ALTEMAR

Marine & Environmental Consultancy

# Appropriate Assessment Screening & Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for a proposed development at Baldoyle-Stapolin Growth Area 2 (GA2), Baldoyle, Dublin 13.

**24th March 2022**

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**On behalf of:** Lismore Homes Ltd.

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# Introduction

The following Appropriate Assessment (AA) (Screening Stage) and Natura Impact Statement has been prepared by **Altemar Ltd.** at the request of Lismore Homes Ltd. The project relates to an application for permission for a proposed development at Baldoyle-Stapolin Growth Area 2, (GA2) Baldoyle, Dublin 13.

An Appropriate Assessment is an assessment of the potential effects of a proposed project or plan, on its own, or in combination with other plans or projects, on one or more European sites. European sites are those sites designated as Special Areas of Conservation (SAC) or Special Protection Areas (SPA).

This AA Screening and Natura Impact Statement examines whether the plan or project, either alone, or in combination with other plans and projects, in the view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European sites.

## Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 27 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture). Bryan Deegan carried out all elements of this Appropriate Assessment Screening.

## Background to the Appropriate Assessment

The Habitats Directive (92/43/EEC), together with the Birds Directive (2009/1477/EC), forms the cornerstone of European nature conservation policy. The Directive protects over 1000 animals and plant species and over 200 *"habitat types"* which are of European importance. In the Directive, Articles 3 to 9 provide the legislative means to protect habitats and species of European Community interest through the establishment and conservation of an EU-wide network of conservation sites (European).

These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive. Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment:

*"Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the component national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

Furthermore, as outlined in the EC guidance document on Article 6(4) (January 2007)[1]:

*"Appropriate assessments of the implications of the plan or project for the site concerned must precede its approval and take into account the cumulative effects which result from the combination of that plan or project with other plans or projects in view of the site's conservation objectives. This implies that all aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field.*

*Assessment procedures of plans or projects likely to affect European sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity. Regardless of whether the provisions of Article 6(3) are delivered following existing environmental impact assessment procedures or other specific methods, it must be ensured that:*

- *Article 6(3) assessment results allow full traceability of the decisions eventually made, including the selection of alternatives and any imperative reasons of overriding public interest.*
- *The assessment should include all elements contributing to the site's integrity and to the overall coherence of the network as defined in the site's conservation objectives and Standard Data Form, and be based on best available scientific knowledge in the field. The information required should be updated and could include the following issues:*
    - *Structure and function, and the respective role of the site's ecological assets;*
    - *Area, representativity and conservation status of the priority and nonpriority habitats in the site;*
    - *Population size, degree of isolation, ecotype, genetic pool, age class structure, and conservation status of species under Annex II of the Habitats Directive or Annex I of the Birds Directive present in the site;*
    - *Role of the site within the biographical region and in the coherence of the European network; and,*

[1] European Commission. (2007).Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission.

- *Any other ecological assets and functions identified in the site.*

- *It should include a comprehensive identification of all the potential impacts of the plan or project likely to be significant on the site, taking into account cumulative impacts and other impacts likely to arise as a result of the combined action of the plan or project under assessment and other plans or projects.*
- *The assessment under Article 6(3) applies the best available techniques and methods, to estimate the extent of the effects of the plan or project on the biological integrity of the site(s) likely to be damaged.*
- *The assessment provides for the incorporation of the most effective mitigation measures into the plan or project concerned, in order to avoid, reduce or even cancel the negative impacts on the site.*
- *The characterisation of the biological integrity and the impact assessment should be based on the best possible indicators specific to the EUROPEAN assets which must also be useful to monitor the plan or project implementation."*

## Methodology

This Appropriate Assessment screening was undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC, 2001), Part XAB of the Planning and Development Act 2000, as amended, in addition to the December 2009 publication from the Department of Environment, Heritage and Local Government; 'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities' and the European Communities (Birds and Natural Habitats) Regulations 2011 and the provision of Article 6 of the Habitats Directive 92/43/EEC (European Commission, 21 November 2018).

In order to comply with the above Guidelines and legislation, this Appropriate Assessment Screening and Natura Impact Statement must be structured as follows:

1) Screening Stage

   - Description of the proposed project or plan;
   - Identification of EUROPEAN sites potentially affected;
   - Identification and description of individual in combination effects likely to result from the proposed project;
   - Assessment of the likely significance of the effects identified above. Exclusion of sites where it can be objectively concluded that there will be no likely significant effects; and,
   - Conclusions.

2) Appropriate Assessment (Natura Impact Statement)

   • Description of the European sites that will be considered further;
   • Identification and description of potential adverse impacts on the conservation objectives of these sites likely to occur from the project or plan;
   • Identification and description of in combination effects likely to result from other plans and projects;
   • Mitigation Measures that will be implemented to avoid, reduce or remedy any such potential adverse impacts;
   • Assessment as to whether, following the implementation of the proposed mitigation measures, it can be concluded, beyond all reasonable scientific doubt, that there will be no adverse impact on the integrity of the relevant European Site in light of its conservation objectives"; and,
   • Conclusions.

# Stage 1 Screening Assessment

## Management of the Site

The plan or project is not directly connected with, or necessary to the management of European sites.

## Description of the Proposed Project

Lismore Homes Ltd is applying to An Bord Pleanála for permission for a strategic housing development at a site of c. 6.1 ha in the townland of Stapolin, Baldoyle, Dublin 13, referred to as Growth Area 2 (GA2) Lands in the Baldoyle-Stapolin Local Area Plan 2013 (as extended) and which forms part of the wider landholding of lands formerly known as the Coast, Baldoyle, Dublin 13 (Figure 1). The lands are bound by existing and proposed residential areas to the west and south, and the future Racecourse Park to the north and northeast (Figures 2 & 3).

The development will consist of the construction of 1,007 apartments (consisting of 58 no. studio units (38.1 – 52.3 sq.m.), 247 no. 1 bedroom units (48.9 – 79.7 sq.m.), 94 no. 2 bedroom 3 person units (67.3 – 80.42 sq.m.), 563 no. 2 bedroom 4 person units (77.7 – 106.1 sq.m.), and 45 no. 3 bedroom units (93.5 – 130.66 sq.m.), 6 no. communal residential community rooms, and a ground floor creche in 16 no. buildings with heights varying from 4 to 12 storeys, basement and surface level car parking, secure bicycle parking, landscaping, water supply connection at Red Arches Road, and all ancillary site development works on a c. 6.1 hectare site as follows:

1. The proposed residential development will consist of 1,007 no. residential apartments (58 no. studio units, 247 no. 1 bedroom units, 94 no. 2 bedroom 3 person units, 563 no. 2 bedroom 4 person units, and 45 no. 3 bedroom units as follows:

- Block 1, sector 6A/6B, 5 storey building with 59 no. apartments with balconies and solar panels at roof level
- Block 2, sector 6A/6B, 5 storey building with 39 no. apartments with balconies and solar panels at roof level
- Block 3, sector 6A/6B, 5 & 6 storey building with 63 no. apartments with balconies and solar panels at roof level
- Block 4, sector 6A/6B, 6 storey building with 47 no. apartments with balconies and solar panels at roof level
- Block 5, sector 6A/6B, 5 storey building with 39 no. apartments with balconies and solar panels at roof level
- Block 6, sector 6A/6B, 5 storey building with 39 no. apartments with balconies and solar panels at roof level
- Block 7, sector 6A/6B, 5 & 6 storey building with 49 no. apartments with balconies and solar panels at roof level
- Block 1, sector 7, part 5, 6, 7 & 11 storey building with 98 no. apartments with balconies and solar panels at roof level
- Block 2, sector 7, part 5, 7, 9 & 12 storey building with 125 no. apartments with balconies and solar panels at roof level
- Block 3, sector 7, part 5, 6, 7, 8 & 10 storey building with 110 no. apartments with balconies and solar panels at roof level
- Block 1, sector 8A, part 5, 6, 7 & 11 storey building with 131 no. apartments with balconies and solar panels at roof level
- Block 2, sector 8A, 5 storey building with 13 no. apartments with balconies and solar panels at roof level
- Block 1, sector 8B, part 5, 6 & 11 storey building with 96 no. apartments with balconies and solar panels at roof level
- Block 2, sector 8B, 6 & 7 storey building with 29 no. apartments with balconies and solar panels at roof level
- Block 1, sector 8C, part 4, 5 & 8 storey building with 48 no. apartments with balconies and solar panels at roof level
- Block 2, sector 8C, 4 & 5 storey building with 22 no. apartments with balconies and solar panels at roof level
- 6 no. Communal Residential Community Rooms/Facilities of c. 515 sq.m. located at ground floor level in Block 7 (sector 6A/6B), Block 2 (sector 7), Block 2 (sector 8A), and Block 1 (sector 8B), and external communal amenity space of c. 1.62 ha. provided at ground level throughout the scheme.

2. A ground floor crèche (gross floor area of 800 sq.m.) with dedicated outdoor play area of c. 208 sq.m. is proposed at Block 1, Sector 8A with 14 no. dedicated crèche car parking spaces.
3. A total 743 no. car parking spaces are proposed at basement level (605 no. spaces) and at surface level (138 no. spaces including 14 no. crèche car parking spaces) and 1,754 no. bicycle parking spaces for residents and 500 no. bicycle spaces for visitors are proposed in covered and secure parking facilities at ground level throughout the scheme.
4. Upgrade the public watermain for c. 170 metres along Red Arches Park to connect to the existing watermain at Red Arches Road as required by Irish Water.
5. Pedestrian, cyclist, and vehicular access will be provided at Red Arches Park, Stapolin Avenue, Ireland's Eye Avenue, and Stapolin Way.
6. The development will also provide for all associated ancillary site development infrastructure including: ESB sub-stations, bin stores, plant rooms, public lighting, new watermain connection to the south at Red Arches Road, foul drainage to the pumping station at Stapolin Haggarad, and surface water drainage to the west at GA3; roads and footpaths; landscaping; and all associated site development works necessary to facilitate the proposed development.

The proposed development will integrate with the permitted Strategic Housing Developments at the GA1 lands to the south (ABP ref. TA06F.310418) and GA3 lands to the west (ABP ref. TA06F.311016) for which an overall total of 2,202 residential units were approved by An Bord Pleanála.

An Environmental Impact Assessment Report and outline Construction management Plan (AWN) has also been prepared in respect of the proposed development.


*Figure 1. Growth Areas 1-3 (Baldoyle Stapolin Local Area Plan)*

The application contains a statement setting out how the proposal will be consistent with the objectives of the Fingal County Development Plan 2017-2023 and the Baldoyle-Stapolin Local Area Plan 2013 (as extended). The application contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes the Fingal County Development Plan 2017-2023 and the Baldoyle-Stapolin Local Area Plan 2013 (as extended), other than in relation to the zoning of the land (Figure 1).

In order to describe the proposed project within the AA Screening and Natura Impact Statement information has been provided in relation to the proposed development, landscaping, drainage, flood risk assessment. Full details of the project are contained within the accompanying EIAR.


