altemar
Project Title:	Altemar Bird Surveys, Hackettstown, North Co. Dublin
Project Number:	201053
Document Title:	Winter Bird Survey Report 2020/2021
Document File Name:	201053 – F – Winter Bird Survey Report 2020/2021 – 2021.03.31
Prepared By:	MKO Tuam Road Galway Ireland H91 VW84

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	Draft	23/03/2021	KS	PM
01	Final	31/03/2021	KS	PM/DO'D

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TABLE OF TABLES

1. INTRODUCTION

McCarthy Keville O'Sullivan (MKO) was appointed to carry out bird survey works at Hackettstown, north County Dublin during the period from November 2020 to March 2021 inclusive. The proposed development scheme consists of a large housing development on a greenfield site dominated by cultivated land. The site is approximately 11.06 ha in area and is located between Skerries Train Station to the north and Skerries Golf Club to the south. Figure 1 (Appendix 2) provides a map of the location of the proposed development boundary (Grid Reference: 53.567717, -6.112750).

This report describes the ornithological survey methods employed and survey data collected at Hackettstown, north County Dublin for the period from November 2020 to March 2021 inclusive. This report also contains information compiled during the desktop study. Particular attention has been paid to species of conservation importance and identified target species.

The report is supported by Technical Appendix 1 which contains the raw data from the winter bird surveys in 2020/2021. This includes detail on survey times, weather conditions, surveyors, survey results and other additional information. Maps containing flight data and significant flocks observed during surveys are shown in Appendix 2.

The report is structured as follows:

- An introduction providing a description of the background and statement of authority regarding ornithological works.
- A description of the desktop study carried out with regards to the site.
- A comprehensive description of survey methods.
- A full description of results for all ornithological surveys conducted.
- A discussion of the potential impacts.

The following defines terms used in this report

- "Zones of Influence" (ZOI) for potential ornithological receptors refers to the zone within which potential effects are anticipated. ZOIs were assigned following best available guidance (SNH 2016 and McGuinness et.al 2015).

1.1 Statement of Authority

This report has been prepared by Kathryn Sheridan (M.Sc.), an Ornithologist with MKO, Patrick Manley (B. Sc.), a Project Ornithologist with MKO and Project Director, Dervla O'Dowd (B.Sc.). The field surveys were undertaken in the 2020/2021 winter season by Kathryn Sheridan, a competent expert in bird surveying.

CVs for the authors of this report and all personnel who carried out survey work are provided in Appendix 3.

2. DESK STUDY

2.1 Desk Study Methods

A comprehensive desk study was undertaken prior to surveys in winter 2020 to search for any relevant information on species of conservation concern which may potentially make use of the study area. The assessment included a thorough review of the available ornithological data including:

- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Irish Wetland Bird Survey I-WeBS.
- Review of Birds of Conservation Concern (BoCCI) in Ireland 2014-2019 (Colhoun & Cummins, 2013)

2.2 Desk Study Results

2.2.1 Identification of Designated Sites within the Likely Zone of Influence

Using GIS software, sites designated for nature conservation within the potential ZOI of the proposed development were identified. Skerries Islands SPA and Natural Heritage Area is located to the east of the proposed development opposite the R128. The SPA is located approximately 700m east of the proposed development. It comprises three islands (St. Patrick's Island, Colt Island and Shenick's Island) and surrounding seas. Shenick's Island includes intertidal, rocky shores, sand flats and a shingle bar which connects to the mainland at low tide. St. Patrick's and Colt islands comprise low cliffs.

In addition, and in the absence of any specific European or Irish guidance, the Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between proposed development proposals and Special Protection Areas. The guidance takes into consideration the distances some species may travel beyond the boundary of their SPAs and outlines information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.

Designated sites located within the Likely Zone of Influence are listed below in Table 2-1 and illustrated in Appendix 2, Figure 2.

Table 2-1 Special Protection Areas within likely zone of influence

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie, last viewed 30/03/2021)	Conservation Objectives
Skerries Islands SPA (004122)	700m to the east of the proposed development site	› Light-bellied Brent Goose *(Branta bernicla hrota)* [A046] › Cormorant *(Phalacrocorax carbo)* [A017] › Shag *(Phalacrocorax aristotelis)* [A018] › Purple Sandpiper *(Calidris maritima)* [A148] › Turnstone *(Arenaria interpres)* [A169] › Herring Gull *(Larus argentatus)* [A184]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2021) Conservation objectives: Skerries Islands SPA [004122]. Generic Version 8.0.
Rockabill SPA (004014)	3.3km to the east of the proposed development site	› Purple Sandpiper (*Calidris maritima*) [A148] › Roseate Tern (*Sterna dougallii*) [A192] › Common Tern (*Sterna hirundo*) [A193] › Arctic Tern (*Sterna paradisaea*) [A194]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2013) Conservation objectives: Rockabill SPA [004014]. Version 1.0.
Rogerstown Estuary SPA (004015)	5.5km to the south of the proposed development site	› Greylag Goose (*Anser anser*) [A043] › Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] › Shelduck (*Tadorna tadorna*) [A048] › Shoveler (*Anas clypeata*) [A056] › Oystercatcher (*Haematopus ostralegus*) [A130] › Ringed Plover (*Charadrius hiaticula*) [A137] › Grey Plover (*Pluvialis squatarola*) [A141] › Knot (*Calidris canutus*) [A143] › Dunlin (*Calidris alpina*) [A149] › Black-tailed Godwit (*Limosa limosa*) [A156] › Redshank (*Tringa totanus*) [A162] › Wetland and Waterbirds [A999]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2013) Conservation objectives: Rogerstown Estuary SPA [004015]. Version 1.0.

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie, last viewed 30/03/2021)	Conservation Objectives
Lambay Island SPA (004069)	9km to the southeast of the proposed development site	Fulmar (*Fulmarus glacialis*) [A009] Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Greylag Goose (*Anser anser*) [A043] Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Puffin (Fratercula arctica) [A204]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2021) Conservation objectives: Lambay Island SPA [004069]. Generic Version 8.0.
Malahide Estuary SPA (004025)	10.4km to the south of the proposed development site	Great Crested Grebe (*Podiceps cristatus*) [A005] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Pintail (*Anas acuta*) [A054] Goldeneye (*Bucephala clangula*) [A067] Red-breasted Merganser (*Mergus serrator*) [A069] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Knot (*Calidris canutus*) [A143] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Redshank (*Tringa totanus*) [A162] Wetland and Waterbirds [A999]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." This site also has a second conservation objective: "To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it." NPWS (2013) Conservation objectives: Malahide Estuary SPA [004025]. Version 1.0.
River Nanny Estuary and Shore SPA (004158)	11.1km to the north of the proposed development site	Oystercatcher (*Haematopus ostralegus*) [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140] Knot (*Calidris canutus*) [A143]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA:

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie, last viewed 30/03/2021)	Conservation Objectives
		› Sanderling (*Calidris alba*) [A144] › Herring Gull (*Larus argentatus*) [A184] › Wetland and Waterbirds [A999]	"To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." This site also has a second conservation objective: "To maintain the favourable conservation condition of the wetland habitat in River Nanny River and Shore SPA as a resource for the regularly-occurring migratory waterbirds that utilise it." NPWS (2012) Conservation objectives: River Nanny River and Shore SPA [004158]. Version 1.0.

2.2.2 Irish Wetland Bird Survey (IWeBS) Records

Data from this I-WeBS site has been used to estimate the population of waterbirds in the area surrounding the proposed development area. The dataset for Skerries Islands SPA was downloaded from www.birdwatchireland.ie and reviewed. I-WeBS surveys for the 2014/15, 2016/17 and 2017/18 survey seasons were not undertaken, and no data is available for these years. The most recent 5-season period and mean counts for this period are presented in Table 2-2.

Table 2-2 IWeBS data for Skerries Islands SPA

Species	2013/14	2014/15	2015/16	2016/17	2017/18	5-season mean (2013/14-2017/18)
Light-bellied Brent Goose	39	-	200	-	-	120
Shelduck	2	-	0	-	-	1
Mallard	20	-	2	-	-	11
Pintail	0	-	0	-	-	0
Long-tailed Duck	0	-	0	-	-	0
Eider	2	-	8	-	-	5
Red-throated Diver	22	-	9	-	-	16
Great Northern Diver	5	-	0	-	-	2
Great Crested Grebe	0	-	1	-	-	0
Cormorant	340	-	25	-	-	182
Shag	190	-	45	-	-	118
Little Egret	0	-	1	-	-	0
Grey Heron	2	-	1	-	-	2
Water Rail	0	-	1	-	-	0
Oystercatcher	660	-	400	-	-	530
Ringed Plover	70	-	70	-	-	70
Lapwing	10	-	0	-	-	5
Sanderling	25	-	2	-	-	14
Purple Sandpiper	0	-	17	-	-	8
Dunlin	150	-	0	-	-	75
Jack Snipe	0	-	0	-	-	0
Snipe	2	-	0	-	-	1
Bar-tailed Godwit	20	-	0	-	-	10
Whimbrel	0	-	2	-	-	1
Curlew	460	-	550	-	-	505
Greenshank	1	-	2	-	-	2
Redshank	35	-	20	-	-	28
Turnstone	240	-	140	-	-	190
Black-headed Gull	100	-	5	-	-	52
Common Gull	60	-	30	-	-	45
Herring Gull	250	-	340	-	-	295
Great Black-backed Gull	100	-	370	-	-	235

'-' indicates where no data was available.

Data from IWeBS sites in County Dublin has been used to estimate County populations of wintering waterbirds discussed in this report. Datasets for the following sites were downloaded from www.birdwatchireland.ie and reviewed:

Dublin IWeBS Sites

- Baldoyle Bay
- Brittas Pools
- Broadmeadow (Malahide) Estuary
- Delvin River – Hampton Cove
- Dublin Bay
- Dublin Zoo Ponds
- Grand Canal (Dublin)
- Hick's Tower and Robswall
- Hynestown Lake Naul
- Ireland's Eye
- Knock Lake
- Lambay Island
- Mountseskin/Gortlum
- Portmarnock Marsh
- Rockabill
- Rogerstown Estuary
- Seagrange Park
- Skerries Coast
- Skerries Islands
- Skerries, Baldongan
- South Dublin Coastline
- St. Stephen's Green
- Tymon Park

2.2.3 Method of Identification of Target Species

Following a comprehensive desk study by MKO, initial site visit and consultation, a list of "Target species" likely to occur at the site was compiled. The survey work carried out on the site was specifically designed to survey for these identified target species in accordance with relevant survey guidance, e.g. I-WeBS methods. The target species list was drawn from:

- Annex I of the Birds Directive,
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of likely significant effects,
- Red listed birds of Conservation Concern in Ireland.
- Species protected under the fourth schedule of the Wildlife Acts 1976-2012.

All species within these categories were considered as target species for the purpose of these surveys.

3. FIELD SURVEYS

3.1 Field Survey Methods

This section of the report describes the various field survey methods employed. Field surveys were undertaken from November 2020 – March 2021 inclusive. Field survey methodologies have been devised to survey for the bird species composition and assemblages that occur within the study area.

3.1.1 Initial Site Assessment

Based on the results of the desk study, the likely importance of the study area for bird species was determined. Based on the collated information available from the above preliminary assessment and adopting a precautionary approach, a site-specific scope for the ornithological surveys was developed.

3.1.2 Walkover Surveys

Winter walkover surveys were undertaken to determine the presence of bird species of high conservation concern within areas of potential suitable habitat in the study area. The walkover survey was undertaken within the redline boundary.

Transect routes were devised to ensure coverage of different habitat complexes within the study area, during each survey visit. The survey was undertaken (onsite) within two hours of high tide, as this is the period when birds from the estuary are most likely to make use of terrestrial habitats, such as those present within the proposed development area. The main aim of the survey was to identify if SCIs from the adjacent SPA were utilising areas onsite for foraging or roosting. Along with target species, all additional species observed were recorded to inform the evaluation of supporting habitat.

Survey effort, including details of survey duration and weather condition, is presented in Appendix 1, Table 1-1. Figure 1 in Appendix 1 shows the survey study area.

3.1.3 Habitat Surveys

Transect routes were walked during each survey to assess the quality and composition of habitats at various points (10 maximum) within the proposed development boundary. At each point grass sward height, percentage of grass, percentage of forb species and percentage of bare ground was noted. Also noted was the abundance of brent goose droppings present at each transect point. Results of these habitat transects are presented in Table 3-3.