*Figure 2. Site outline and location*


*Figure 3. Site outline*


*Figure 4. Overall site outline*

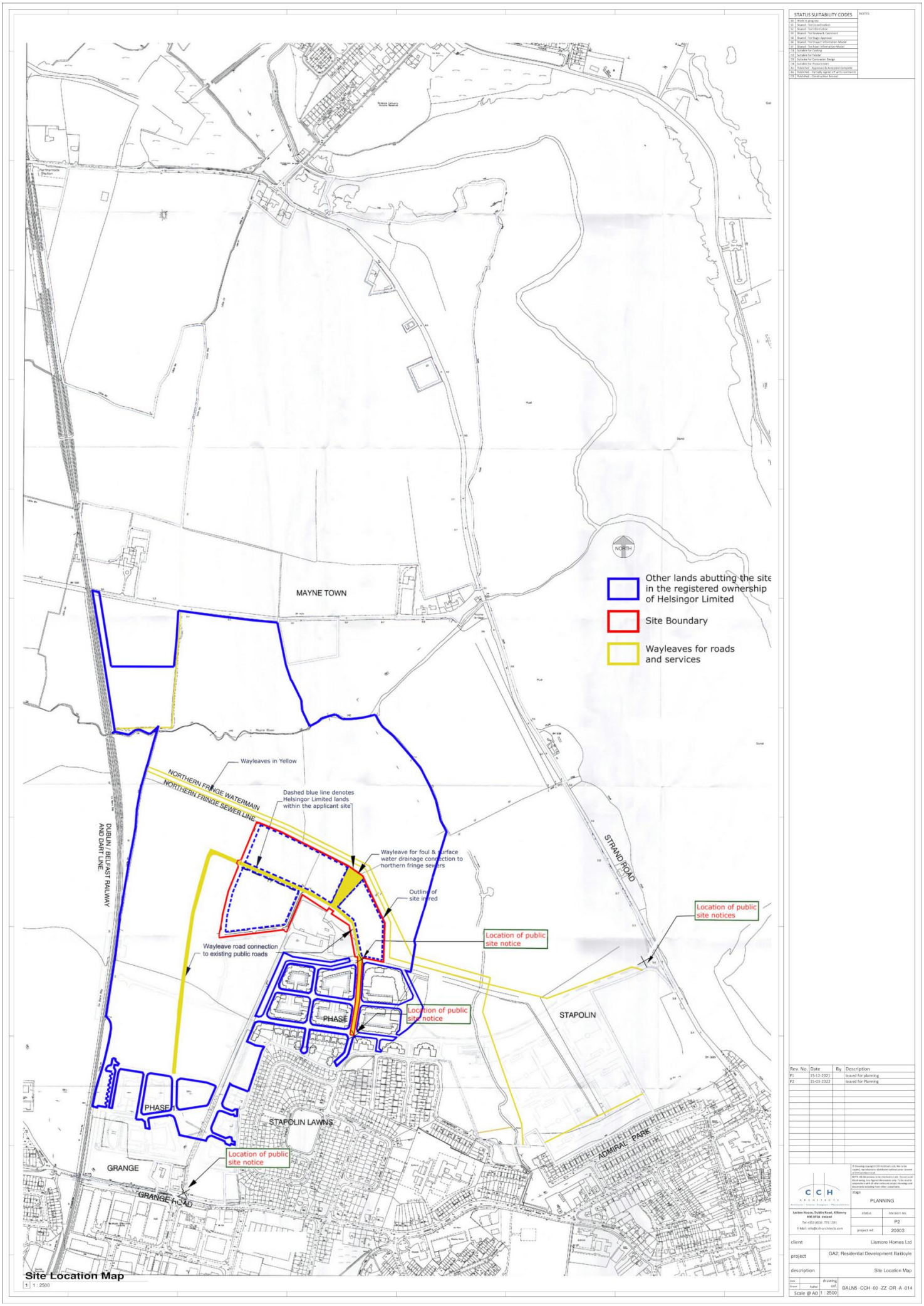


*Figure 5. Site Location Map*

## Landscape of the Proposed Project

In the Landscape Architect's Report composed by Murray & Associates it is stated that: '*The site is located in the townland of Stapolin, 1 km northwest of the town of Baldoyle, situated in the south eastern part of Fingal County. The development is part of the proposed Coast Development within the Baldoyle Stapolin area, located on major bus line and adjacent to the Clongriffin Dart Station. The area is zoned R1 for new residential developments, as are the sites to the south of this application. To the north is a large area of greenbelt, and east is Baldoyle Bay, which is an SAC and SPA*.'

The location of the proposed project is outlined below: '*The site is within the Baldoyle Stapolin Local Area Plan area. The overall Coast Development is divided into predetermined sectors, in compliance with the Baldoyle Stapolin Local Area Plan objectives.'*

The Landscape Architect's report also states that:
'*The Haggard area is to be developed as a public park, in accordance with the LAP and planning permission granted to an adjoining landowner, Reg. Ref. F16A/0412. This park will include a play area, seating, lawn / kickabout spaces, planting, paths, etc. and will protect the existing trees on the site as a wooded space for the new park. It is anticipated that this park and adjoining development will be constructed prior to the proposed development.*
*A green belt area is designated between Baldoyle and Portmarnock, now zoned for High Amenity, as described earlier. This area is centred on the Mayne River and includes Mayne Marshlands, a brackish marsh and a considerable area of wetland and grassland of local and regional importance. Baldoyle Estuary also forms part of the landscape context for the site, which is a sensitive coastal landscape with high value under international designations. The site area is also designated as being on the edge of a 'Highly Sensitive Landscape' area as designated on Map Sheet 14 (Green Infrastructure) of the Fingal Co Development Plan. Most of the area designated as Highly Sensitive correlates with the areas zoned as High Amenity, with some overlap on the urban edge of Baldoyle and the area designated as part of the Baldoyle LAP.'*

It should be noted that Fingal County Council has submitted an application for a Park development project at the Racecourse Park located between Baldoyle and Portmarnock, Co. Dublin (ABP Case reference: JP06F.311315). The decision is due on 09/03/2022)

## Drainage

**Foul Drainage**

In the accompanying Water Services Report by Barry & Partners Consulting Engineers, in relation to the foul effluent disposal It is proposed to: '*..connect the foul sewerage from the development to the existing foul sewer network in the Baldoyle Stapolin LAP lands. The network discharges to an existing pumping station in Stapolin Haggard from where it is pumped to the North Fringe Sewer. The pumping station has not been taken in charge. It will be upgraded as required by Irish Water in conjunction with the developer of Growth Areas 1 and 3 consistent with the conditions of sale between Helsingor Limited (the current registered owners per Folio 3241 County Dublin in the Land Registry) and Penshanko Limited that applies to the application site. Foul sewers are currently present in the roads running through the proposed development, but these have had little use since they were installed in the mid 2000's. As there is a doubt about their integrity, it is proposed that they are grubbed up, removed and replaced*.'

**Surface Water Drainage**

The Water Surfaces Report, in relation to surface water drainage, states that: '*It is proposed to connect surface water runoff from the proposed development to a new surface water sewer network within the Baldoyle Stapolin LAP lands. Currently, surface water sewers are present in the roads running through the proposed development, but these have had little use since they were installed in the mid 2000s. In addition, the sewers were laid at a*

*depth that will not allow discharge by gravity above the existing North Fringe Sewer to a wetland within the open space to the north as required by the LAP. Consequently, to comply with the LAP, finished ground levels will have to be raised by up to 1.5m and a new surface water network for the proposed development will have to be installed. Details of the proposed new network are shown on accompanying drawing 20211-JBB-00-XX-DR-C-01003. This new network will discharge to a new permitted network to be installed by The Shoreline Partnership for Growth Area 3 (ABP ref. TA06F.311016). This discharges to a new outfall pipe which traverses over the North Fringe Sewer and discharges into a new permitted wetland in the open space area. The wetland discharges to the Mayne River and ultimately to Baldoyle Estuary through a series of flap valves*.'

The report further states that: '*The site is located adjacent to Baldoyle Estuary and as there is no downstream development before outfalling to the Irish Sea, it is not required to provide full attenuation for the 100 year return storm. Storm events will be allowed to overflow into the 40 hectare Mayne River flood plain. Full Interception storage will be provided which means that both treatment storage and long-term storage (neither of which would be practical in this development) are not required*.'

In relation to the proposed SuDs Devices and Interception storage, the following will be provided:

'Interception Storage

The total area (hardstanding, roofs, roads & paving) which drains positively to the surface water network is 42,640m$^2$ which requires a minimum 5mm interception storage volume equating to 213m$^3$.

Green Roofs are proposed over a total area of 10,937m2. The green roofs will include a drainage mat which will provide a minimum of 10mm of interception storage per 1 m2, allowing for a total interception storage of 109.37m3 at roof level.

Green Roofs (Podiums) are proposed over a total area of 13,000m$^2$. The Green Roofs (Podiums) will include a permeable paving, bio-retention and a drainage mat which will provide a minimum of 10mm of interception storage per 1 m$^2$, allowing for a total interception storage of 130m$^3$ at roof/podium level. The Green Roofs/Podiums noted above have a total combined area of 23,937m2 (10,937m2 + 13,000m$^2$) which equates to 68% of combined roof + podium areas (22,024m$^2$ + 13,000m$^2$). The green roofs will include a drainage mat which will provide a minimum of 10mm of interception storage per 1 m$^2$, allowing for a total interception storage of 239.37m$^3$ at roof/podium level.

SuDS measures proposed, within the curtilage of dwellings, include the following:

Green Roofs.

Green Roofs (Podium) including Permeable Paving and Bio-Retention. There is provision for overflows from the above source controls to the proposed storm water sewers in the road reservations.

Site Controls

Site control is defined as: "*a control which is designed to control storm water quality and/ or quantity for a small development or site*". SuDS measures proposed as site controls within public road reservations and the public open space include the following:

- Bio-retention areas within public open spaces.
- Swales running parallel to road carriageways/footpaths.
- Filtration trenches running parallel to road carriageways/footpaths.
- Silt and Hydrocarbon interceptors for road carriageways/carpark areas

Regional Controls

Regional Control is defined as: '*a storm water control practice which is designed to control storm Water quality and/or quantity from a large urban development, or a group of developments." Planning permission F16A/0412*

*requires that a storm water wetland is to be provided in the open space amenity lands to the north of the proposed development as a regional control as recommended in the SuDS Strategy Briefing Document, Baldoyle Stapolin LAP. All storm water from the proposed development will pass through the wetland for attenuation and treatment prior to discharge to Baldoyle Estuary. The wetlands comply with the Storm Water Wetland Briefing Paper, GDSDS*.'

The foul water from the site will be treated at Ringsend Wastewater Treatment Plant (WwTP).[2] The proposed surface water and foul water drainage system can be seen in Figure 6.

## Flood Risk Assessment

A Flood Risk Assessment was prepared by AWN. The report concludes that "*A conceptual site model (CSM) has been prepared following a desk top review of the site and surrounding environs. Based on this CSM, plausible Source-Pathway-Receptor linkages have been assessed assuming an absence of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures) in place at the proposed development site.*

***Construction Phase***

*During construction there is no direct source pathway linkage between the proposed development site and open waters. There is no direct source pathway linkage between the Proposed Development site and any Natura 2000 sites (i.e. Baldoyle Bay SAC/SPA/pNHA). There are indirect source pathway linkage from the Proposed Development through the stormwater drainage which discharges into Mayne River.*

*In line with good practice, appropriate and effective mitigation measures will be included in the construction design, management of construction programme and during the operational phase of the proposed development. With regard the construction phase, adequate mitigation measures are incorporated in the Construction Environmental Management Plan (CEMP), and Surface Water Management Plan (SWMP). These specific measures will provide protection to the receiving soil and water environments.*

*It is concluded that there are no pollutant linkages as a result of the construction of the Proposed Development which could result in a water quality impact which could alter the habitat requirements of the Natura 2000 sites within Baldoyle Bay or Dublin Bay.*

***Operational Phase***

*During operation phases there is no direct source pathway linkage between the proposed development site and open waters. There is no direct source pathway linkage between the Proposed Development site and any Natura 2000 sites (i.e. Baldoyle Bay SAC/SPA/pNHA). There are indirect source pathway linkage from the Proposed Development through the stormwater drainage which discharges into the Baldoyle-Stapolin Local Area Plan (LAP) wetland and Mayne River.*

*There is also an indirect connection through the foul sewer which will eventually discharge to the Ringsend WWTP and ultimately discharges to South Dublin Bay SAC/SPA/pNHA. The future development has a peak foul discharge that would equate to 0.29% of the licensed discharge at Ringsend WWTP (peak hydraulic capacity).*

*Even disregarding the operation of design measures including the attenuation system and petrol interceptors, it is concluded that there will be imperceptible impacts fromthe proposed development to the water bodies due to emissions from the site stormwater drainage infrastructure to the wider drainage network. It should be noted the proposal also includes an attenuation system and petrol interceptors as part of best practice project design, and these features will provide additional filtration from the site to the drainage network. It should also be noted that the projected wetland will be sized to serve also the adjacent residential developments GA1 and GA3. It is concluded that there are no pollutant linkages as a result of the operation of the Proposed Development which could result in a water quality impact which could alter the habitat requirements of the Natura 2000 sites within Baldoyle Bay or Dublin Bay*."

[2] Ringsend Wastewater Treatment Plant Upgrade Project Planning Application 180601_RGD-Planning-App-Planning-App-Report.pdf (ringsendwwtpupgrade.ie)


*Figure 6. Proposed Drainage Layout*

## Flood Risk Assessment

A Flood Risk Assessment Report was composed by JBA Consulting for the proposed development at Baldoyle GA2 in Baldoyle, Dublin 13. In relation to the surrounding watercourses, the report states that: '*The closest watercourse to the site is the River Mayne, which flows in an eastern direction north of the site. The River Mayne discharges into the Baldoyle Estuary Nature Reserve c.1km to the north-east of the site. The Baldoyle Estuary Nature Reserve opens to the Irish Sea c. 2.0km to the south-east. The Racecourse Stream, a tributary of the River Maybe flows in a northern direction c. 200 m to the east of the site. The Sluice River discharges to the Baldoyle Estuary Nature Reserve c. 1.4km to the north of the site.*' (Figure 7.)

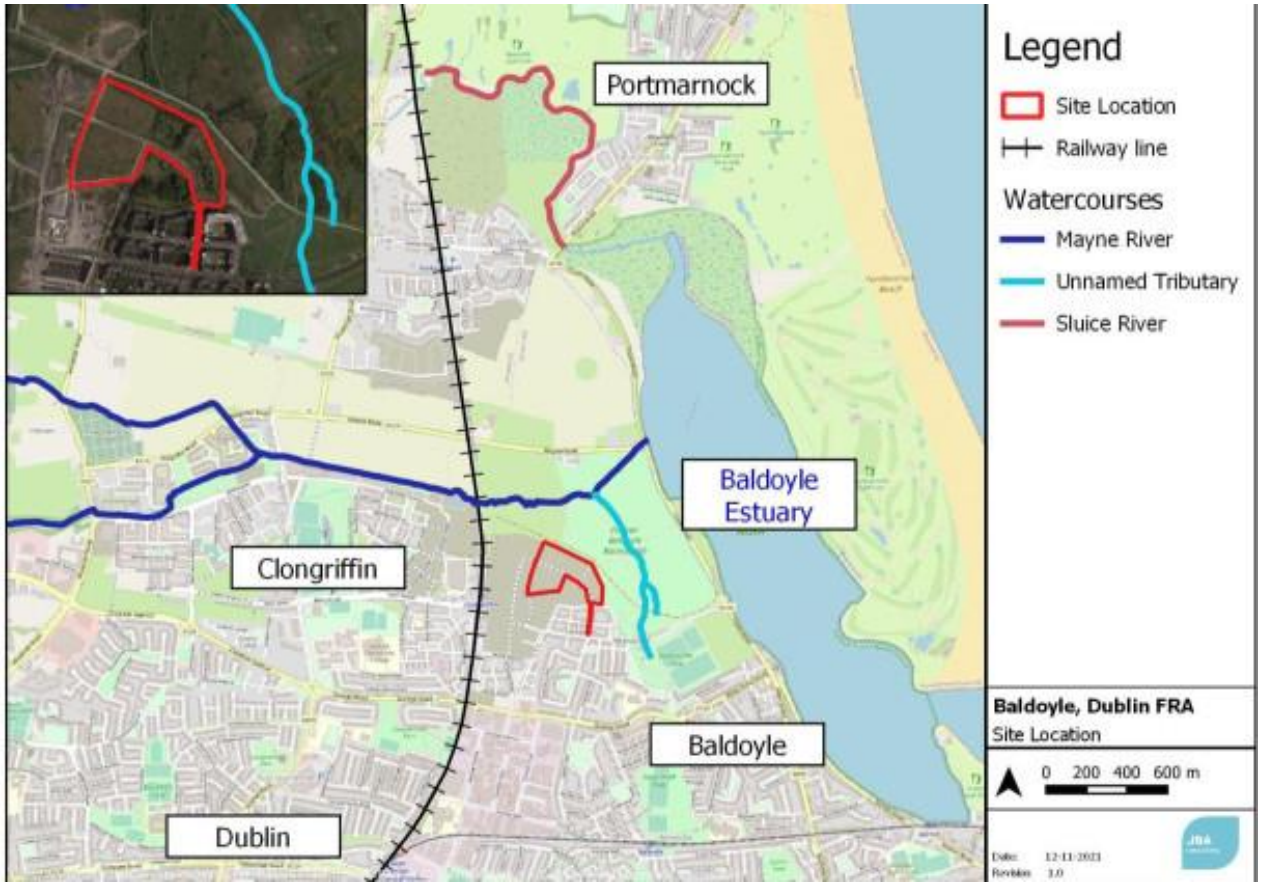


*Figure 7. Watercourses and site location (FRA)*

In conclusion the report states that: '*The River Mayne is the main river waterbody in the study area and is tidally influenced. The Baldoyle Estuary is located to the east of the site. Review of the historic flood information does not provide any evidence of flooding at the site. The nearest flood event is situated along Coast Road, 600m east of the site. Review of the FEM FRAM predictive flood maps confirms that site is not at risk of flooding and is fully located in Flood Zone C. A site specific flood model has been developed that modelled a range of fluvial and tidal events, including residual risks. The results confirm that the proposed development is not at risk of inundation from the modelled flood events and further confirms that the site is in Flood Zone C.*

*The main design event selected is the 0.1% AEP HEFS tidal event as the HEFS tidal events provide the maximum flood levels onsite and significantly higher than the fluvial equivalent. The tidal HEFS levels are not impacted by the River Mayne sluice gates, Coast Road elevation or flood duration.*

*Outside of the main flood events, the site has also been assessed for the potential impacts of climate change and residual risks. As part of the climate change assessment, a 30% increase in fluvial flows and 1m in tidal levels have been incorporated into the 1%/0.5% and 0.1% AEP events respectively. The results confirm that the proposed residential development will not be impacted from any of the modelled flood events up to the 0.1% AEP HEFS tidal scenario.*

*The provided minimum FFL onsite is 6.5mOD which provides a freeboard of 2.09m over the 0.1% AEP HEFS tidal flood event, which produces the highest flood level adjacent to the site. This FFL also protects the development from all modelled flood events, including climate change and residual risks.'*

## Identification of Relevant European Sites

The proposed works are not located within a European site. The European sites within 15 kilometres of the subject site and those with a direct/indirect pathway beyond 15km (none) are detailed in Table 1 and Figures 8 and 9 Their qualifying interests and the potential impact of the works on these qualifying interests are found in Tables 2 & 3. There is no direct or indirect pathway to European sites beyond 15km. No European Sites beyond 15km could be impacted by the proposed development The proposed development site is located within a densely populated and developed area of Baldoyle that is currently undergoing development.

There is a direct hydrological pathway to Baldoyle Bay SAC and SPA via the proposed surface water drainage system. Surface water will be directed to a wetland installed within the Mayne River floodplain, located just beyond the line of the existing North Fringe foul sewer. The Mayne River ultimately outfalls to Baldoyle Bay (Figures 10-14). Given the proximity of the proposed development site to the Mayne River (120m) and the proposed discharge of surface water drainage to the Mayne River floodplain, it is considered that there is the potential for downstream impacts on the qualifying interests of Baldoyle Bay SAC and SPA.

There is also an indirect hydrological pathway to marine-based European sites via the proposed foul water drainage network. Foul wastewater will discharge to a public foul wastewater network. Foul wastewater will then be treated within the Irish Water network at Ringsend Wastewater Treatment Plant. There is an indirect pathway to the designated European sites in Dublin Bay via the foul water drainage system.

As outlined previously, it is proposed to discharge surface water after attenuation within a wetland installed into the floodplain of the Mayne River. As the Mayne River outfalls to Baldoyle Bay, there is an indirect hydrological connection to marine-based European sites. However, given the minimum distance to European sites (1.6 km, excluding Baldoyle Bay SAC & SPA) across an expansive marine environment within the Irish Sea, any pollutants or silt will settle, be dispersed or diluted.

Furthermore, there is a risk of heightened noise disturbance levels that could impact on the protected bird species located in Baldoyle Bay SPA. The proposed works are located 0.55 km from the Baldoyle Bay SPA. McCarthy Keville O'Sullivan (MKO) was appointed to carry out bird survey works at Baldoyle, during the period from December 2019 to March 2020 inclusive. A summary of this report is seen in Appendix I. Following the precautionary principle, screening of all European sites within 15km and those with a direct/indirect pathway beyond 15km is carried out.