3.1.4 Survey Justification

A comprehensive suite of bird surveys was undertaken at the site between November 2020 and March 2021, as detailed in this report.

The surveys undertaken provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of the proposed development on avian receptors.

3.2 Field survey results

3.2.1 Survey Effort

Surveys were undertaken between the 2nd of November 2020 and 15th of March 2021. Two visits a month were undertaken during this period where possible, with 12 surveys carried out in total. Table 3-1 shows the survey effort for the 2020/2021 winter season.

Table 3-1 Survey Effort conducted at the proposed development

Survey Date	Survey Duration	Surveyor
02/11/2020	06:00 starting at 09:23	KS
06/11/2020	06:00 starting at 10:42	KS
16/11/2020	06:00 starting at 09:02	KS
26/11/2020	06:00 starting at 08:10	KS
03/12/2020	06:00 starting at 10:12	KS
17/12/2020	06:00 starting at 10:06	KS
11/01/2021	06:00 starting at 08:15	KS
25/01/2021	06:00 starting at 08:15	KS
08/02/2021	06:00 starting at 07:40	KS
22/02/2021	06:00 starting at 07:15	KS
01/03/2021	06:00 starting at 09:46	KS
15/03/2021	06:00 starting at 09:50	KS

3.2.2 Walkover Survey Results

Walkover surveys were undertaken at the proposed development between November 2020 and March 2021 inclusive. Summary results from the walkover surveys are presented below in Table 3-2 and discussed in further detail in Section 4 of this report. Figure numbers refer to figures provided in Appendix 2.

Table 3-2 Total number of each species recorded on site during walkover surveys (Peak Counts for each species are presented in bold)

Species	Conservation Status	November				December		January		February		March		Figure No.
		2nd	6th	16th	26th	3rd	17th	11th	25th	8th	22nd	1st	15th	
Black-headed Gull	BoCCI Red Listed (Breeding Populations)	1	9	17	6	4	30	**70**	1	28	13	7	12	1.1
Brent Goose	BoCCI Amber Listed	**32**												1.2
Common Gull	BoCCI Amber Listed (Breeding Populations)	6	12	12	6	1	**21**		11	2	3	1	3	1.3
Curlew	BoCCI Red Listed		4	1	10	11	13	18	17	2	**46**		1	1.4
Great Black-backed Gull	BoCCI Amber Listed (Breeding Populations)		**1**	**1**				**1**						1.5
Grey Heron	BoCCI Green Listed											**1**	**1**	1.6
Herring Gull	BoCCI Red Listed (Breeding Populations)	14	**85**	10	16	6	70	30	9	21	14	8	7	1.7
Lapwing	BoCCI Red Listed								**11**					1.8
Lesser Black-backed Gull	BoCCI Amber Listed (Breeding Populations)	**2**	1	**2**	1				1	1	1			1.9
Mallard	BoCCI Green Listed												**1**	1.10
Merlin	Annex I species									**1**				1.11
Mute Swan	BoCCI Amber Listed	**2**												1.12

3.2.3 Habitat Survey Results

The quality and composition of various points on walked transects within the proposed development were assessed at each visit. The monthly range and averages of habitat compositions are detailed in Table 3-3 below. Also included is average monthly sward heights and the abundance of brent goose droppings.

Table 3-3: Habitat quality and composition of walked transects within the proposed development. Also included is the abundance of Brent geese droppings observed on transects.

Month	Sward Height (cm)	Grass (%)		Forbs (%)		Bare Ground (%)		Number of Droppings
		Range	Average	Range	Average	Range	Average	
November	36.4	40-95	78	5-40	22	0	0	0
December	32.2	10-95	76.5	5-90	23.5	0	0	0
January	38	40-95	74.25	5-60	25.75	0	0	0
February	32.85	10-100	81.4	0-90	18.6	0	0	0
March	35.2	60-100	81.2	0-40	18.8	0	0	0

3.2.4 Other Observations

A number of observations of non-target species were recorded during the survey period. The most significant of these observations are detailed in Table 3- below and discussed in further detail in Section 4 of this report. Figure numbers refer to figures provided in Appendix 2.

Table 3-4 Other observations during surveys

Species	Survey Type	Observations recorded during surveys	Activity of note	Figure Number
Buzzard	Walkover Survey	31	Flying over site, calling/displaying	1.13
Buzzard	Walkover Survey	5	Pair flying/displaying	1.13
Buzzard	Walkover Survey	1	Multiple birds (>2) circling	1.13
Kestrel	Walkover Survey	13	Flying/Hunting over site	1.14
Kestrel	Walkover Survey	3	Pair flying together	1.14
Sparrowhawk	Walkover Survey	2	Flying/Hunting over site	1.15

4. DISCUSSION

The following provides a synopsis of the findings of the surveys undertaken between November 2020 and March 2021.

Within the proposed development site and/or within 500m of the site, the following key observations were noted:

- Curlew, Brent geese and lapwing were observed travelling over the proposed development towards improved grassland to the northwest and southwest. These fields comprise short grasses such as those on the Skerries golf course, which are favourable to this species.
- No target species were observed foraging on the grassland of this proposed development area, which comprises semi-natural grassland with grass sward heights that are longer than that preferable by most target species.

Key impacts that could result from the proposed development for local avian receptors include habitat loss, disturbance/displacement and water pollution. These impacts should be considered further at assessment stage.

The proposed development consists of semi-natural grassland and improved agricultural grassland. Of the SCI species the SPAs within the likely zone of influence, brent geese are considered the most likely to make use such habitats, therefore are most likely to be impacted by the proposed development. However, no geese were observed roosting or foraging within 500m of the proposed development, and no goose droppings were located during habitat surveys. This species was observed infrequently commuting over the proposed development. This may be because the sward height of the grassland found at the site of the proposed development does not correspond with the typical short grazing favoured by this species. The amenity grasslands, such as Skerries golf club, located within 500m of the proposed development are short sward grassland typically favoured by brent goose. There is the potential for disturbance/displacement of this species during the construction phase of the proposed development at these locations within 500m of the proposed development boundary. These impacts should be considered further at assessment stage.

Black-headed gull flocks of county importance (1% of the county population) were observed on one occasion on, or within 500m of, the proposed development site. Common gull flocks of county importance were observed on four occasions, curlew flocks of county importance were observed on one occasion, herring gull flocks of county importance were observed on three occasions, lesser black-backed gull flocks of county importance were observed on seven occasions and a grey heron flock of county importance was observed on two occasions. Of these species, lesser black-backed gull, and grey heron were observed infrequently and/or in low numbers, as such significant impacts on these species are not anticipated. Disturbance/displacement will be a key impact on the other species of county importance.

Brent geese and herring gulls observed at the proposed development may be associated with the Skerries Islands SPA, given the proximity of the SPA, 700m to the east of the proposed development. Lesser black-backed gulls observed within the proposed development are potentially associated with the Lambay Island SPA, which is located nine kilometers southeast of the proposed development, given the core foraging range of this species (Thaxter et al., 2012). No commuting corridors, to or from any SPA, were identified at the proposed development during the 2020/2021 winter season. However, a clear commuting corridor for curlew was observed, as birds commuted from the coast to foraging/roosting grounds inland.

Additionally, A potential breeding pair of buzzards were observed regularly over the semi-natural grasslands and perching in linear tree and scrub within the proposed development area. A pair of kestrel were observed over improved grassland and perching in conifer trees to the west of the proposed development. These birds were observed flying towards and from conifers on several occasions, and it is possible that there could be a breeding territory within this area during the breeding season. A merlin

was observed hunting over the grasslands of the proposed development on one occasion. This area supported an abundant number of prey species (such as meadow pipit and skylark) resulting in favorable hunting ground for raptors.

5. CONCLUSION

Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser black-backed gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:

- Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.
- Water pollution

The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al., 2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out.

The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments.

The magnitude of these impact and their potential significance will require further consideration at the assessment stage of any future planning application.

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APPENDIX 1
TECHNICAL APPENDIX

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Table 1 Survey Effort

Survey Date	Survey Method	Survey Duration	Weather Conditions	Comments	Surveyor
02/11/2020	Walkover	06:00 starting at 09:23	Wind Speed and Direction: Strong Breeze, E; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 50 Rain: Light Showers; Frost: None; Snow: None		KS
06/11/2020	Walkover	06:00 starting at 10:42	Wind Speed and Direction: Gentle Breeze, W; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 20 Rain: None; Frost: None; Snow: None		KS
16/11/2020	Walkover	06:00 starting at 09:02	Wind Speed and Direction: Light Breeze, NNE; Visibility: Moderate (1-2km); Cloud Height: <150m; Cloud Cover %: 7 Rain: Light Showers; Frost: None; Snow: None		KS
26/11/2020	Walkover	06:00 starting at 08:10	Wind Speed and Direction: Light Breeze, E; Visibility: Poor (<km); Cloud Height: <150m; Cloud Cover %: 90 Rain: None; Frost: None; Snow: None		KS
03/12/2020	Walkover	06:00 starting at 10:12	Wind Speed and Direction: Light Breeze, SE; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 80 Rain: None; Frost: None; Snow: None		KS
17/12/2020	Walkover	06:00 starting at 10:06	Wind Speed and Direction: Light Breeze, NNW; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 25 Rain: None; Frost: None; Snow: None		KS
11/01/2021	Walkover	06:00 starting at 08:15	Wind Speed and Direction: Gentle Breeze, NE; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 33 Rain: Drizzle; Frost: None; Snow: None		KS
25/01/2021	Walkover	06:00 starting at 08:15	Wind Speed and Direction: Light Breeze, E; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 0-33 Rain: None; Frost: Light; Snow: None		KS
08/02/2021	Walkover	06:00 starting at 07:40	Wind Speed and Direction: Moderate breeze, SW; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 66 Rain: None; Frost: light; Snow: falling	Light snow	KS
22/02/2021	Walkover	06:00 starting at 07:15	Wind Speed and Direction: Light breeze, NE; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None		KS
01/03/2021	Walkover	06:00 starting at 09:46	Wind Speed and Direction: Light air, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 0-33 Rain: None; Frost: None; Snow: None		KS
15/03/2021	Walkover	06:00 starting at 09:50	Wind Speed and Direction: Light breeze, E; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66 Rain: Drizzle; Frost: None; Snow: None		KS

Table 2 Walkover Survey Data

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB0211.1	2020-11-02	Lesser Black-backed Gull	2	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BG0211.1	2020-11-02	Brent Goose	11	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG0211.1	2020-11-02	Herring Gull	6	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BZ0211.1	2020-11-02	Buzzard	1	GS, (Semi-natural grassland)	Perching in treeline		KS
HG0211.2	2020-11-02	Herring Gull	4	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.3	2020-11-02	Herring Gull	3	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.4	2020-11-02	Herring Gull	9	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM0211.1	2020-11-02	Common Gull	5	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.5	2020-11-02	Herring Gull	3	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.6	2020-11-02	Herring Gull	8	GA1, (Improved agricultural grassland)	Flying		KS
HG0211.7	2020-11-02	Herring Gull	4	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.8	2020-11-02	Herring Gull	14	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
MS0211.1	2020-11-02	Mute Swan	2	BL, (Built land)	Flying		KS
HG0211.9	2020-11-02	Herring Gull	12	GS, (Semi-natural grassland)	Flying		KS
BH0211.1	2020-11-02	Black-headed Gull	1	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.10	2020-11-02	Herring Gull	8	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.11	2020-11-02	Herring Gull	2	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
CM0211.2	2020-11-02	Common Gull	6	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG0211.12	2020-11-02	Herring Gull	5	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.13	2020-11-02	Herring Gull	4	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BG0211.2	2020-11-02	Brent Goose	32	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB0211.2	2020-11-02	Lesser Black-backed Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG0611.1	2020-11-06	Herring Gull	5	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.2	2020-11-06	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG0611.3	2020-11-06	Herring Gull	3	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.4	2020-11-06	Herring Gull	10	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.5	2020-11-06	Herring Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.6	2020-11-06	Herring Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		DW
HG0611.7	2020-11-06	Herring Gull	1	GS, (Semi-natural grassland)	Flying		DW
BH0611.1	2020-11-06	Black-headed Gull	9	GA1, (Improved agricultural grassland)	Flying		DW
GB0611.1	2020-11-06	Great Black-backed Gull	1	GA1, (Improved agricultural grassland)	Flying		DW
HG0611.8	2020-11-06	Herring Gull	16	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
LB0611.1	2020-11-06	Lesser Black-backed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
HG0611.9	2020-11-06	Herring Gull	30	BL, (Built land)	Flying		DW
HG0611.10	2020-11-06	Herring Gull	20	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.11	2020-11-06	Herring Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		DW
HG0611.12	2020-11-06	Herring Gull	3	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.13	2020-11-06	Herring Gull	2	GS, (Semi-natural grassland) BL, (Built land) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.14	2020-11-06	Herring Gull	15	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		DW
CU0611.1	2020-11-06	Curlew	4	GS, (Semi-natural grassland) BL, (Built land) GA1, (Improved agricultural grassland)	Travelling		DW
HG0611.15	2020-11-06	Herring Gull	2	GS, (Semi-natural grassland) BL, (Built land)	Flying		DW