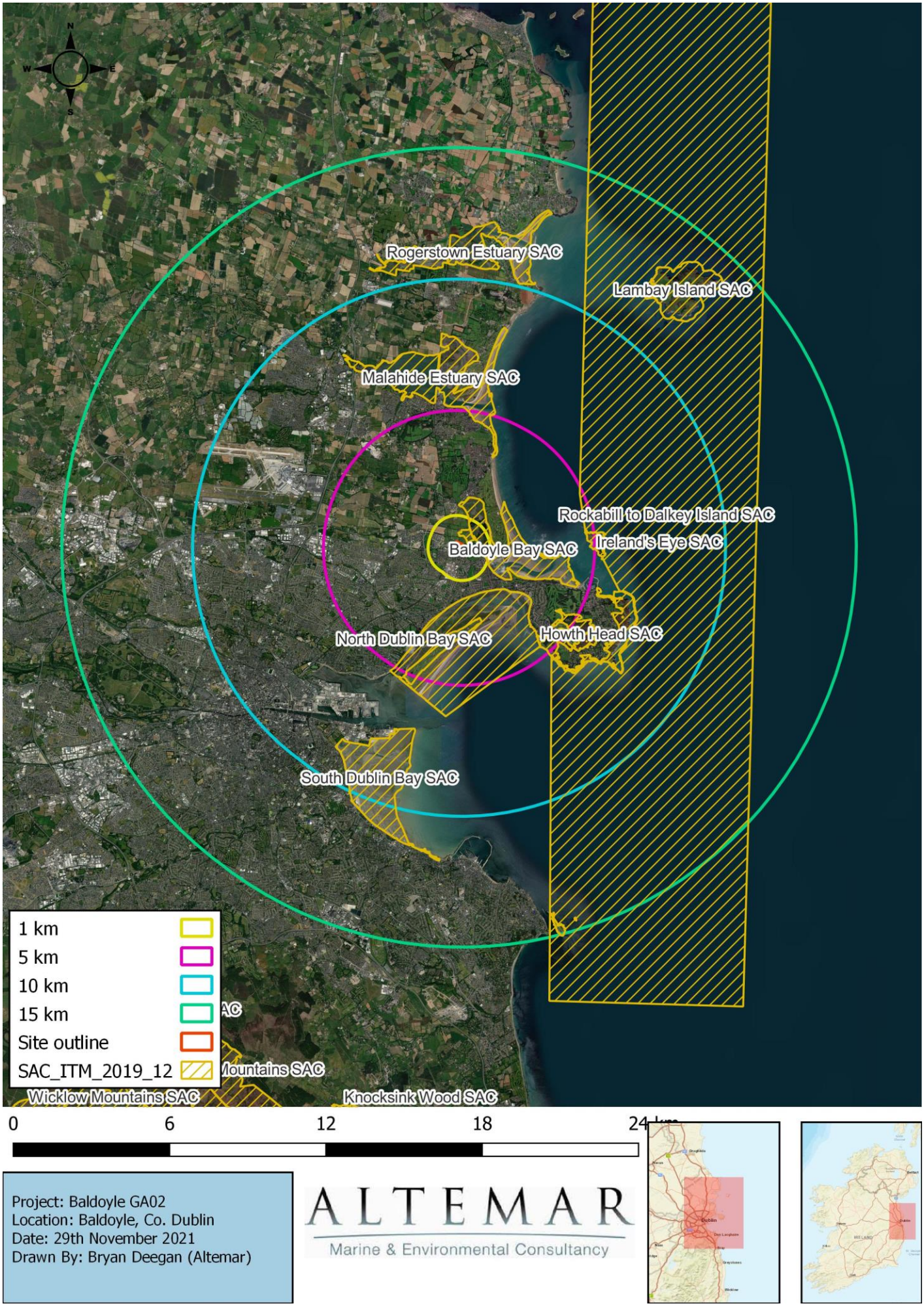


*Figure 8. Special Areas of Conservation located within 15km of the proposed development*

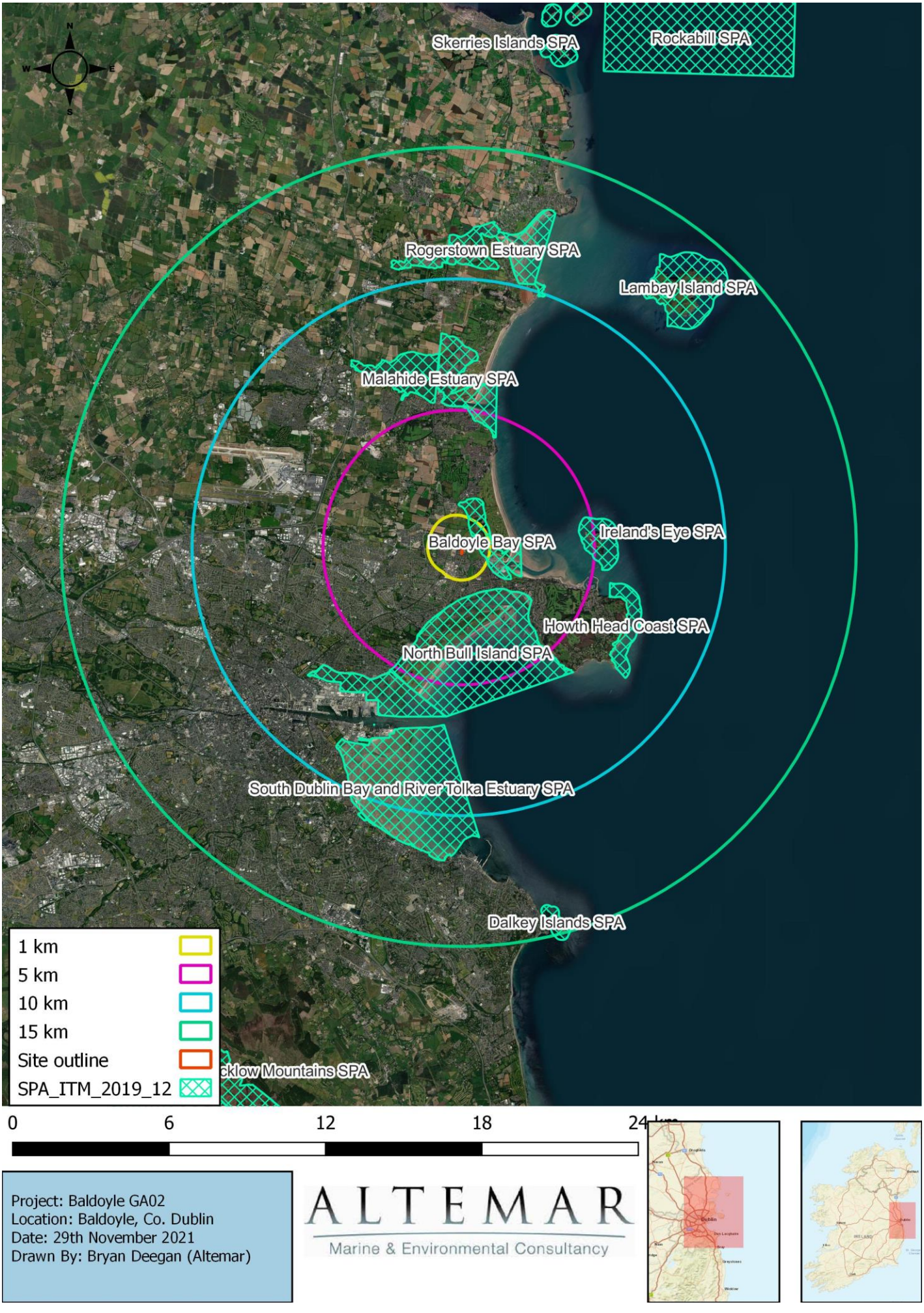


*Figure 9. Special Protected Areas located within 15km of the proposed development*

*Table 1. Proximity to designated sites of conservation importance*

| European Site | Code | Distance | Direct Hydrological / Biodiversity Connection |
|---|---|---|---|
| ***Special Areas of Conservation*** | | | |
| Baldoyle Bay SAC | IE0000199 | 0.19 km | **Yes** |
| North Dublin Bay SAC | IE0000206 | 1.6 km | No |
| Malahide Estuary SAC | IE0000205 | 3.5 km | No |
| Howth Head SAC | IE0000202 | 4.2 km | No |
| Rockabill to Dalkey Island SAC | IE0003000 | 4.7 km | No |
| Ireland's Eye SAC | IE0002193 | 4.8 km | No |
| South Dublin Bay SAC | IE0000210 | 6.9 km | No |
| Rogerstown Estuary SAC | IE0000208 | 10.2 km | No |
| Lambay Island SAC | IE0000204 | 11.6 km | No |
| ***Special Protection Areas*** | | | |
| Baldoyle Bay SPA | IE0004016 | 0.55 km | **Yes** |
| North Bull Island SPA | IE0004006 | 1.6 km | No |
| Malahide Estuary SPA | IE0004025 | 4.2 km | No |
| Ireland's Eye SPA | IE0004117 | 4.5 km | No |
| South Dublin Bay and River Tolka Estuary SPA | IE0004024 | 5.7 km | No |
| Howth Head Coast SPA | IE0004113 | 5.7 km | No |
| Rogerstown Estuary SPA | IE0004015 | 9.6 km | No |
| Lambay Island SPA | IE0004069 | 11.5 km | No |
| Dalkey Islands SPA | IE0004172 | 13.8 km | No |

Table 2 provides an overview of the initial screening of European sites within 15km of the proposed development that have been screened 'IN' for Stage 2 AA i.e. NIS.

Table 3 provides an overview of the initial screening of European sites within 15km of the subject site and those with a direct/indirect pathway that have been screened out.

*Table 2. Initial screening of European sites within 15km and European sites with potential of hydrological connection to the proposed development – Screened IN (NIS Required)*

| European Site Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| **Special Areas of Conservation** | | | |
| IE0000199 | Baldoyle Bay SAC | **IN** | **Conservation Objectives**<br>The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.<br>**Qualifying Interests**<br>Mudflats and sandflats not covered by seawater at low tide [1140]<br>Salicornia and other annuals colonising mud and sand [1310]<br>Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>Mediterranean salt meadows (*Juncetalia 18etanus18*) [1410]<br>**Potential Impact**<br>The proposed development is 0.19 km from Baldoyle Bay SAC. There is a direct hydrological pathway to Baldoyle Bay SAC via the surface water drainage system. The surface water from the site will be discharged into a new permitted wetland which discharges to the Mayne River and ultimately to Baldoyle Estuary and Baldoyle Bay SAC through a series of flap valves. There is potential for pollutants |

| European Site Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | to enter the Mayne River which is directly linked to the SAC via the surface water outfall (Figure 10).<br>Mitigation measures are required to protect the Features of Interest of the SAC.<br><br>**Stage 2 AA is Required.** |
| **Special Protection Areas** | | | |
| IE0004016 | Baldoyle Bay SPA | **IN** | **Conservation Objectives**<br>The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.<br>**Qualifying Interests**<br>Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>Shelduck (*Tadorna tadorna*) [A048]<br>Ringed Plover (*Charadrius hiaticula*) [A137]<br>Golden Plover (*Pluvialis apricaria*) [A140]<br>Grey Plover (*Pluvialis squatarola*) [A141]<br>Bar-tailed Godwit (*Limosa lapponica*) [A157]<br>Wetland and Waterbirds [A999]<br>**Potential Impact**<br>The proposed development site is 0.55 km from this SPA. McCarthy Keville O'Sullivan (MKO) was appointed to carry out bird survey works at Baldoyle, during the period from December 2019 to March 2020 inclusive. A summary of the Wintering Bird Survey is seen in Appendix I. The full report is seen in Appendix 8.1 of the EIAR. As outlined in the MKO report:<br>*'the proposed development area is not within the Baldoyle Bay SPA, however given the proximity of the SPA to the development, there is potential for impacts to result during construction and operational phases of the proposed development. These potential impacts could include:*<br>• *Loss of roosting habitat within/along the boundary of the redline at the mouth of the Mayne River.* (This line is the ownership line not the project red line).<br>• *Disturbance during construction works and the operational phase to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.*<br>• *Pollution of surface water through accidental spillage or discharge of polluting substances, or via elevated suspended solids and siltation through run-off to watercourses.*<br>*The maximum likely distance at which disturbance will impact SCIs from the Baldoyle Bay SPA is 300m (Cutts et al., 2013). The magnitude of this impact and its potential significance will require further consideration at the assessment stage of any future planning application.*<br>*The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA. 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 Baldoyle* |

| European Site Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | *village and existing surrounding housing developments. This should be considered in further detail at the assessment stage of any future planning application*.'<br>There is a direct hydrological pathway to Baldoyle Bay SPA via the surface water drainage system. The surface water from the site will be discharged into a new permitted wetland. The wetland discharges to the Mayne River and ultimately to Baldoyle Estuary and Baldoyle Bay SPA through a series of flap valves. There is potential for pollutants to enter the Mayne River which is directly linked to the SPA via the surface water outfall (Figure 12).<br>Mitigation measures are required to protect the qualifying interests of the SPA. As outlined in the MKO Wintering Bird Survey (Summary in Appendix I) "*Disturbance during construction works and the operational phase to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings*." Disturbance could potentially lead to the displacement of the qualifying interests within the SPA.<br><br>**Stage 2 AA is Required.** |

*Table 3. Initial screening of European sites within 15km and European sites beyond 15km with potential of hydrological connection to the proposed development – Screened OUT for stage 2 AA.*

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| **Special Areas of Conservation** | | | |
| IE0000206 | North Dublin Bay SAC | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br>**Qualifying Interest**<br>Mudflats and sandflats not covered by seawater at low tide [1140]<br>Annual vegetation of drift lines [1210]<br>Salicornia and other annuals colonising mud and sand [1310]<br>Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>Mediterranean salt meadows (*Juncetalia 20etanus20*) [1410]<br>Embryonic shifting dunes [2110]<br>Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]<br>Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]<br>Humid dune slacks [2190]<br>Petalwort (*Petalophyllum ralfsii*) [1395]<br>**Potential Impact**<br>The proposed development is located 1.6 km from the North Dublin Bay SAC. There is no direct hydrological pathway to the SAC.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br><br>The surface water outfalls to the new wetland area which discharges into the Mayne River and ultimately outfalls the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (1.6 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br><br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely**. |
| IE0000205 | Malahide Estuary SAC | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br>**Qualifying Interests**<br>Mudflats and sandflats not covered by seawater at low tide [1140]<br>Salicornia and other annuals colonising mud and sand [1310]<br>Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>Mediterranean salt meadows (*Juncetalia 21etanus21*) [1410]<br>Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]<br>Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]<br>**Potential Impact**<br>The proposed development is located 3.5 km from the Malahide Estuary SAC. There is no direct hydrological pathway to the SAC.<br><br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br><br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (3.5 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br><br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely**. |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| IE0000202 | Howth Head SAC | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br>**Qualifying Interests**<br>(1230) Vegetated sea cliffs of the Atlantic and Baltic coasts<br>(4030) European dry heaths<br>**Potential Impact**<br>The proposed development is over 4.2 km from the Howth Head SAC. There is no direct hydrological pathway to the SAC.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (4.2 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely**. |
| IE0003000 | Rockabill to Dalkey Island SAC | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br>**Qualifying Interests**<br>1170 Reefs<br>1351 Harbour porpoise *Phocoena phocoena*<br>**Potential Impact**<br>The proposed development is located 4.7 km from the Rockabill to Dalkey Island SAC. There is no direct hydrological pathway to the SAC.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | to the SAC (4.7 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br><br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely**. |
| IE0002193 | Ireland's Eye SAC | **OUT** | **Conservation Objectives**<br><br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br><br>**Qualifying Interest**<br><br>1220 Perennial vegetation of stony banks.<br>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts.<br><br>**Potential Impact**<br><br>The proposed development is located 4.8 km from the SAC. There is no direct hydrological pathway to the SAC.<br><br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br><br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (4.8 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br><br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely**. |
| IE0000210 | South Dublin Bay SAC | **OUT** | **Conservation Objectives**<br><br>To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC, which is defined by the following list of targets:<br><br>• The permanent habitat area is stable or increasing, subject to natural processes.<br><br>• Maintain the extent of the *Zostera* –dominated community, subject to natural processes.<br><br>• Conserve the high quality of the Zostera –dominated community, subject to natural processes |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | • Conserve the following community type in a natural condition: Fine sands with *Angulus tenuis* community complex.<br>**Qualifying Interest**<br>Mudflats and sandflats not covered by seawater at low tide [1140]<br>Annual vegetation of drift lines [1210]<br>Salicornia and other annuals colonising mud and sand [1310]<br>Embryonic shifting dunes [2110]<br>**Potential Impact**<br>The proposed development is located 6.9 km from the SAC. There is no direct hydrological pathway to the SAC.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area and discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (6.9 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely**. |
| IE0000208 | Rogerstown Estuary SAC | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br>**Qualifying Interests**<br>Estuaries [1130]<br>Mudflats and sandflats not covered by seawater at low tide [1140]<br>Salicornia and other annuals colonising mud and sand [1310]<br>Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>Mediterranean salt meadows (*Juncetalia 24etanus24*) [1410]<br>Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]<br>Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]<br>**Potential Impact**<br>The proposed development is located 10.2 km from the SAC. No potential impact is foreseen. There is no direct hydrological pathway to the SAC.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (10.2 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely**. |
| IE0000204 | Lambay Island SAC | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.<br>**Qualifying Interests**<br>1170 Reefs<br>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts<br>1364 Grey seal (*Halichoerus grypus*)<br>1365 Harbour seal (*Phoca vitulina*)<br>**Potential Impact**<br>The proposed development is 11.6 km from the Ireland's Eye SAC. There is no direct hydrological pathway to the SAC.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. There is an indirect hydrological pathway to this coastal SAC. However, given the distance along this pathway to the SAC (11.6 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of foul or surface water will not impact on the conservation objectives of this SAC.<br>Impacts caused by the proposed development, in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely**. |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| **Special Protection Areas** | | | |
| IE0004006 | North Bull Island SPA | **OUT** | **Conservation Objectives**<br>The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.<br>**Qualifying Interests**<br>Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>Shelduck (*Tadorna tadorna*) [A048]<br>Teal (*Anas crecca*) [A052]<br>Pintail (*Anas acuta*) [A054]<br>Shoveler (*Anas clypeata*) [A056]<br>Oystercatcher (*Haematopus ostralegus*) [A130]<br>Golden Plover (*Pluvialis apricaria*) [A140]<br>Grey Plover (*Pluvialis squatarola*) [A141]<br>Knot (*Calidris canutus*) [A143]<br>Sanderling (*Calidris alba*) [A144]<br>Dunlin (*Calidris alpina*) [A149]<br>Black-tailed Godwit (*Limosa limosa*) [A156]<br>Bar-tailed Godwit (*Limosa lapponica*) [A157]<br>Curlew (*Numenius arquata*) [A160]<br>Redshank (*Tringa 26etanus*) [A162]<br>Turnstone (*Arenaria interpres*) [A169]<br>Black-headed Gull (*Chroicocephalus ridibundus*) [A179]<br>Wetland and Waterbirds [A999]<br>**Potential Impact**<br>The proposed development is 1.6 km from the North Bull Island SPA. There is no direct hydrological connection from the site to this SPA.<br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (1.6 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SPA.<br>Given that this SPA is located 1.6 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely.** |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| IE0004025 | Malahide Estuary SPA | **OUT** | **Conservation Objectives**<br>The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.<br><br>**Qualifying Interests**<br>Great Crested Grebe (*Podiceps cristatus*) [A005]<br>Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>Shelduck (*Tadorna tadorna*) [A048]<br>Pintail (*Anas acuta*) [A054]<br>Goldeneye (*Bucephala clangula*) [A067]<br>Red-breasted Merganser (*Mergus serrator*) [A069]<br>Oystercatcher (*Haematopus ostralegus*) [A130]<br>Golden Plover (*Pluvialis apricaria*) [A140]<br>Grey Plover (*Pluvialis squatarola*) [A141]<br>Knot (*Calidris canutus*) [A143]<br>Dunlin (*Calidris alpina*) [A149]<br>Black-tailed Godwit (*Limosa limosa*) [A156]<br>Bar-tailed Godwit (*Limosa lapponica*) [A157]<br>Redshank (*Tringa 27etanus*) [A162]<br>Wetland and Waterbirds [A999]<br><br>**Potential Impact**<br>The proposed development is 4.2 km from the Malahide Estuary SPA. There is no direct hydrological connection from the site to this SPA.<br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (4.2 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SPA.<br>Given that this SPA is located 4.2 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely.** |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| IE0004117 | Ireland's Eye SPA | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:<br>**Qualifying Interests**<br>A017 Cormorant (*Phalacrocorax carbo*)<br>A184 Herring Gull (*Larus argentatus*)<br>A188 Kittiwake (*Rissa tridactyla*)<br>A199 Guillemot (*Uria aalge*)<br>A200 Razorbill (*Alca torda*)<br>**Potential Impact**<br>The proposed development is 4.5 km from the Ireland's Eye SPA. This SPA for coastal species, is surrounded by the marine environment and there is no direct hydrological connection from the proposed development to this SPA.<br>There is an indirect hydrological pathway to this SAC via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (4.5 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SAC.<br>Given that this SPA is located 4.5 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely** |
| IE0004024 | South Dublin Bay and River Tolka Estuary SPA | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.<br>**Qualifying Interests**<br>Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>Oystercatcher (*Haematopus ostralegus*) [A130]<br>Ringed Plover (*Charadrius hiaticula*) [A137]<br>Grey Plover (*Pluvialis squatarola*) [A141]<br>Knot (*Calidris canutus*) [A143]<br>Sanderling (*Calidris alba*) [A144]<br>Dunlin (*Calidris alpina*) [A149]<br>Bar-tailed Godwit (*Limosa lapponica*) [A157] |

| NATURA Code | Name | Screened IN/OUT | Details/Reason |
|---|---|---|---|
| | | | Redshank (*Tringa 29etanus*) [A162]<br>Black-headed Gull (*Chroicocephalus ridibundus*) [A179]<br>Roseate Tern (*Sterna dougallii*) [A192]<br>Common Tern (*Sterna hirundo*) [A193]<br>Arctic Tern (*Sterna paradisaea*) [A194]<br>Wetland and Waterbirds [A999]<br>**Potential Impact**<br>The proposed development is located 5.7 km from this SPA. There is no direct hydrological connection from the site to this SPA.<br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (5.7 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SPA.<br>Given that this SPA is located 5.7 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely.** |
| IE0004113 | Howth Head Coast SPA | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.<br>**Qualifying Interests**<br>A188 Kittiwake (*Rissa tridactyla*)<br>**Potential Impact**<br>The proposed development is 5.7 km from the Howth Head Coast SPA. This SPA is for Kittiwake and there is no direct hydrological connection from the proposed development to this SPA.<br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne |

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| | | | Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (5.7 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SPA.<br><br>Given that this SPA is located 5.7 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br><br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br>**No significant effects are likely.** |
| IE0004015 | Rogerstown Estuary SPA | **OUT** | **Conservation Objectives**<br>The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.<br>**Qualifying Interests**<br>Greylag Goose (*Anser anser*) [A043]<br>Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>Shelduck (*Tadorna tadorna*) [A048]<br>Shoveler (*Anas clypeata*) [A056]<br>Oystercatcher (*Haematopus ostralegus*) [A130]<br>Ringed Plover (*Charadrius hiaticula*) [A137]<br>Grey Plover (*Pluvialis squatarola*) [A141]<br>Knot (*Calidris canutus*) [A143]<br>Dunlin (*Calidris alpina*) [A149]<br>Black-tailed Godwit (*Limosa limosa*) [A156]<br>Redshank (*Tringa 30etanus*) [A162]<br>Wetland and Waterbirds [A999]<br>**Potential Impact**<br>The proposed development is 9.6 km from the Rogerstown Estuary SPA. There is no direct hydrological connection from the site to this SPA.<br><br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br><br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (9.6 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect |

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| | | | hydrological pathway of surface water will not impact on the conservation objectives of this SPA.<br><br>Given that this SPA is located 9.6 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br><br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely.** |
| IE0004069 | Lambay Island SPA | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.<br>**Qualifying Interests**<br>A009 Fulmar (*Fulmarus glacialis)*<br>A017 Cormorant (*Phalacrocorax carbo*)<br>A018 Shag (*Phalacrocorax aristotelis*)<br>A043 Greylag Goose (*Anser anser*)<br>A183 Lesser Black-backed Gull (*Larus fuscus*)<br>A184 Herring Gull (*Larus argentatus*)<br>A188 Kittiwake (*Rissa tridactyla*)<br>A199 Guillemot (*Uria aalge*)<br>A200 Razorbill (*Alca torda*)<br>A204 Puffin (*Fratercula arctica*)<br>**Potential Impact**<br>The proposed development is 11.5 km from the Lambay Island SPA. No impact on the qualifying interests of this SPA is foreseen. This SPA is for coastal birds and there is no direct hydrological connection from the proposed development to this SPA.<br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (11.5 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SPA.<br>Given that this SPA is located 11.5 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site. |