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0611.16	2020-11-06	Herring Gull	10	GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
HG0611.17	2020-11-06	Herring Gull	5	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
HG0611.18	2020-11-06	Herring Gull	12	GA1, (Improved agricultural grassland) BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.19	2020-11-06	Herring Gull	10	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.20	2020-11-06	Herring Gull	5	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
BZ0611.1	2020-11-06	Buzzard	1	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Travelling		DW
HG0611.21	2020-11-06	Herring Gull	28	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
CM0611.1	2020-11-06	Common Gull	12	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
LB0611.3	2020-11-06	Lesser Black-backed Gull	1	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.22	2020-11-06	Herring Gull	6	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0611.23	2020-11-06	Herring Gull	18	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.24	2020-11-06	Herring Gull	10	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.25	2020-11-06	Herring Gull	22	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.26	2020-11-06	Herring Gull	85	GA1, (Improved agricultural grassland) BL, (Built land)	Flying		KS
HG0611.27	2020-11-06	Herring Gull	19	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.28	2020-11-06	Herring Gull	14	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.29	2020-11-06	Herring Gull	34	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.30	2020-11-06	Herring Gull	52	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS

5

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0611.31	2020-11-06	Herring Gull	20	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.32	2021-11-06	Herring Gull	18	GA1, (Improved agricultural grassland) BL, (Built land)	Flying		KS
HG0611.33	2020-11-06	Herring Gull	16	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG0611.34	2020-11-06	Herring Gull	23	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.35	2020-11-06	Herring Gull	72	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BZ0611.2	2020-11-06	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
CM1611.1	2020-11-16	Common Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
LB1611.1	2020-11-16	Lesser Black-backed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG1611.1	2020-11-16	Herring Gull	7	BL, (Built land)	Circling over houses		KS
GB1611.1	2020-11-16	Great Black-backed Gull	1	GA1, (Improved agricultural grassland)	Flying		KS
HG1611.2	2020-11-16	Herring Gull	6	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
BH1611.1	2020-11-16	Black-headed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM1611.2	2020-11-16	Common Gull	1	GA1, (Improved agricultural grassland) BL, (Built land)	Flying		KS
BZ1611.1	2020-11-16	Buzzard	1	GS, (Semi-natural grassland)	Perching		KS
CM1611.3	2020-11-16	Common Gull	12	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.3	2020-11-16	Herring Gull	1	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM1611.4	2020-11-16	Common Gull	8	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG1611.4	2020-11-16	Herring Gull	5	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG1611.5	2020-11-16	Herring Gull	5	GS, (Semi-natural grassland) BL, (Built land)	Circling over houses		KS
HG1611.6	2020-11-16	Herring Gull	3	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG1611.7	2020-11-16	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG1611.8	2020-11-16	Herring Gull	6	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
BH1611.2	2020-11-16	Black-headed Gull	6	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.9	2020-11-16	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG1611.10	2020-11-16	Herring Gull	5	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
BH1611.3	2020-11-16	Black-headed Gull	17	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.11	2020-11-16	Herring Gull	9	BL, (Built land) GA1, (Improved agricultural grassland)	Flying		KS
BH1611.4	2020-11-16	Black-headed Gull	10	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CU1611.1	2020-11-16	Curlew	1	GA1, (Improved agricultural grassland)	Flying		KS
HG1611.12	2020-11-16	Herring Gull	10	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.13	2020-11-16	Herring Gull	4	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BH1611.5	2020-11-16	Black-headed Gull	12	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
BH1611.6	2020-11-16	Black-headed Gull	7	BL, (Built land)	Flying		KS
BZ1611.2	2020-11-16	Buzzard	1	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Travelling		KS
LB1611.2	2020-11-16	Lesser Black-backed Gull	2	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
BZ2611.A	2020-11-26	Buzzard	1	WL, (Linear woodland/scrub) GS, (Semi-natural grassland)	Perched in treeline		KS
2 CM2611.1	2020-11-26	Common Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM2611.2	2020-11-26	Common Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.1	2020-11-26	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
CU2611.1	2020-11-26	Curlew	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Travelling		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
CM2611.3	2020-11-26	Common Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM2611.4	2020-11-26	Common Gull	1	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.2	2020-11-26	Herring Gull	10	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.3	2020-11-26	Herring Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG2611.4	2020-11-26	Herring Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BH2611.1	2020-11-26	Black-headed Gull	2	GA1, (Improved agricultural grassland)	Flying		KS
HG2611.4	2020-11-26	Herring Gull	1	GA1, (Improved agricultural grassland)	Flying		KS
CU2611.2	2020-11-26	Curlew	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM2611.5	2020-11-26	Common Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG2611.5	2020-11-26	Herring Gull	8	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
BZ2611.1	2020-11-26	Buzzard	1	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG2611.6	2020-11-26	Herring Gull	6	BL, (Built land)	Flying		KS
HG2611.7	2020-11-26	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG2611.8	2020-11-26	Herring Gull	16	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CU2611.3	2020-11-26	Curlew	6	GA1, (Improved agricultural grassland) BL, (Built land)	Travelling		KS
CU2611.4	2020-11-26	Curlew	10	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Travelling		KS
BH2611.2	2020-11-26	Black-headed Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG2611.9	2020-11-26	Herring Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.10	2020-11-26	Herring Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.11	2020-11-26	Herring Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB2611.1	2020-11-26	Lesser Black-backed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM2611.6	2020-11-26	Common Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
BH2611.3	2020-11-26	Black-headed Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG2611.12	2020-11-26	Herring Gull	10	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM0312.1	03/12/2020	Common Gull	1	BL, (Built land)	Flying		KS
HG0312.1	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
BZ0312.1	03/12/2020	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.2	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.3	03/12/2020	Herring Gull	1	BL, (Built land)	Flying		KS
BH0312.1	03/12/2020	Black-headed Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.4	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
BH0312.2	03/12/2020	Black-headed Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG0312.5	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
BH0312.3	03/12/2020	Black-headed Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.6	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
BZ0312.2	03/12/2020	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.7	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG0312.8	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.9	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
CU0312.1	03/12/2020	Curlew	1	GS, (Semi-natural grassland)	Flying		KS
CU0312.2	03/12/2020	Curlew	2	GS, (Semi-natural grassland)	Flying		KS
HG0312.10	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
CU0312.3	03/12/2020	Curlew	3	GS, (Semi-natural grassland)	Flying		KS
HG0312.11	03/12/2020	Herring Gull	3	GS, (Semi-natural grassland)	Flying		KS
CM0312.2	03/12/2020	Common Gull	1	GS, (Semi-natural grassland)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0312.12	03/12/2020	Herring Gull	4	BL, (Built land)	Flying		KS
CU0312.4	03/12/2020	Curlew	8	GS, (Semi-natural grassland)	Flying		KS
HG0312.13	03/12/2020	Herring Gull	6	GS, (Semi-natural grassland)	Flying		KS
HG0312.14	03/12/2020	Herring Gull	3	GS, (Semi-natural grassland)	Flying		KS
HG0312.15	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG0312.16	03/12/2020	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG0312.17	03/12/2020	Herring Gull	6	GS, (Semi-natural grassland)	Flying		KS
CU0312.5	03/12/2020	Curlew	11	BL, (Built land)	Flying		KS
BH0312.4	03/12/2020	Black-headed Gull	4	BL, (Built land)	Flying		KS
HG1712.1	17/12/2020	Herring Gull	20	GS, (Semi-natural grassland)	Flying		KS
CM1712.1	17/12/2020	Common Gull	5	GS, (Semi-natural grassland)	Flying		KS
HG1712.2	17/12/2020	Herring Gull	70	GS, (Semi-natural grassland)	Flying		KS
BZ1712.1	17/12/2020	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
HG1712.3	17/12/2020	Herring Gull	3	GS, (Semi-natural grassland)	Flying		KS
HG1712.4	17/12/2020	Herring Gull	16	GS, (Semi-natural grassland)	Flying		KS
CM1712.2	17/12/2020	Common Gull	2	GS, (Semi-natural grassland)	Flying		KS
BZ1712.2	17/12/2020	Buzzard	3	GS, (Semi-natural grassland)	Flying		KS
CM1712.3	17/12/2020	Common Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG1712.5	17/12/2020	Herring Gull	9	GS, (Semi-natural grassland)	Flying		KS
HG1712.6	17/12/2020	Herring Gull	2	GA1, (Improved agricultural grassland)	Flying		KS
HG1712.7	17/12/2020	Herring Gull	5	GS, (Semi-natural grassland)	Flying		KS
CM1712.4	17/12/2020	Common Gull	4	BL, (Built land)	Flying		KS
HG1712.8	17/12/2020	Herring Gull	12	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
CM1712.5	17/12/2020	Common Gull	21	GS, (Semi-natural grassland)	Flying		KS
CU1712.1	17/12/2020	Curlew	10	BL, (Built land)	Flying		KS
HG1712.9	17/12/2020	Herring Gull	6	BL, (Built land)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
SH1712.1	17/12/2020	Sparrowhawk	1	GS, (Semi-natural grassland)	Flying		KS
HG1712.10	17/12/2020	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG1712.11	17/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG1712.12	17/12/2020	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
BH1712.1	17/12/2020	Black-headed Gull	4	GS, (Semi-natural grassland)	Flying		KS
BH1712.2	17/12/2020	Black-headed Gull	4	GS, (Semi-natural grassland)	Flying		KS
CU1712.2	17/12/2020	Curlew	13	BL, (Built land)	Flying		KS
BH1712.3	17/12/2020	Black-headed Gull	30	GS, (Semi-natural grassland)	Flying		KS
HG1712.13	17/12/2020	Herring Gull	40	GS, (Semi-natural grassland)	Flying		KS
CU1712.3	17/12/2020	Curlew	8	BL, (Built land)	Flying		KS
CU1712.4	17/12/2020	Curlew	8	BL, (Built land)	Flying		KS
CU1712.5	17/12/2020	Curlew	2	BL, (Built land)	Flying		KS
BH1712.4	17/12/2020	Black-headed Gull	10	BL, (Built land)	Flying		KS
BH1712.5	17/12/2020	Black-headed Gull	28	BL, (Built land)	Flying		KS
BH1101.1	11-01-2021	Black-headed Gull	70	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
HG1101.1	11-01-2021	Herring Gull	30	built land and semi-natural grassland	Flying		KS
BH1101.2	11-01-2021	Black-headed Gull	35	built land and semi-natural grassland	Flying		KS
SH1101.1	11-01-2021	Sparrowhawk	1	semi-natural grassland	Flying	Flew quickly through site	KS
BH1101.3	11-01-2021	Black-headed Gull	9	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.1	11-01-2021	Eurasian Curlew	18	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.2	11-01-2021	Eurasian Curlew	14	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1101.2	11-01-2021	Herring Gull	20	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.3	11-01-2021	Eurasian Curlew	11	semi-natural grassland and improved agricultural grassland	Flying		KS