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| | | | Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely.** |
| IE0004172 | Dalkey Island SPA | **OUT** | **Conservation Objectives**<br>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.<br><br>**Qualifying Interests**<br>Roseate Tern (*Sterna dougallii*) [A192]<br>Common Tern (*Sterna hirundo*) [A193]<br>Arctic Tern (*Sterna paradisaea*) [A194]<br><br>**Potential Impact**<br>The proposed development is 13.8 km from the Dalkey Island SPA. No impact on the qualifying interests of this SPA is foreseen. This SPA is for coastal birds and there is no direct hydrological connection from the proposed development to this SPA.<br><br>There is an indirect hydrological pathway to this SPA via the proposed foul and surface water drainage networks. Foul wastewater will be connected to an existing public foul network located in the Baldoyle Stapolin LAP Lands. Foul wastewater will then be treated at Ringsend WwTP.<br><br>The surface water outfalls to the new wetland area which discharges into the Mayne River and then ultimately outfalls to the Mayne Estuary and Baldoyle Bay. As the Mayne River ultimately outfalls to Baldoyle Bay, there is an indirect hydrological pathway to this SPA. However, given the distance along this pathway to the SPA (13.8 km), any pollutants or silt within the surface water will settle, be dispersed, or diluted within the marine environment. The indirect hydrological pathway of surface water will not impact on the conservation objectives of this SPA. Given that this SPA is located 13.8 km from the proposed development site, it is unlikely that heightened noise levels during construction and operation will impact on the designated qualifying interests of this site.<br><br>Impacts caused by the proposed development in the absence of any mitigation measures, would be expected to be localised to the immediate environs of the site, Mayne River and Baldoyle Bay. No impacts on the qualifying interests of this European site are foreseen.<br><br>**No significant effects are likely.** |