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BH1101.4	11-01-2021	Black-headed Gull	20	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
K1101.1	11-01-2021	Kestrel	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.4	11-01-2021	Eurasian Curlew	13	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.5	11-01-2021	Eurasian Curlew	2	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.6	11-01-2021	Eurasian Curlew	7	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
BZ1101.1	11-01-2021	Buzzard	1	improved agricultural grassland and semi-natural grassland	Flying		KS
HG1101.3	11-01-2021	Herring Gull	30	built land	Flying		KS
CU1101.8	11-01-2021	Eurasian Curlew	18	improved agricultural grassland and semi-natural grassland	Flying		KS
CU1101.7	11-01-2021	Eurasian Curlew	14	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
GB1101.1	11-01-2021	Great Black-backed Gull	1	built land and semi-natural grassland	Flying		KS
CU1101.9	11-01-2022	Eurasian Curlew	13	built land	Flying		KS
HG1101.4	11-01-2021	Herring Gull	6	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.10	11-01-2021	Eurasian Curlew	1	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
HG1101.5	11-01-2021	Herring Gull	8	built land and semi-natural grassland	Flying		KS
HG2501.1	2021-01-25	Herring Gull	5	semi-natural grassland	Flying		KS
CM2501.1	2021-01-25	Common Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.1	2021-01-25	Eurasian Curlew	14	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
HG2501.2	2021-01-25	Herring Gull	16	built land	Flying		KS
HG2501.3	2021-01-25	Herring Gull	4	semi-natural grassland and built land	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
K2501.1	2021-01-25	Kestrel	1	improved agricultural grassland	Flying/Hunting		KS
BH2501.1	2021-01-25	Black-headed Gull	1	semi-natural grassland and built land	Flying		KS
BH2501.2	2021-01-25	Black-headed Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2501.4	2021-01-25	Herring Gull	2	built land	Flying		KS
LB2501.1	2021-01-25	Lesser Black-backed Gull	1	built land and semi-natural grassland	Flying		KS
HG2501.5	2021-01-25	Herring Gull	9	built land	Flying		KS
CU2501.2	2021-01-25	Eurasian Curlew	17	built land and improved agricultural grassland	Flying		KS
CM2501.2	2021-01-25	Common Gull	1	improved agricultural grassland	Flying		KS
BZ2501.1	2021-01-25	Buzzard	1	semi-natural grassland and linear woodland/scrub	Flying		KS
CU2501.3	2021-01-25	Eurasian Curlew	2	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.4	2021-01-25	Eurasian Curlew	3	built land and improved agricultural grassland	Flying		KS
BH2501.3	2021-01-25	Black-headed Gull	1	semi-natural grassland	Flying		KS
HG2501.6	2021-01-25	Herring Gull	5	built land and semi-natural grassland	Flying		KS
BZ2501.2	2021-01-25	Buzzard	2	semi-natural grassland, improved agricultural grassland and linear woodland/scrub	Flying/Display		KS
K2501.2	2021-01-25	Kestrel	2	improved agricultural grassland	Gliding		KS
CM2501.3	2021-01-25	Common Gull	2	semi-natural grassland and built land	Flying		KS
CM2501.4	2021-01-25	Common Gull	11	semi-natural grassland and built land	Flying		KS
L2501.1	2021-01-25	Lapwing	11	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.5	2021-01-25	Eurasian Curlew	12	built land and improved agricultural grassland	Flying		KS
CU2501.6	2021-01-25	Eurasian Curlew	1	improved agricultural grassland and mixed conifer woodland	Flying		KS
CM2501.5	2021-01-25	Common Gull	6	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.7	2021-01-25	Eurasian Curlew	1	semi-natural grassland and built land	Flying		KS

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HG2501.7	2021-01-25	Herring Gull	4	built land and semi-natural grassland	Flying		KS
HG0802.1	08-02-2021	Herring Gull	4	built land and semi-natural grassland	Flying		KS
HG0802.2	08-02-2021	Herring Gull	14	semi-natural grassland and built land	Flying		KS
BZ0802.1	08-02-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG0802.3	08-02-2021	Herring Gull	2	semi-natural grassland	Flying		KS
BH0802.1	08-02-2021	Black-headed Gull	28	improved agricultural grassland	Flying		KS
HG0802.4	08-02-2021	Herring Gull	6	semi-natural grassland	Flying		KS
HG0802.5	08-02-2021	Herring Gull	9	built land	Flying		KS
LB0802.1	08-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and built land	Flying		KS
BZ0802.2	08-02-2021	Buzzard	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH0802.2	08-02-2021	Black-headed Gull	5	semi-natural grassland and built land	Flying		KS
CM0802.1	08-02-2021	Common Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
HG0802.6	08-02-2021	Herring Gull	3	semi-natural grassland and built land	Flying		KS
HG0802.7	08-02-2021	Herring Gull	10	built land	Flying		KS
BH0802.3	08-02-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
BH0802.4	08-02-2021	Black-headed Gull	4	semi-natural grassland and built land	Flying		KS
BZ0802.3	08-02-2021	Buzzard	2	improved agricultural grassland and semi-natural grassland	Flying		KS
HG0802.8	08-02-2021	Herring Gull	21	built land	Flying		KS
CU0802.1	08-02-2021	Eurasian Curlew	2	semi-natural grassland, built land and improved agricultural grassland	Flying		KS
ML0802.1	08-02-2021	Merlin	1	semi-natural grassland	Flying	Flying low over ground	KS
BH0802.5	08-02-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
CM0802.2	08-02-2021	Common Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS

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LB0802.2	08-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and built land	Flying		KS
CU0802.2	08-02-2021	Eurasian Curlew	2	built land	Flying		KS
LB0802.3	08-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and built land	Flying		KS
HG0802.9	08-02-2021	Herring Gull	2	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
BH0802.6	08-02-2021	Black-headed Gull	3	semi-natural grassland and built land	Flying		KS
BH2202.1	22-02-2021	Black-headed Gull	4	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.1	22-02-2021	Herring Gull	14	semi-natural grassland and improved agricultural grassland	Flying		KS
LB2202.1	22-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CM2202.1	22-02-2021	Common Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.2	22-02-2021	Herring Gull	5	built land and improved agricultural grassland	Flying		KS
CU2202.1	22-02-2021	Eurasian Curlew	22	built land and improved agricultural grassland	Flying		KS
BH2202.2	22-02-2021	Black-headed Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.3	22-02-2021	Herring Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.4	22-02-2021	Herring Gull	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH2202.3	22-02-2021	Black-headed Gull	6	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
CU2202.2	22-02-2021	Eurasian Curlew	1	built land and improved agricultural grassland	Flying		KS
CM2202.2	22-02-2021	Common Gull	2	improved agricultural grassland and semi-natural grassland	Flying		KS
CU2202.3	22-02-2021	Eurasian Curlew	10	built land, semi-natural grassland and improved agricultural grassland	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
CU2202.4	22-02-2021	Eurasian Curlew	10	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.5	22-02-2021	Eurasian Curlew	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.6	22-02-2021	Eurasian Curlew	3	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
BH2202.4	22-02-2021	Black-headed Gull	13	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.7	22-02-2021	Eurasian Curlew	3	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.5	22-02-2021	Herring Gull	2	improved agricultural grassland and built land	Flying		KS
CU2202.8	22-02-2021	Eurasian Curlew	2	semi-natural grassland and improved agricultural grassland	Flying		KS
BH2202.5	22-02-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
CU2202.9	22-02-2021	Eurasian Curlew	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CM2202.3	22-02-2021	Common Gull	3	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.10	22-02-2021	Eurasian Curlew	46	improved agricultural grassland and built land	Flying		KS
BZ2202.1	22-02-2021	Buzzard	1	improved agricultural grassland	Flying		KS
BH2202.6	22-02-2021	Black-headed Gull	1	improved agricultural grassland	Flying		KS
CU2202.11	22-02-2021	Eurasian Curlew	1	built land and semi-natural grassland	Flying		KS
K2202.1	22-02-2021	Kestrel	1	built land	Flying	Mobbed by crows	KS
BZ2202.2	22-02-2021	Buzzard	2	improved agricultural grassland	Flying	Circling	KS
CU2202.12	22-02-2021	Eurasian Curlew	1	improved agricultural grassland, semi-natural grassland and built land	Flying		KS
BZ2202.3	22-02-2021	Buzzard	2	semi-natural grassland and built land	Flying		KS
BZ2202.4	22-02-2021	Buzzard	1	improved agricultural grassland	Flying		KS
BZ2202.5	22-02-2021	Buzzard	1	improved agricultural grassland	Flying	Circling pair	KS
HG2202.6	22-02-2021	Herring Gull	3	built land	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG2202.7	22-02-2021	Herring Gull	3	semi-natural grassland	Flying		KS
HG2202.8	22-02-2021	Herring Gull	1	built land and semi-natural grassland	Flying		KS
HG2202.9	22-02-2021	Herring Gull	1	built land and semi-natural grassland	Flying		KS
CM2202.4	22-02-2021	Common Gull	1	improved agricultural grassland	Flying		KS
HG0103.1	01-03-2021	Herring Gull	1	semi-natural grassland and built land	Flying		KS
BZ0103.1	01-03-2021	Buzzard	1	semi-natural grassland	Flying		KS
HG0103.2	01-03-2021	Herring Gull	8	improved agricultural grassland	Flying		KS
BZ0103.2	01-03-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
K0103.1	01-03-2021	Kestrel	2	mixed conifer woodland and improved agricultural grassland	Flying	Pair displaying/calling	KS
K0103.2	01-03-2021	Kestrel	1	mixed conifer woodland, improved agricultural grassland and semi-natural grassland	Flying	Female	KS
K0103.3	01-03-2021	Kestrel	1	mixed conifer woodland and improved agricultural grassland	Flying	Hunting	KS
HG0103.3	01-03-2021	Herring Gull	2	built land	Flying		KS
HG0103.4	01-03-2021	Herring Gull	2	improved agricultural grassland and semi-natural grassland	Flying		KS
HG0103.5	01-03-2021	Herring Gull	1	semi-natural grassland and built land	Flying		KS
BZ0103.3	01-03-2021	Buzzard	1	improved agricultural grassland	Flying		KS
BH0103.1	01-03-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
BH0103.2	01-03-2021	Black-headed Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
BZ0103.4	01-03-2021	Buzzard	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH0103.2	01-03-2021	Black-headed Gull	1	semi-natural grassland and built land	Flying		KS
HG0103.6	01-03-2021	Herring Gull	1	semi-natural grassland	Flying		KS
HG0103.7	01-03-2021	Herring Gull	4	semi-natural grassland and improved agricultural grassland	Flying		KS
HG0103.8	01-03-2021	Herring Gull	1	semi-natural grassland	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0103.9	01-03-2021	Herring Gull	1	improved agricultural grassland, semi-natural grassland and built land	Flying		KS
BH0103.3	01-03-2021	Black-headed Gull	5	improved agricultural grassland and built land	Flying		KS
HG0103.10	01-03-2021	Herring Gull	1	improved agricultural grassland, semi-natural grassland and built land	Flying		KS
CM0103.1	01-03-2021	Common Gull	1	improved agricultural grassland and built land	Flying		KS
H0103.1	01-03-2021	Grey Heron	1	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
K0103.4	01-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying		KS
HG0103.11	01-03-2021	Herring Gull	1	semi-natural grassland and built land	Flying		KS
K0103.5	01-03-2021	Kestrel	1	mixed conifer woodland and improved agricultural grassland	Flying	Hunting, landed in trees	KS
BZ0103.5	01-03-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
BZ0103.6	01-03-2021	Buzzard	1	semi-natural grassland	Flying		KS
HG0103.12	01-03-2021	Herring Gull	2	semi-natural grassland	Flying		KS
HG0103.13	01-03-2021	Herring Gull	2	semi-natural grassland and built land	Flying		KS
K0103.5	01-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying		KS
K0103.6	01-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH0103.4	01-03-2021	Black-headed Gull	1	built land and semi-natural grassland	Flying		KS
BH0103.5	01-03-2021	Black-headed Gull	7	improved agricultural grassland	Flying		KS
H1503.1	15-03-2021	Grey Heron	1	improved agricultural grassland	Flying		KS
BH1503.1	15-03-2021	Black-headed Gull	12	semi-natural grassland and built land	Flying		KS
HG1503.1	15-03-2021	Herring Gull	3	built land and improved agricultural grassland	Flying		KS
CM1503.1	15-03-2021	Common Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.2	15-03-2021	Herring Gull	4	built land and semi-natural grassland	Flying	Circling over houses then flew over site	KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
CU1503.1	15-03-2021	Eurasian Curlew	1	improved agricultural grassland and semi-natural grassland	Flying	Calling while flying	KS
HG1503.3	15-03-2021	Herring Gull	5	semi-natural grassland and improved agricultural grassland	Flying		KS
H1503.2	15-03-2021	Grey Heron	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.4	15-03-2021	Herring Gull	4	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.5	15-03-2021	Herring Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
K1503.1	15-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying	Flying between trees then over site directly	KS
K1503.2	15-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying	Hunting over site	KS
BZ1503.1	15-03-2021	Buzzard	1	improved agricultural grassland	Flying	Displaying/calling	KS
HG1503.6	15-03-2021	Herring Gull	6	semi-natural grassland and built land	Flying	Circling	KS
K1503.3	15-03-2021	Kestrel	1	mixed broadleaved woodland and improved agricultural grassland	Flying	Landed in tree	KS
HG1503.7	15-03-2021	Herring Gull	3	semi-natural grassland and improved agricultural grassland	Flying		KS
K1503.4	15-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying	Circling trees, mobbed by crows	KS
K1503.5	15-03-2021	Kestrel	1	improved agricultural grassland, semi-natural grassland and mixed broadleaved woodland	Flying	Landed in tree	KS
K1503.6	15-03-2021	Kestrel	2	semi-natural grassland and improved agricultural grassland	Flying	Single K. Flew across site, met by second K. at trees	KS
MA1503.1	15-03-2021	Mallard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.8	15-03-2021	Herring Gull	6	built land and semi-natural grassland	Flying	Circling/calling over houses	KS
BZ1503.2	15-03-2021	Buzzard	1	semi-natural grassland and built land	Flying		KS
BZ1503.3	15-03-2021	Buzzard	2	improved agricultural grassland and built land	Flying	Pair circling	KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
BZ1503.4	15-03-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying	Mobbed by gulls	KS
HG1503.9	15-03-2021	Herring Gull	2	semi-natural grassland and built land	Flying	Mobbing buzzard	KS
HG1503.10	15-03-2021	Herring Gull	7	semi-natural grassland, built land and improved agricultural grassland	Flying		KS
HG1503.11	15-03-2021	Herring Gull	4	semi-natural grassland and improved agricultural grassland	Flying		KS
CM1503.2	15-03-2021	Common Gull	3	improved agricultural grassland and built land	Flying		KS
BZ1503.5	15-03-2021	Buzzard	1	improved agricultural grassland, semi-natural grassland and linear woodland/scrub	Flying		KS
BH1503.2	15-03-2021	Black-headed Gull	3	improved agricultural grassland and semi-natural grassland	Flying		KS
BZ1503.6	15-03-2021	Buzzard	1	semi-natural grassland, linear woodland/scrub and improved agricultural grassland	Flying		KS
HG1503.12	15-03-2021	Herring Gull	3	semi-natural grassland and improved agricultural grassland	Flying		KS


APPENDIX 2
FIGURES


Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Windmill
Sch
Church
18MP
Br Hf
3.44m
29
Milverton
59
44
Sch
20
R128
Holmpatrick
Loughland
18
Hacketstown
25
26
17MP
Piercetown
44
Ballyhavil
Microsoft product screen shots reprinted with permission from Microsoft Corporation
Development Boundary
201053 Altemar Bird Surveys
Kathryn Sheridan
Patrick Manley
201053
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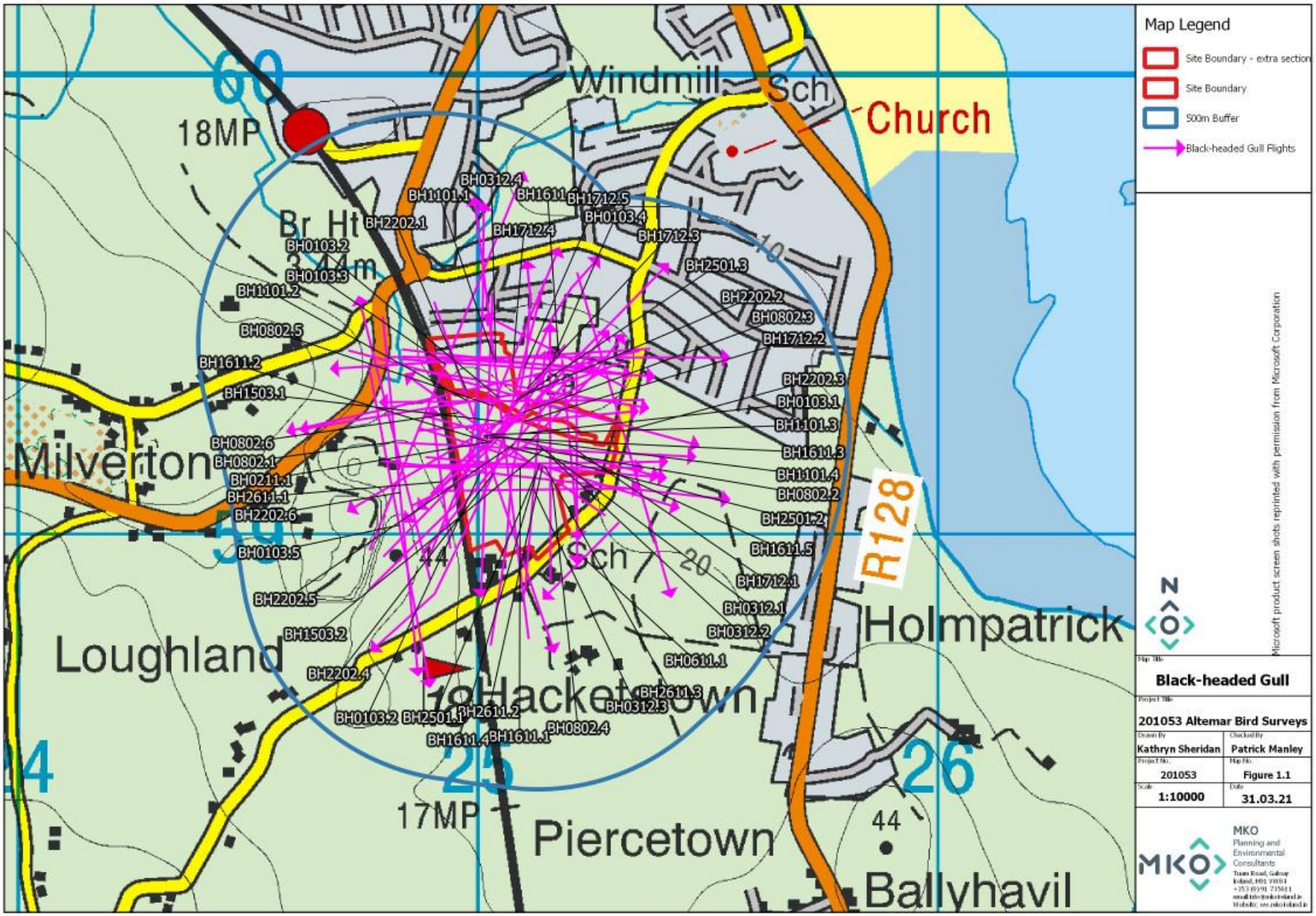
31.03.21
MKO
Planning and Environmental Consultants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Black-headed Gull Flights
Microsoft product screen shots reprinted with permission from Microsoft Corporation
N
Black-headed Gull
201053 Altemar Bird Surveys
Kathryn Sheridan
Patrick Manley
201053
Figure 1.1
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31.03.21
MKO
Planning and Environmental Consultants
Windmill
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Church
18MP
Br Ht
344m
Milverton
Loughland
Hacketstown
Holmpatrick
Piercetown
Ballyhavil
17MP
R128
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BH0312.4
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BH1611.1
BH1712.5
BH2202.1
BH0103.4
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BH1712.3
BH0103.2
BH0103.3
BH2501.3
BH1101.2
BH2202.2
BH0802.3
BH0802.5
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BH2202.3
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BH0802.6
BH0802.1
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BH2501.2
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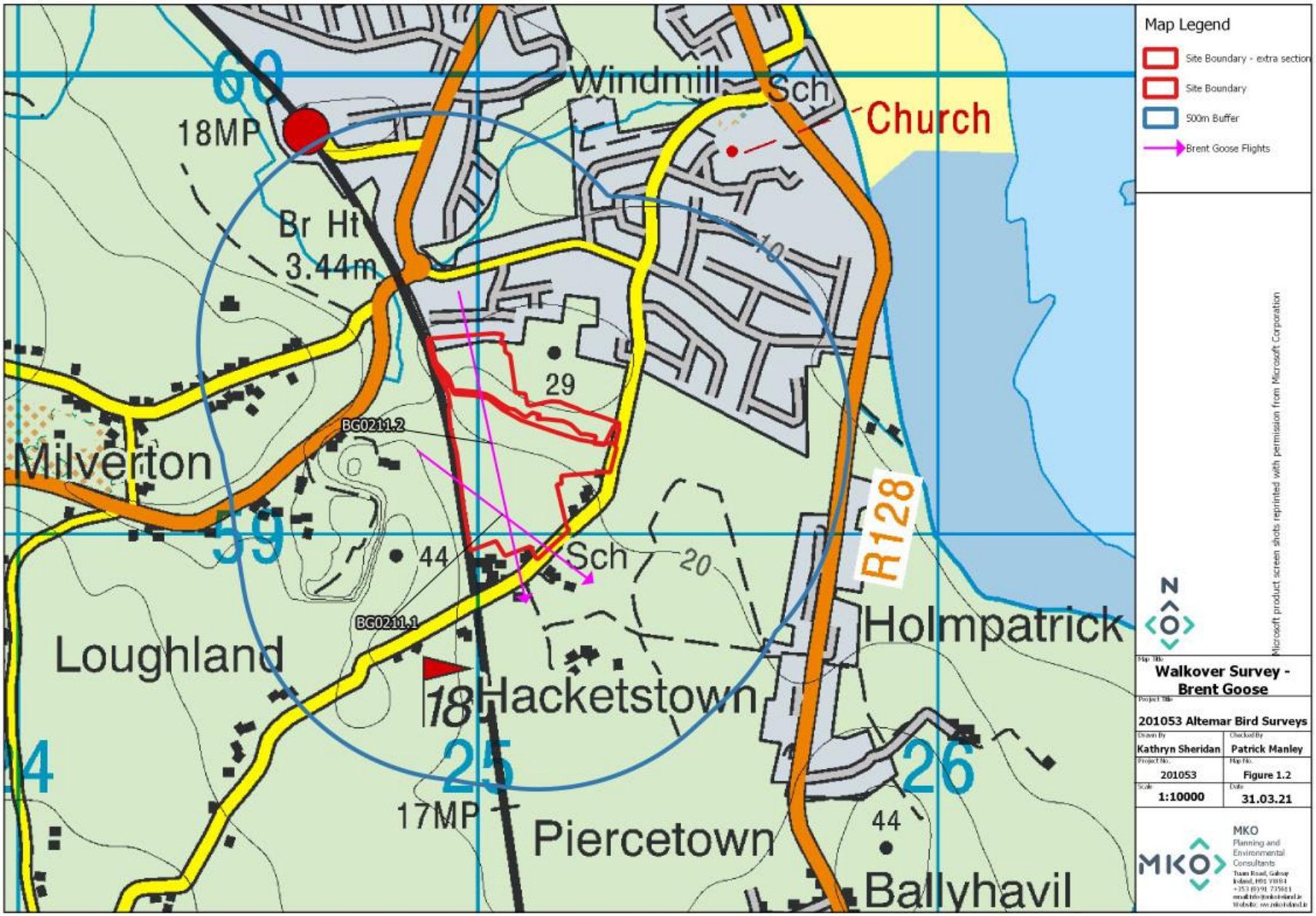
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BG0211.2
Milverton
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44
Sch
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R128
BG0211.1
Loughland
Holmpatrick
18
Hacketstown
25
26
17MP
Piercetown
44
Ballyhavil
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Walkover Survey - Brent Goose
201053 Altemar Bird Surveys
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Patrick Manley
201053
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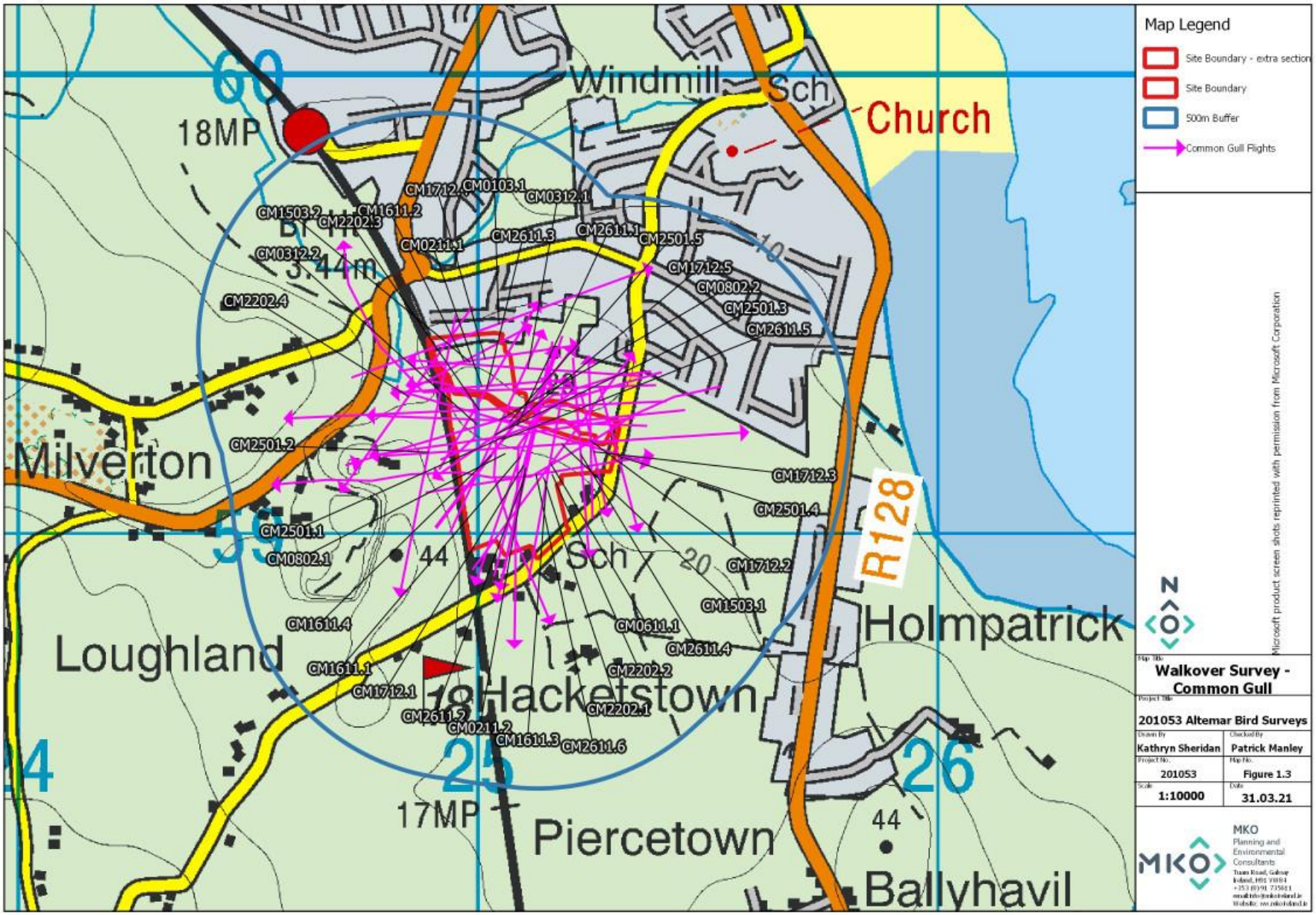
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Common Gull Flights
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Hacketstown
Piercetown
Ballyhavil
17MP
R128
Walkover Survey - Common Gull
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Kathryn Sheridan
Patrick Manley
201053
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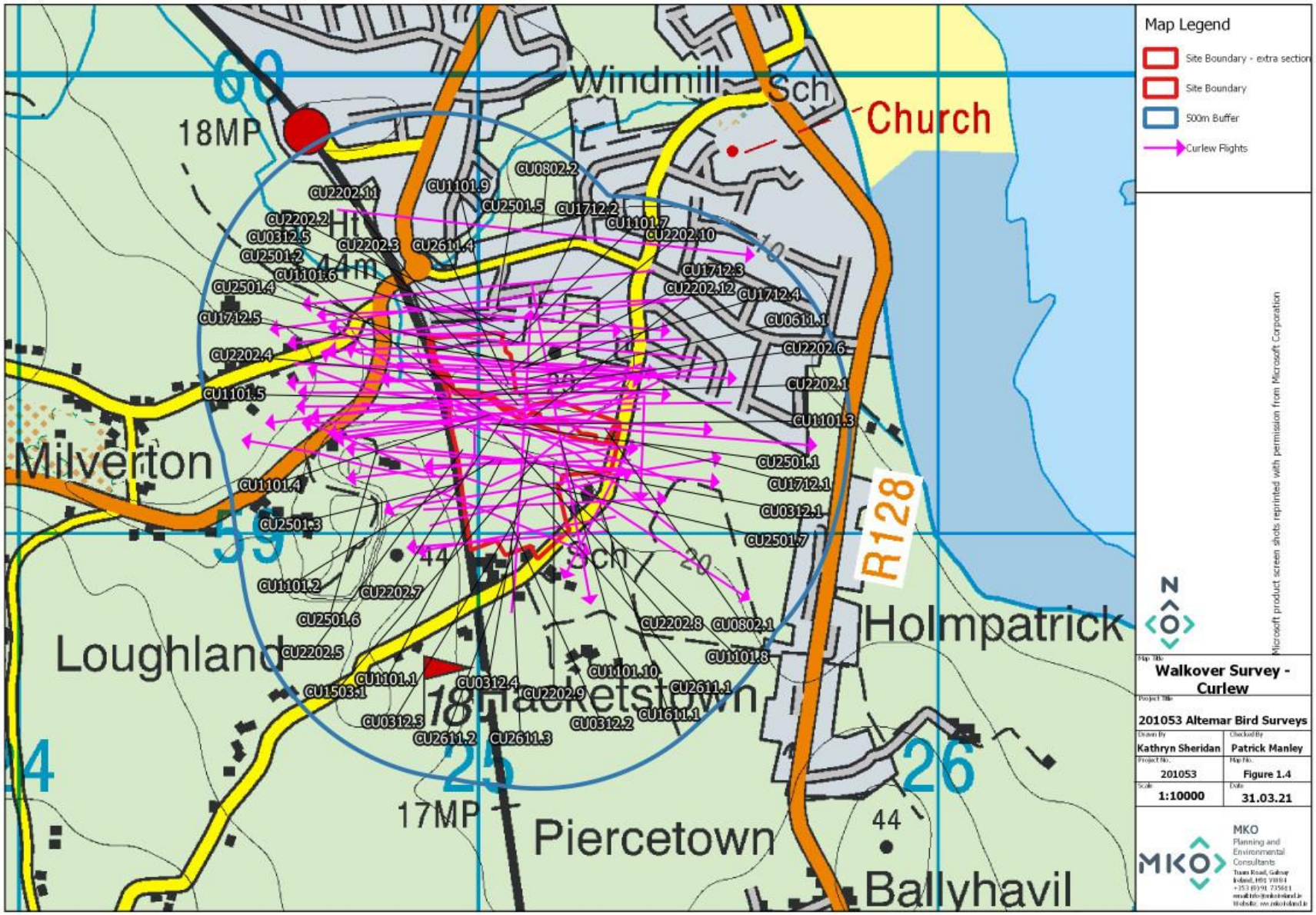
Windmill Sch
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Hacketstown
Piercetown
Ballyhavil
R128
17MP
Map Legend
Site Boundary - extra section
Site Boundary
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Curlew Flights
Walkover Survey - Curlew
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Patrick Manley
201053
Figure 1.4
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Map Legend
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Great Black-Backed Gull Flights
Windmill
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Br Hf
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GB1101.1
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GB0611.1
Milverton
Loughland
Hacketstown
Holmpatrick
Sch
R128
Piercetown
17MP
Ballyhavil
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Walkover Survey - Great Black-Backed Gull
201053 Altemar Bird Surveys
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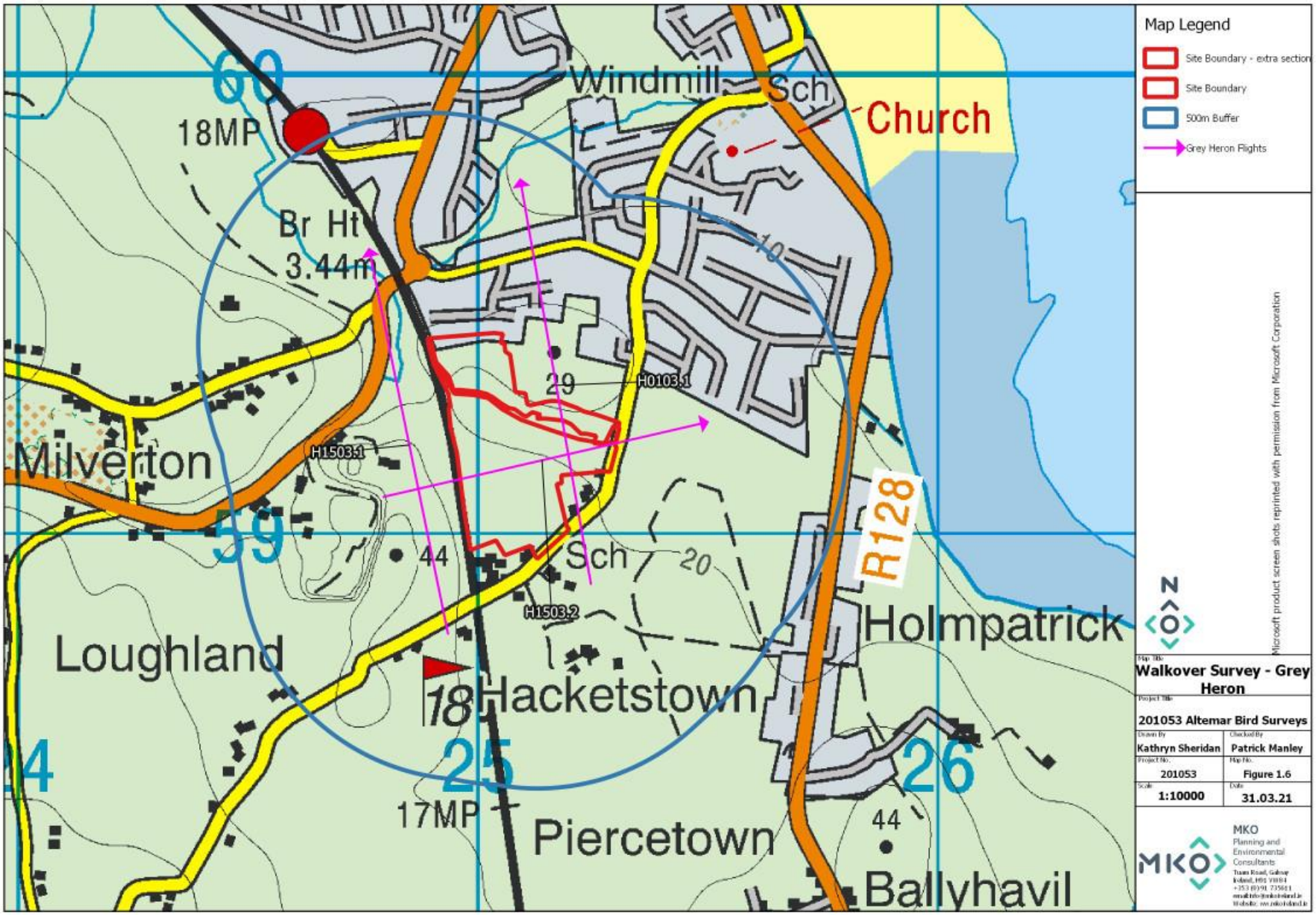
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Loughland
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Hacketstown
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26
17MP
Piercetown
44
Ballyhavil
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Walkover Survey - Grey Heron
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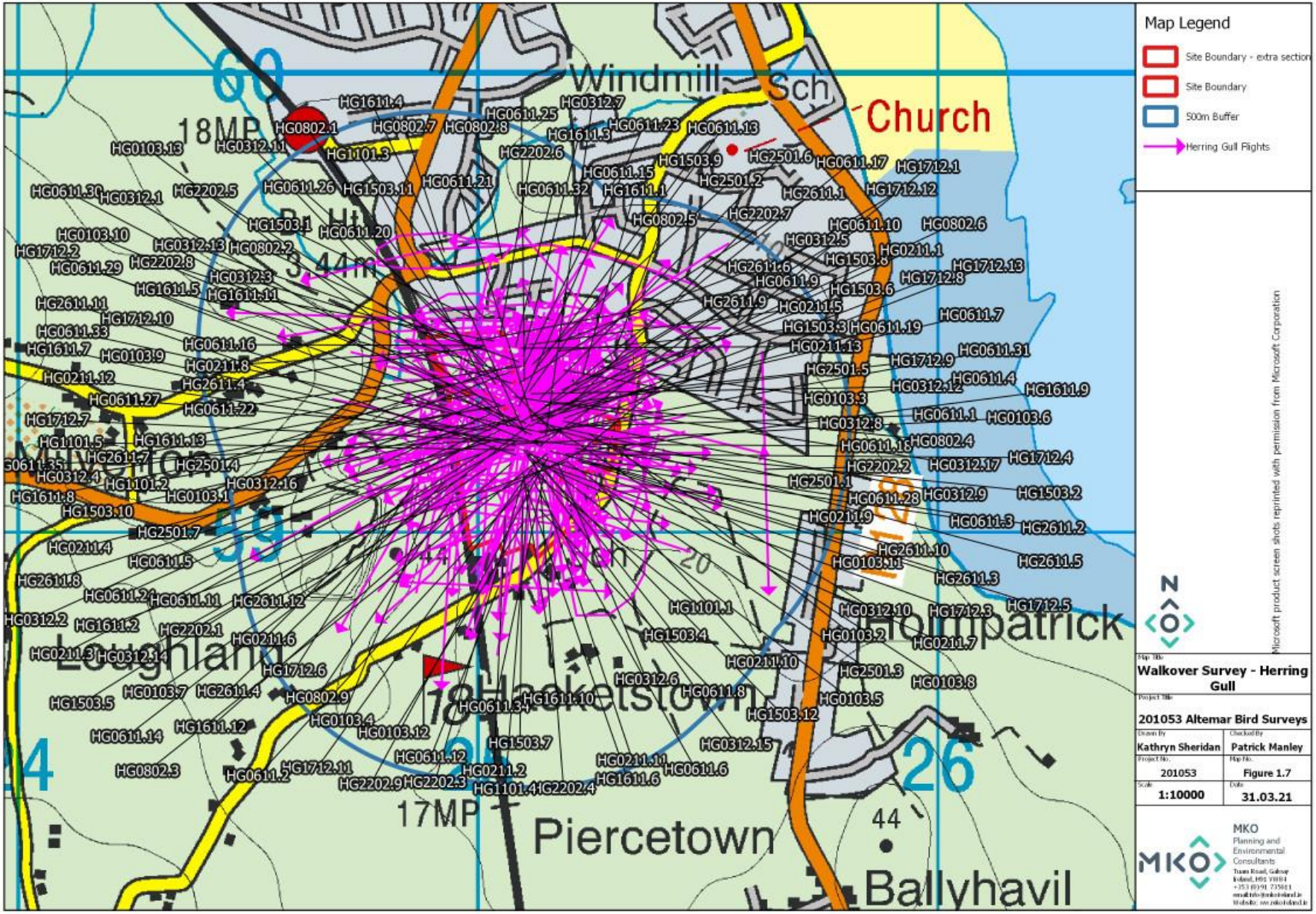
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Herring Gull Flights
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Hacketstown
Holmpatrick
Piercetown
Ballyhavil
Walkover Survey - Herring Gull
201053 Altemar Bird Surveys
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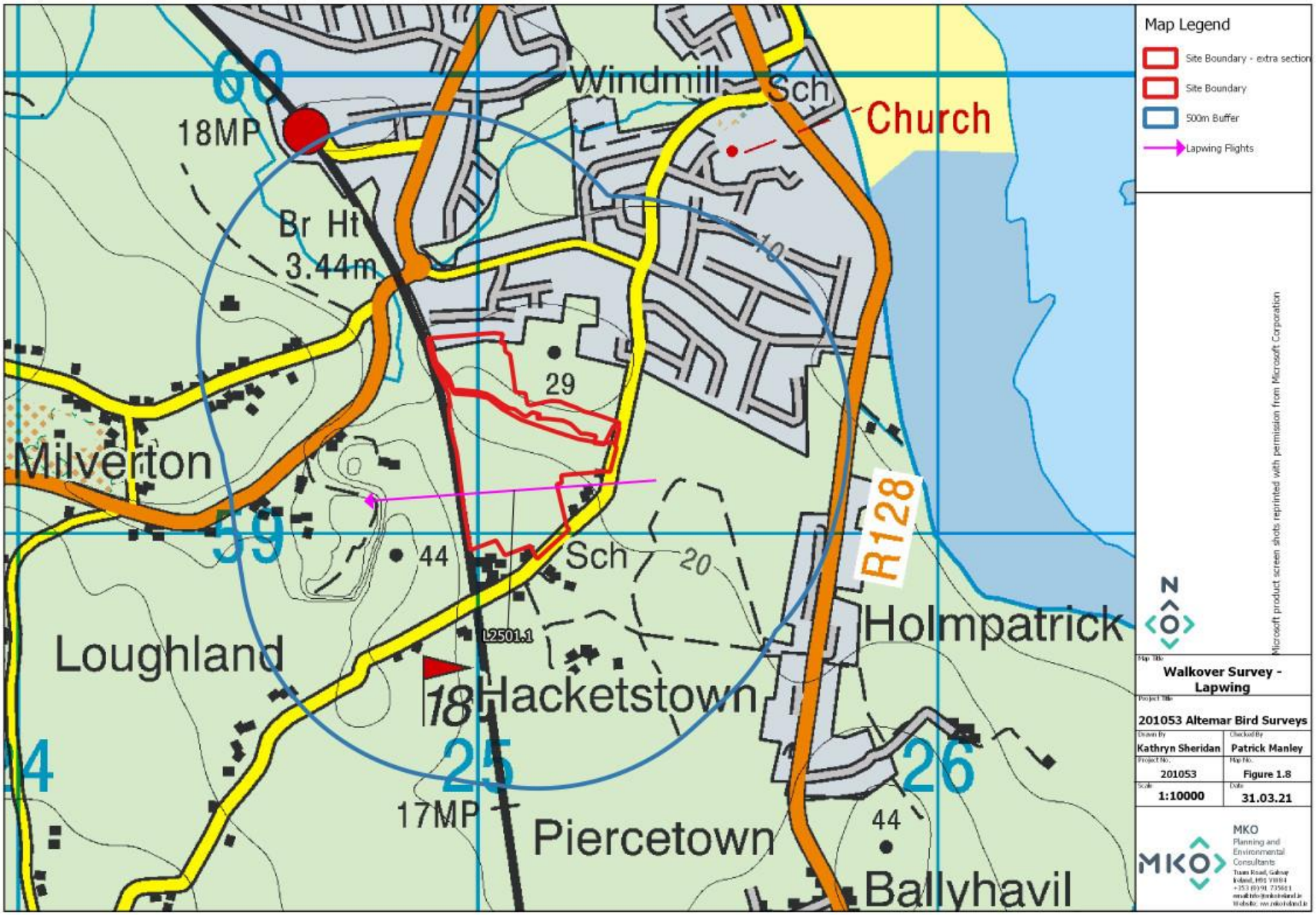
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Sch
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R128
Holmpatrick
Loughland
L2501.1
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Hacketstown
17MP
Piercetown
44
Ballyhavil
N
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Walkover Survey - Lapwing
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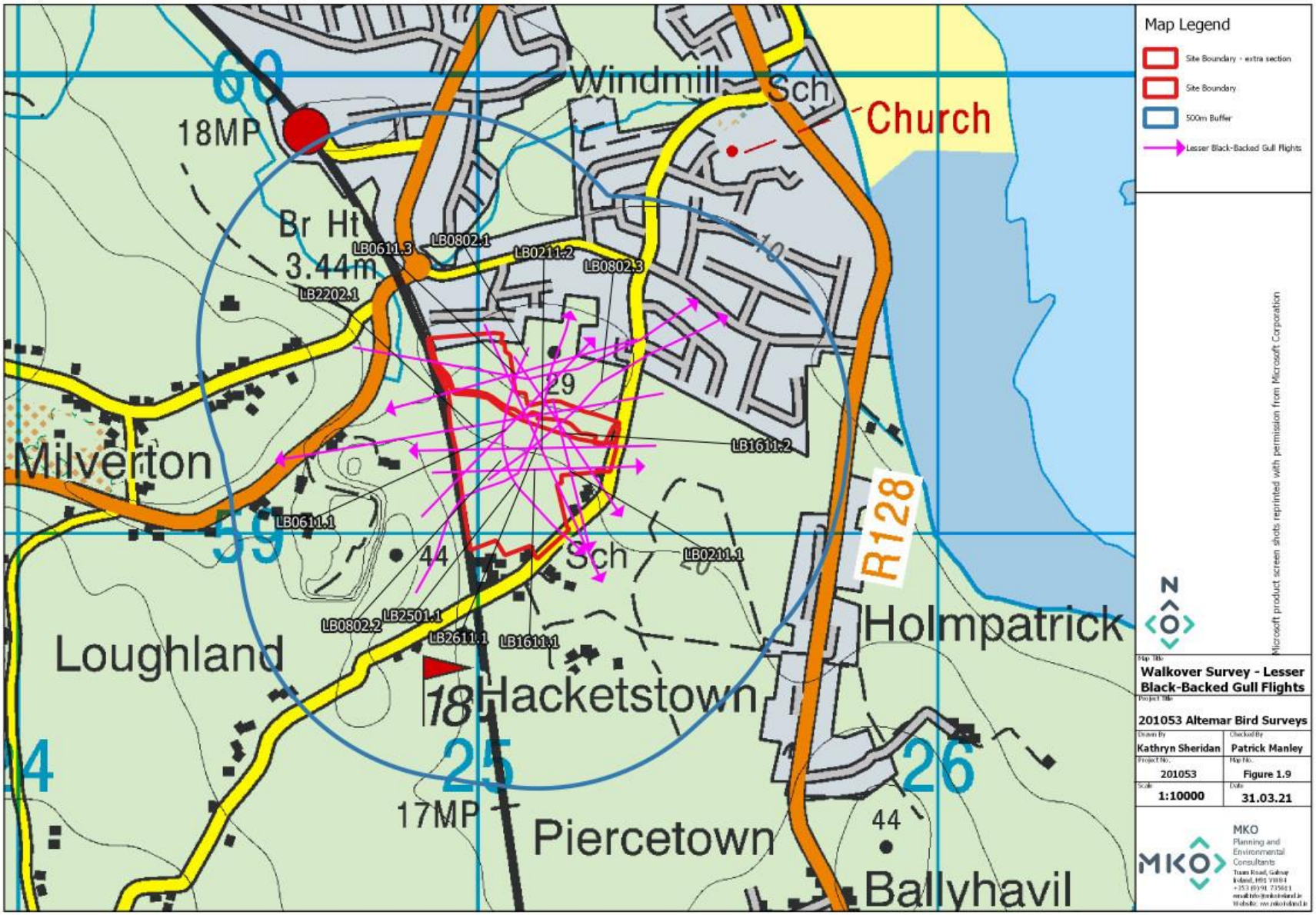
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LB1611.2
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LB0611.1
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Sch
LB0211.1
R128
LB0802.2
LB2501.1
LB2611.1
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Holmpatrick
Loughland
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Hacketstown
17MP
Piercetown
44
Ballyhavil
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Walkover Survey - Lesser Black-Backed Gull Flights
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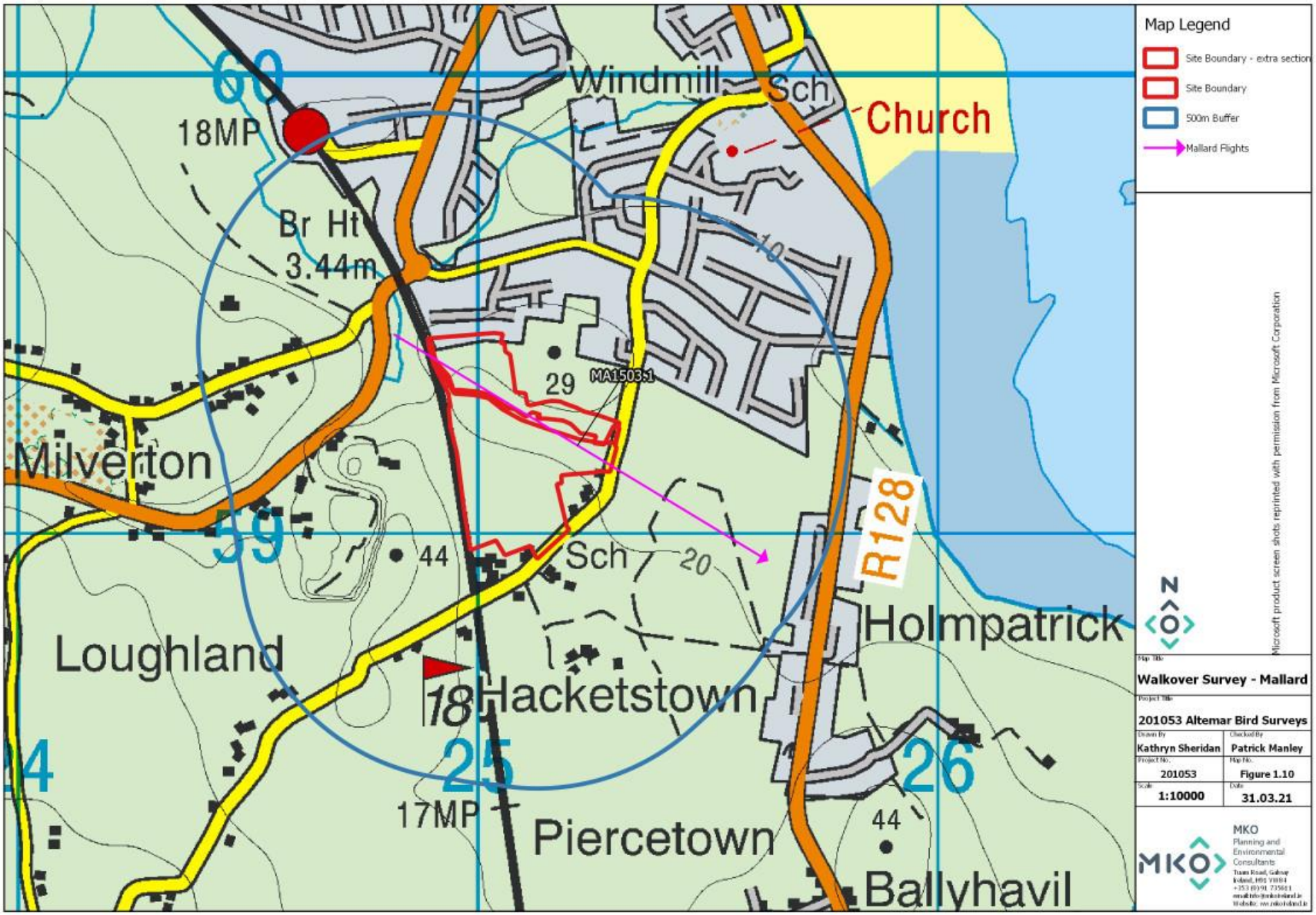
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44
Sch
R128
Holmpatrick
Loughland
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Hacketstown
17MP
Piercetown
44
Ballyhavil
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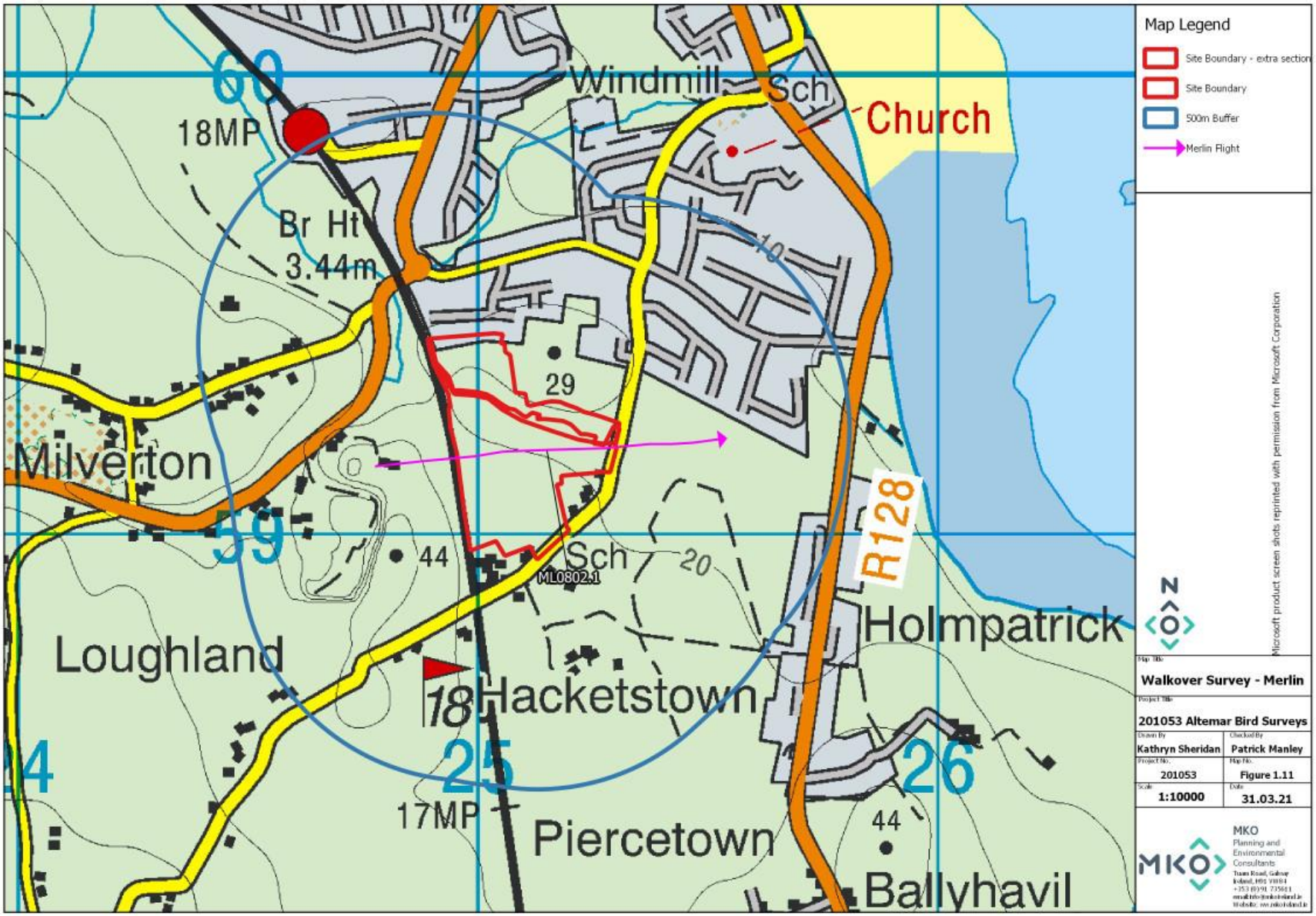
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Sch
ML0802.1
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Holmpatrick
Loughland
18
Hacketstown
25
26
17MP
Piercetown
44
Ballyhavil
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Patrick Manley
201053
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Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Mute Swan Flight
Windmill
Sch
Church
18MP
Br Hf
3.44m
MS0211.1
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Milverton
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44
Sch
20
R128
Holmpatrick
Loughland
18
Hacketstown
25
26
17MP
Piercetown
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Ballyhavil
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Walkover Survey - Mute Swan
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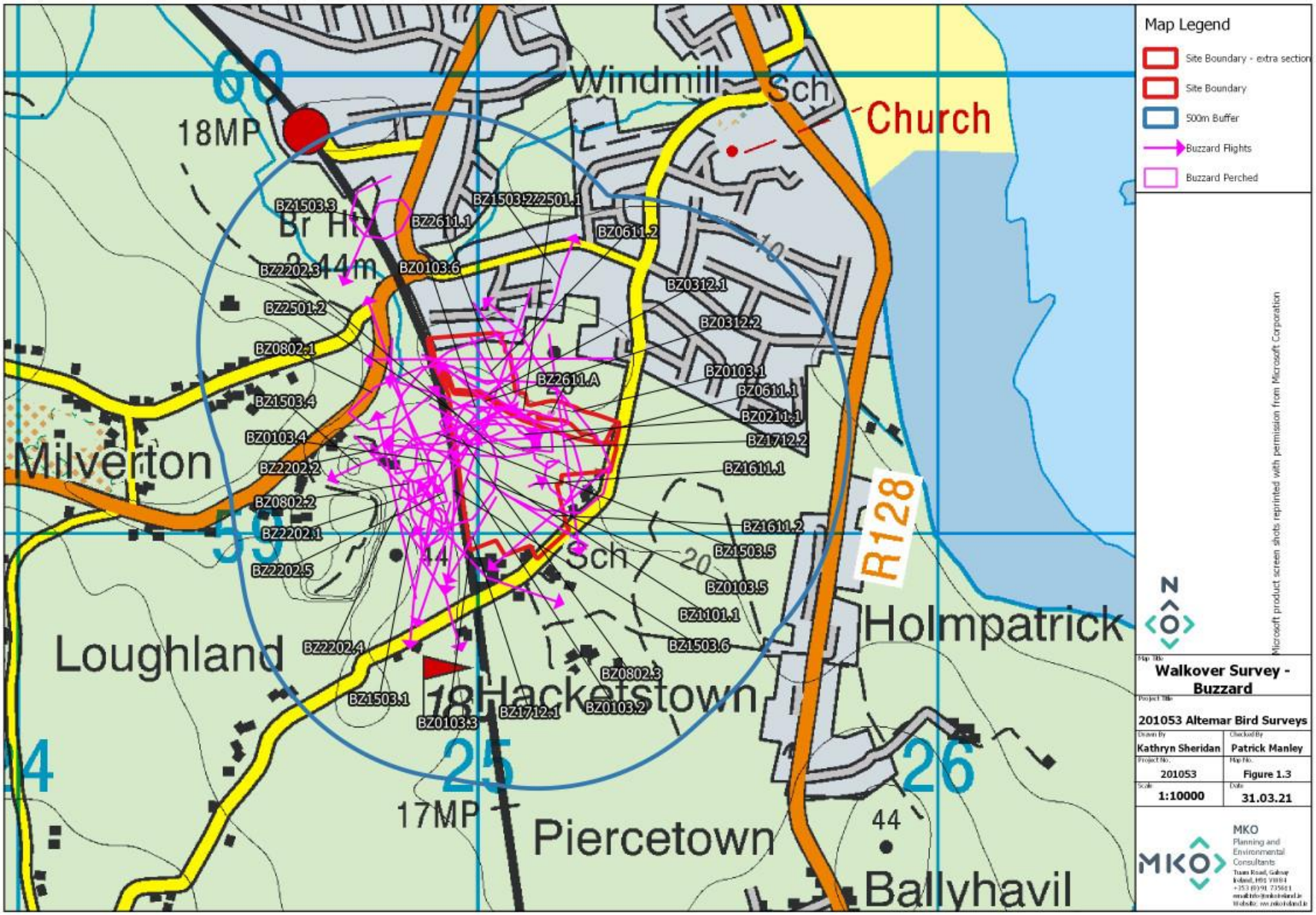
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Holmpatrick
Hacketstown
Piercetown
Ballyhavil
17MP
R128
Sch
BZ1503.3
BZ2611.1
BZ1503.2
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BZ2202.4
BZ1503.6
BZ0802.3
BZ1503.1
BZ1712.1
BZ0103.2
BZ0103.3
Walkover Survey - Buzzard
201053 Altemar Bird Surveys
Kathryn Sheridan
Patrick Manley
201053
Figure 1.3
1:10000
31.03.21
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Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Kestrel Flights
Windmill
Sch
Church
18MP
Br Ht
3.44m
K2202.1
K1101.1
K0103.5
K0103.2
K1503.2
K2501.2
K1503.3
K0103.3
K0103.5
K1503.1
K0103.1
K1503.4
K2501.1
K0103.6
K0103.4
K1503.6
K1503.5
29
44
Sch
20
10
R128
Milverton
Loughland
Holmpatrick
Hacketstown
18
17MP
Piercetown
Ballyhavil
44
60
59
25
26
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Walkover Survey - Kestrel
201053 Altemar Bird Surveys
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Patrick Manley
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Figure 1.14
1:10000
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Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Sparrowhawk Flights
Windmill
Sch
Church
18MP
Br Ht
3.44m
10
29
Milverton
59
SH1101.1
44
Sch
20
R128
Holmpatrick
Loughland
18
Hacketstown
SH1712.1
4
25
26
17MP
Piercetown
44
Ballyhavil
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N
Walkover Survey -
201053 Altemar Bird Surveys
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Figure 1
1:10000
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River Nanny Estuary and Shore SPA
Rockabill SPA
Skerries Islands SPA
Rogerstown Estuary SPA
Lambay Island SPA
Malahide Estuary SPA
Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
15km Buffer
SPA Sites
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N
SPA Sites
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Figure 2
1:160000
31.03.21
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