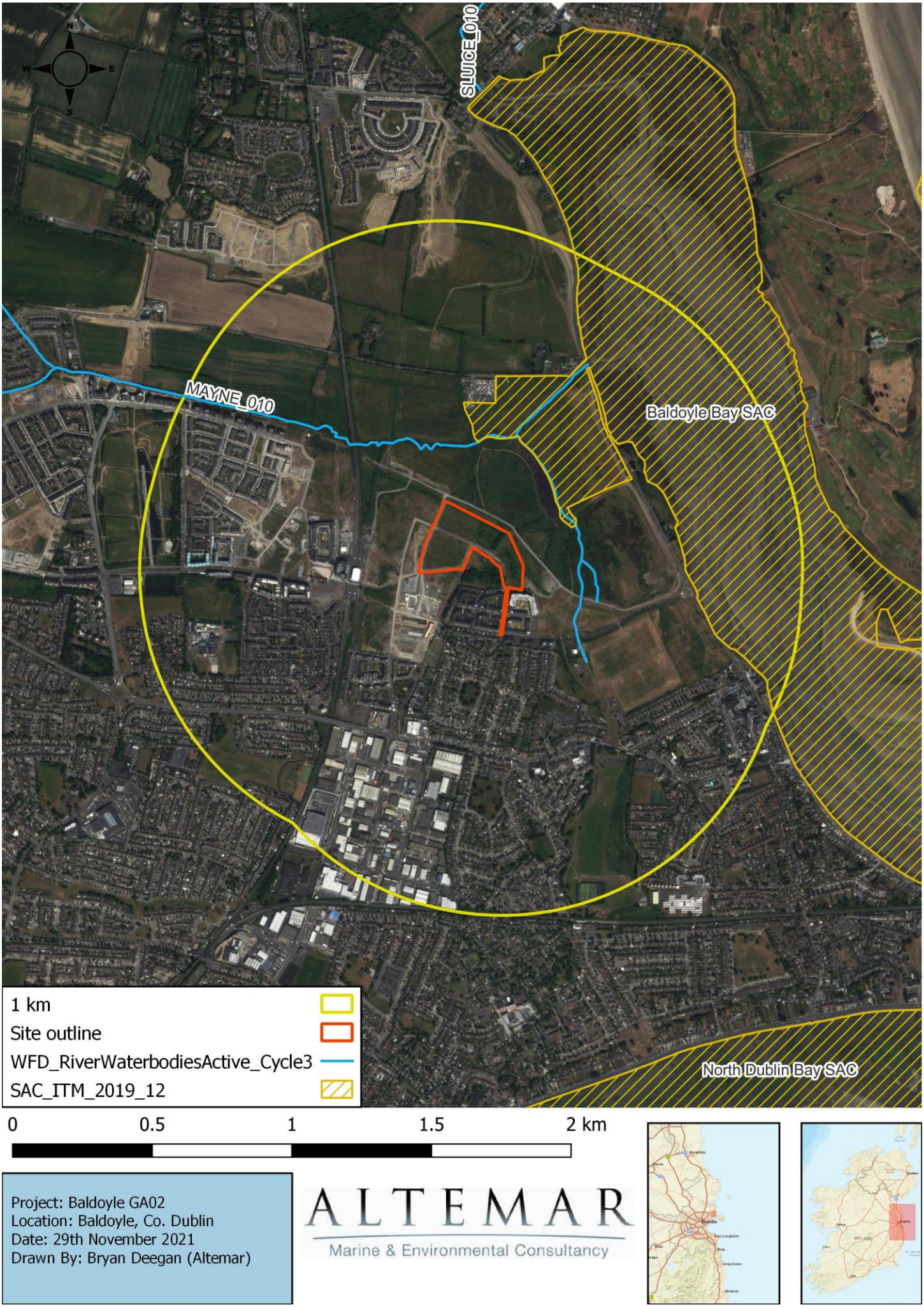


*Figure 10. Watercourses & SACs within 1 km of the proposed development*

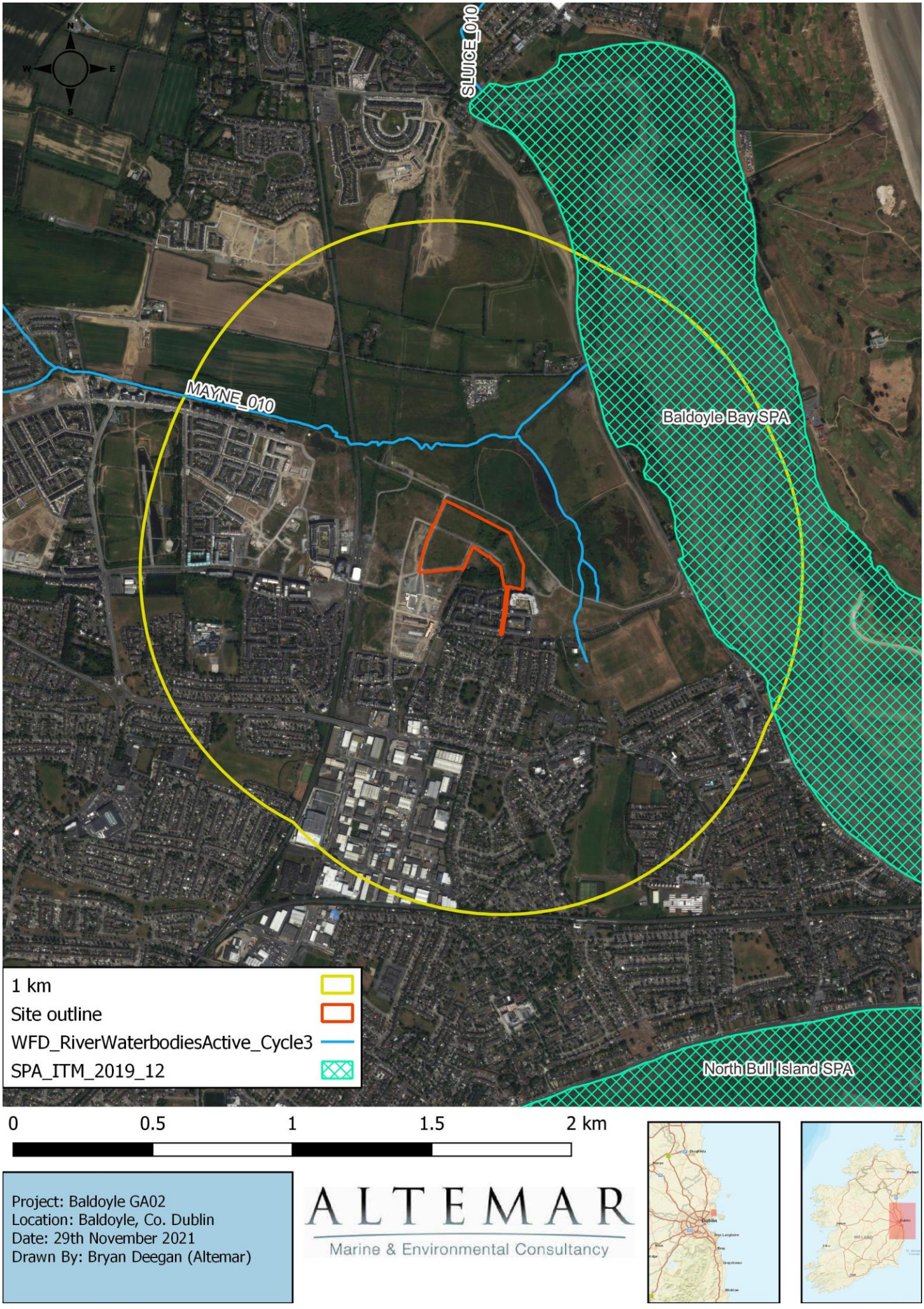


*Figure 11. Watercourses & SPAs within 1 km of the proposed development*

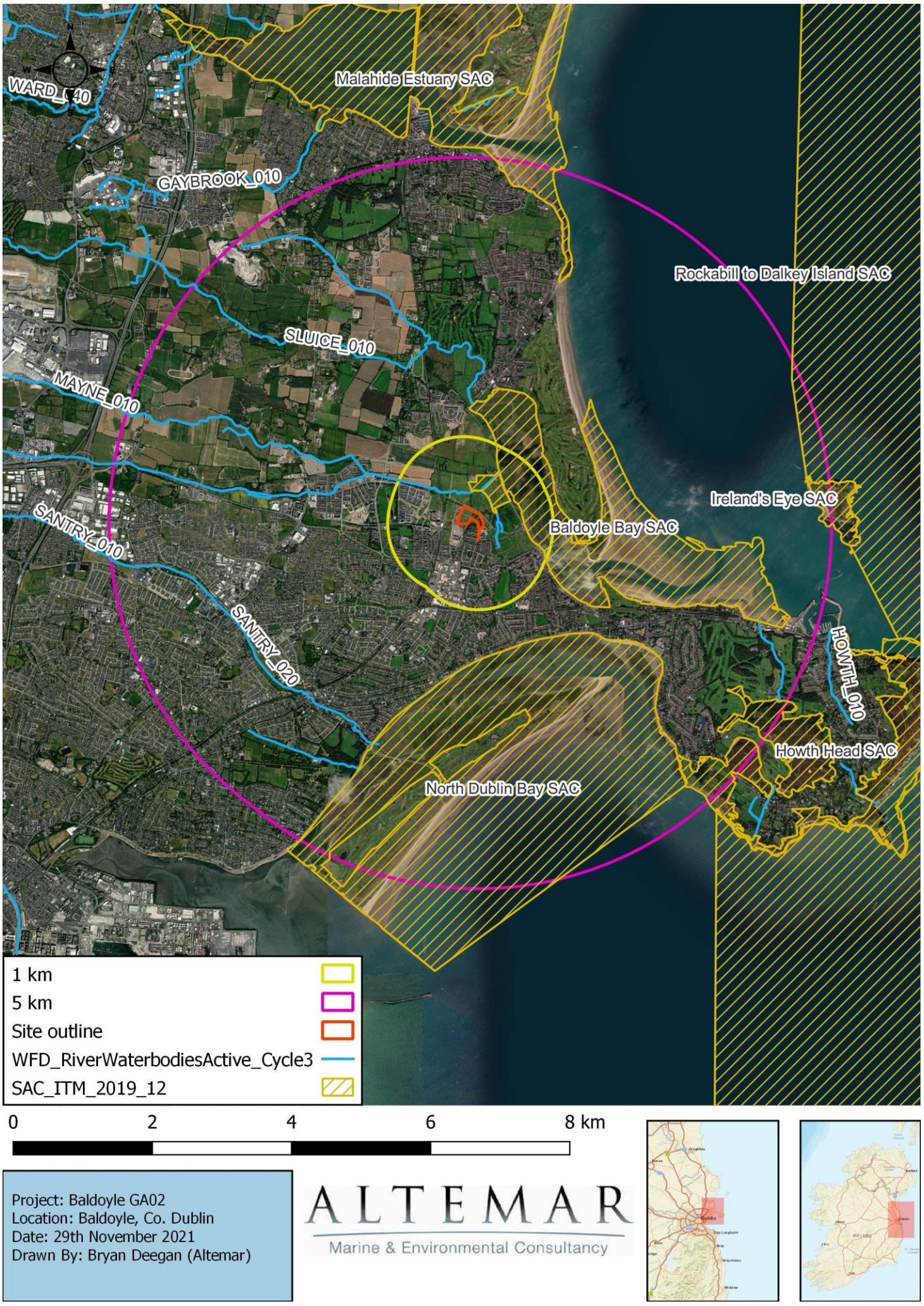


*Figure 12. Watercourses & SACs within 5 km of the proposed development*

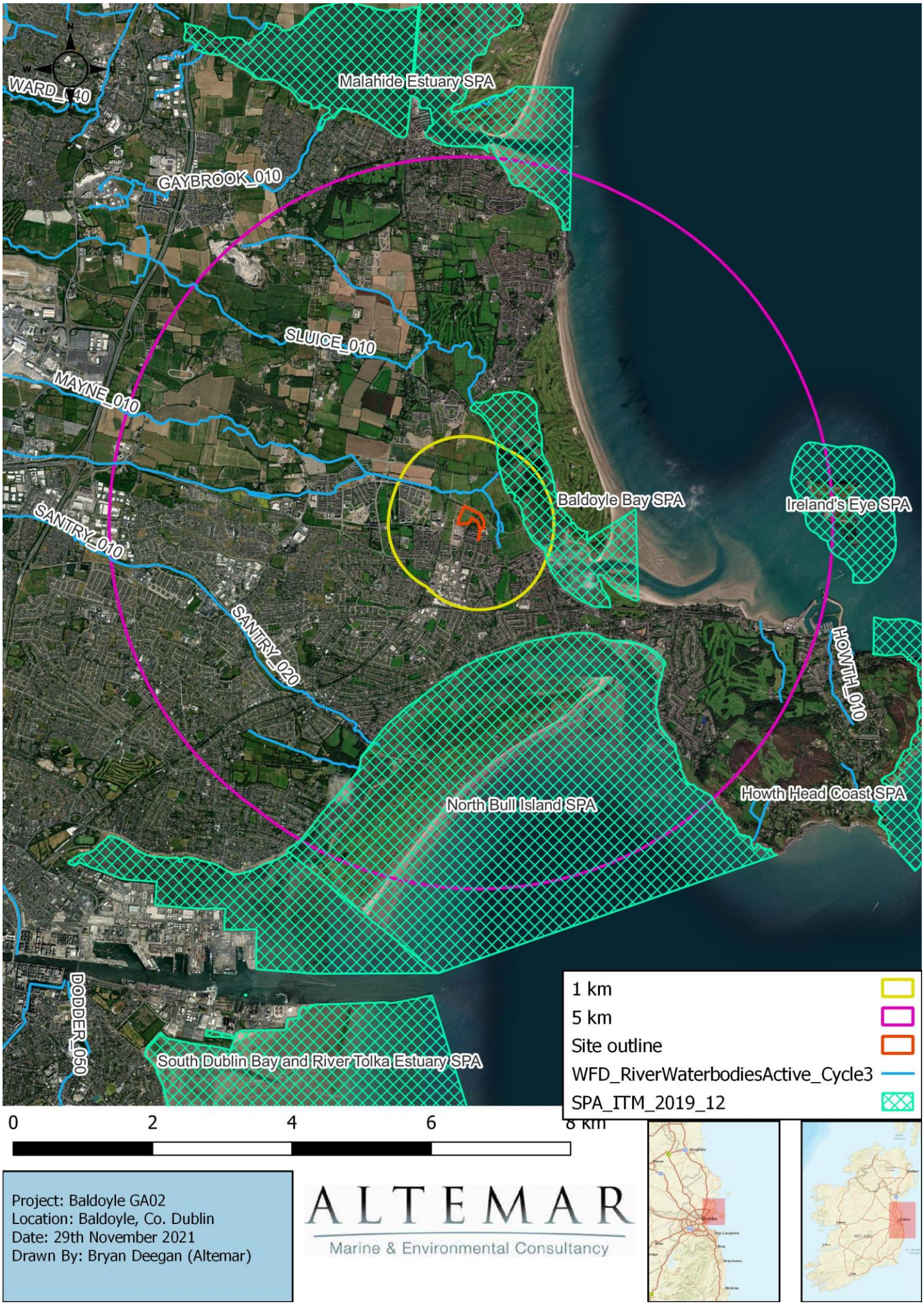


*Figure 13. Watercourses & SPAs within 5 km of the proposed development*

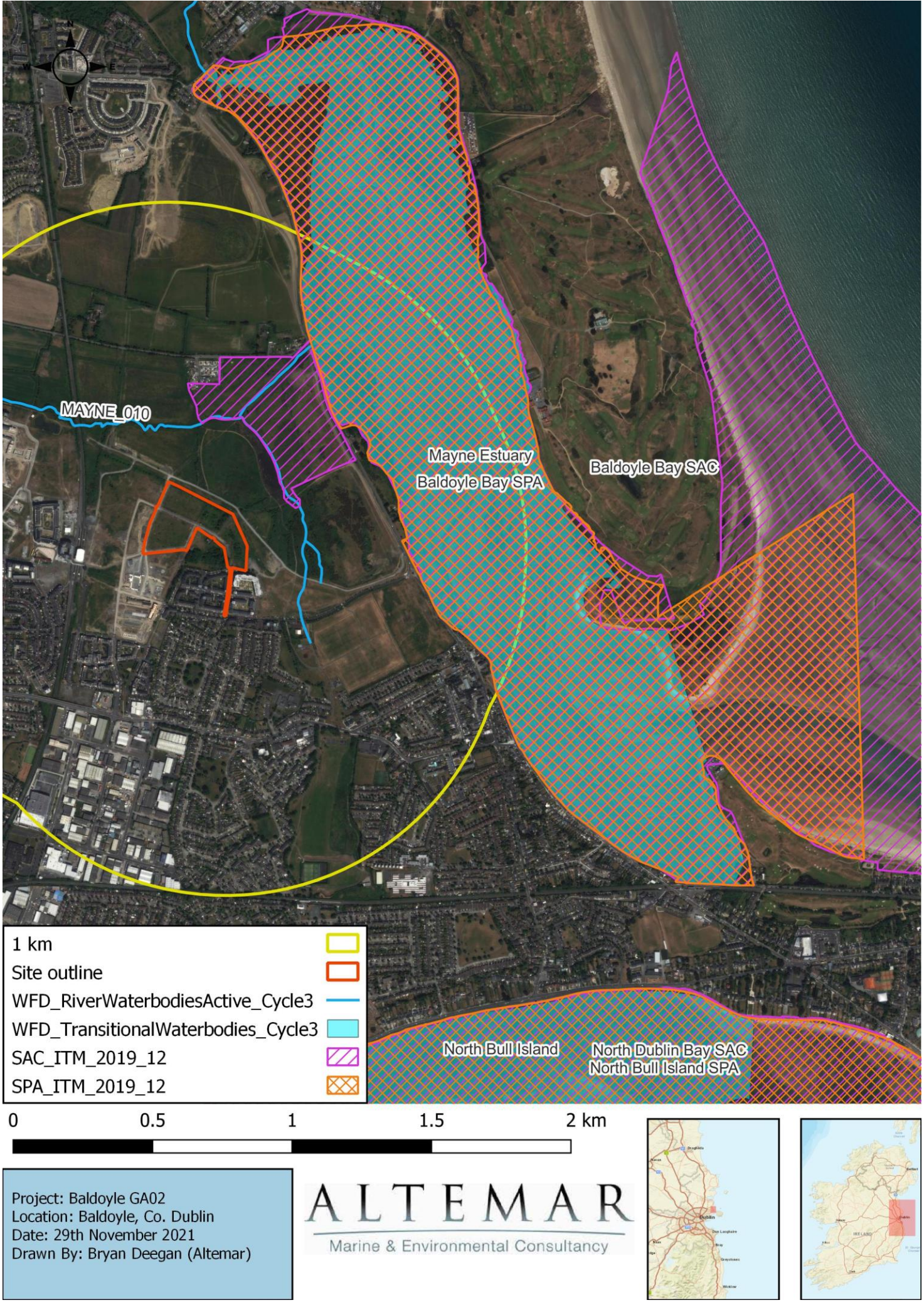


*Figure 14. Watercourses SACs and SPAs proximate to the proposed development*

## In-Combination Effects

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[3]:

*Table 4. In combination effects evaluated.*

| Ref. No. | Address | Proposal |
|---|---|---|
| F21A/0046 | Lands at Baldoyle (Formerly known as the Coast, Dublin 13) | The site is bounded to north by undeveloped lands, to the south by the residential development of Myrtle, to the east by residential development of Red Arches, and to the west by undeveloped lands and the Dublin - Belfast railway line. The development consists of minor alterations to permitted residential development, as permitted under F16A/0412, ABP Ref: PL06F.248970 as amended under F20A/0258. The proposed alterations relate to Blocks B3, B4,C3, C4 and C5 only and relate to either: Proposed alterations to some of the permitted Unit Types in respect of their external design which relates primarily to roof and porch design as well as external finishes, minor internal reconfiguration and removal or alteration of permitted solar panels. The introduction of new Unit Types in place of permitted units. This is set out in respect of each block as follows : Block B3 - To the east of the Block, the replacement of the permitted 1 no Unit Type G, 7 no. Unit Type D and 1 no. Unit Type E with 9 no. Unit Type P. Block B4- to the east side of the Block, replacement of the permitted 1 no. Unit Type G, 7 No. Unit Type D and 1 no. Unit Type E, 1 no. Unit Type A and 1 no. Unit Type B with 9 no. Unit Type P. Block C3 to the west and centre of the block replacement and alteration of the permitted 2 no. Unit Type M, 8 no. Unit Type A and 6 no. Unit Type D with 18 no. revised unit Type B. To the east of the block the replacement of 2 no. Unit Type E with 2 no. revised unit Type D and the alteration of the 5 no. Unit Type E to revised unit Type E Block C4- To the west of the block the alteration of the permitted 2 no. Unit Type N and 4 no. Unit Type K to 2 no. revised unit Type N and 4 no. Revised Unit Type K. Block C5- to the west of the block the alteration of the permitted 2 no. Unit Type N and 4 no. revised Unit Type K. In total 38 permitted units are being altered with external changes and 33 no. units are replacing Type 38 no. permitted units. This proposed replacement and alteration of permitted unit types results in a reduction in permitted units by 5. Permission is also sought for the resultant increase in car-parking from 98 permitted spaces to 122 spaces relating to the subject units and for the alterations to permitted landscaping as a result of the proposed development. |
| F20A/0258 | Lands at Baldoyle (Formerly known as the Coast, Dublin 13) | Minor alterations to permitted residential development, as permitted under F16A/0412, ABP Re. Ref; PL06F.248970. The proposed alterations relate to Blocks C4, C5 and D1 only and primarily relate to the alteration of external finishes and material of permitted housing units including the: Omission of permitted fireplaces and chimneys; Alterations to permitted fenestration including vertical frame sections, transoms and mullions, of windows and doors to front and rear of houses; Alteration of permitted rear flat roof to pitched roof on Building Types A & D; removal of permitted decorative balustrades; Alterations of the permitted brickwork finish to the rear and side elevations of the houses with a render finish; Alteration of permitted bin stores to include brick finishes; Removal of permitted solar panels from Building Types A,B,D,E,F G and alterations of permitted solar panels on Building Types K & N. |
| F19A/0461 | Myrtle Grange Road Baldoyle | **Primary School:** Three storey 16 classroom Primary School building in Baldoyle (Roll Number 20519G), including a two classroom SEN base. The |

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

| Ref. No. | Address | Proposal |
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| | | design also includes a general-purpose hall, support teaching spaces and ancillary accommodation, external junior play areas, secure SEN hard and soft play area and a sensory garden. The proposed project also incorporates associated car parking, access road, pedestrian access, bicycle lane, construction of 2 no. external ball courts, landscaping, connection to public services and all associated site works |
| F16A/0412 | The Coast, Baldoyle, Dublin 13. | 550 no. residential units (379 no. apartments and 171 no. houses) and a village centre comprising C.1,585sq. m. of commercial floor space laid out in 13 no. blocks (Blocks A1, A2, A3, B1, B2, B3, B4, C1, C2, C3, C4, C5 and D1) ranging in height from two storeys to six storeys as follows:<br><br>Blocks A1, A2 and A3 will consist of 3 no. six storey buildings (c. 30.05m OD to roof level with an overall height of c. 33.90 OD to include lift overrun) comprising 195 no. residential units (5 no. 1-bed apartment, 162 no. 2-bed apartments, and 28 no. 3-bed apartments) at first to fifth floor level, c.1,585 sq.m. of commercial floor area at ground floor level comprising a convenience outlet (c. 493sq.m.), cafe (c. 200sq.m.), 4 no. retail units (c. 88sq.m., 99sq.m., 99 sq.m. and 90sq.m.), a crèche (c. 516sq.m.) with outdoor play area (c. 183sq.m.) and shared car park also at ground floor level with two associated communal courtyard areas at first floor level above a podium.<br><br>Block B1 will consist of a four storey building over basement car park (c. 21.6m OD to roof level with an overall height of c. 25m OD to include lift overrun) comprising 82 no. residential units (3 no. 1-bed apartments, 75 no. 2-bed apartments, and 4 no. 3-bed apartments); Blocks B1 and B2 include a shared central communal courtyard area over a shared basement car park and a community room (c. 78sq.m.) in the entrance pavilion to the basement.<br><br>Block B2 will consist of 3 no. three storey terraces over basement car park comprising 24 no. residential units (12 no. own door 2-bed apartments and 12 no. own door 2-bed duplex apartments).<br><br>Block B3 will consist of 1 no. two storey terrace and 3 no. three storey terraces comprising 32 no. residential units (11 no. 3-bed terraced houses and 21 no. 4-bed terraced houses).<br><br>Block B4 will consist of 2 no. two storey terraces and 1 no. three storey terrace comprising 25 no. residential units (16 no. 3-bed terraced houses and 9 no. 4-bed terraced houses).<br><br>Block C1 will consist of 3 no. three storey terraces comprising 32 no. residential units (16 no. 2-bed own door apartments and 16 no. 2-bed own door duplex apartments).<br><br>Block C2 will consist of 1 no. two storey terrace and 2 no. three storey terraces comprising 35 no. residential units (9 no. 2-bed own door apartments, 9 no. 2-bed own door duplex apartments, 10 no. 3-bed terraced houses and 7 no. 4-bed terraced houses.<br><br>Block C3 will consist of 1 no. two storey terrace and 2 no. three storey terraces comprising 29 no. residential units (11 no. 3-bed houses and 18 no. 4-bed houses). |

| Ref. No. | Address | Proposal |
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| | | Block C4 will consist of 2 no. two storey terraces and 2 no. three storey terraces comprising 47 no. residential units (5 no. 1-bed own door apartments, 2 no. 2-bed own door apartments, 5 no. 2-bed own door duplex apartments, 2 no. 3-bed own door duplex apartments, 24 no. 3-bed terraced houses and 9 no. 4-bed terraced houses).<br><br>Block C5 will consist of 2 no. two storey terraces and 2 no. three storey terraces comprising 37 no. residential units (5 no. 1-bed own door apartments, 2 no. 2-bed own door apartments, 5 no. 2-bed own door duplex apartments, 2 no. 3-bed own door duplex apartments, 14 no. 3-bed terraced houses, and 9 no. 4-bed terraced houses).<br><br>Block D1 will consist of 12 no. two storey 3-bed semi-detached houses.<br><br>All apartments and duplex apartments have private terraces or balconies and private communal amenity areas. The proposed development will also include 896 no. residential (including visitor) car parking spaces, 62 no. commercial car parking spaces, 551 no. residential bicycle spaces and 13 no. commercial bicycle spaces; pedestrian, vehicular and bicycle access will be via the existing Longfield Road and Red Arches Road and the proposed internal road network comprising Stapolin Avenue, Ireland's Eye Avenue and smaller access roads; construction access will be via existing haul road from the Coast Road; landscaping works including Stapolin Square (c. 0.4ha) which will provide access to Clongriffin Train Station via a series of terraces, steps and slopes, a range of public open spaces including pocket parks and amenity spaces, the largest of which will be Stapolin Haggard (c. 1.57ha); public lighting; a wetland area (c. 0.4ha.) for water quality treatment associated with the proposed development; all associated ancillary facilities including 8 no. ESB substations, switch rooms, refuse storage, water storage tanks and plant; and all associated site development works including the removal of existing roads and infrastructure where required and demolition of existing temporary lift and stair enclosure and associated infrastructure to Clongriffin Train Station. The subject site of C 15.89ha comprised Growth Area 1 of the Baldoyle-Stapolin Local Area Plan 2013-2019. This application is accompanied by an Environmental Impact Statement (E.I.S.) |
| Stapolin Growth Area 1, Baldoyle, Co. Dublin. | GA1, Baldoyle, Co. Dublin | The Shoreline Partnership have applied for planning permission for a residential development at Stapolin Growth Area 1, Baldoyle, Co. Dublin. The proposed development will consist of alterations to the development permitted within Growth Area No. 1 (GA1) of the Baldoyle - Stapolin Local Area Plan 2013-2019, under FCC Reg. Ref. F16A/0412, ABP Reg. Ref. ABP-248970 (as amended by F20A/0258 and F21A/0046). The existing permission provides for 544 no. residential units (385 no. apartments and 159 no. houses), residential tenant amenities, village centre and crèche laid out in 13 no. blocks (identified as A1, A2, A3, B1, B2, B3, B4, C1, C2, C3, C4, C5, D1) ranging in height from two-storeys to six-storeys, with associated pedestrian, vehicular and bicycle access, car and bicycle parking, landscape works and open spaces, including Stapolin Square and Stapolin Haggard, pocket parks, communal courtyards; surface water attenuation wetland; and associated ancillary services and works on an overall site of 15.89 hectares (ha). A number of elements of the existing permitted development have been constructed / will be constructed in accordance with the current grant of permission (as previously amended), including: |

| Ref. No. | Address | Proposal |
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| | | • Surface water attenuation wetlands and associated upstream surface water network;<br>• Ninety-nine units in permitted Blocks C4, C5 and D1 (identified as Block C6 under amendments F20A/0258 and F21A/0046);<br>• The open space referred to as the Haggard Park ('Stapolin Haggard');<br>• Demolition of existing temporary lift and stair enclosure and associated infrastructure to Clongriffin Train Station;<br>• Road infrastructure (except where within the application boundary and requiring to be locally altered for proposed Project); and<br>• Utilities infrastructure (except where within the application boundary and requiring to be locally altered for proposed Project).<br>Given that they are already constructed or are under construction, the area of the surface water wetlands and associated upstream surface water network, and the area of Blocks C4, C5, C6 (latter formerly D1) are excluded from the subject planning application. The Haggard Open Space will be provided in accordance with the current grant of permission and as such is also exclusion from the planning area.<br>The proposed Project will provide for 882 no. new residential dwellings (747 no. apartments, 135 no. houses), residential tenant amenities, village centre, and crèche, laid out in 15 no. blocks (identified as: A1, A2, A3, B1, B2, B3, B4, C1, C1A, C2, C2A, C3, D1, D2, D3) ranging in height from two-storeys to 15-storeys, with associated pedestrian, vehicular and bicycle access, car and bicycle parking, public realm and open space, including an enlarged Stapolin Square, landscape and associated ancillary services and works over a total Site area of c. 9.1ha, of which the development area is c. 8.89ha. As well as excluding some previously permitted areas (as above), the red line boundary for this application extends beyond the red line of the previously permitted development to provide for the full extent of Stapolin Square, new access to Clongriffin Station through the Square, new apartment blocks D1, D2, D3 to the north of Stapolin Square, and a bus ramp to Clongriffin Station. The red line boundary of this application also extends north to provide for a 300mm watermain connection to the existing watermain in the parklands to the north.<br>A Natura Impact Statement has been prepared by Altemar Ltd. to accompany the planning application outlined above. Following the implementation of mitigation measures, this report concludes the following:<br>'*On the basis of the content of this report, the competent authority is enabled to conduct an assessment for Appropriate Assessment and consider whether, in view of best scientific knowledge and in view of the conservation objectives of the relevant European sites, the Proposed Development, individually or in combination with other plans or projects is likely to have a significant effect on any European site.*<br>***No significant effects are likely on European sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites.'*** |
| Stapolin Growth Area 3, | GA3, Baldoyle, Co. Dublin | The Shoreline Partnership intend to apply to An Bord Pleanála for a 10 year planning permission for a strategic housing development at a site of c. 6.89 ha at lands at Baldoyle/Stapolin, referred to as GA03 Lands in the Baldoyle-Stapolin Local Area Plan 2013 (as extended) and which from |

| Ref. No. | Address | Proposal |
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| Baldoyle, Co. Dublin. | | part of the wider landholding of lands formerly known as the Coast, Baldoyle, Dublin 13. The lands are bound by the Dublin-Belfast / DART train line to the west, existing and proposed residential areas to the south and east, and future Racecouse Park to the north.<br>The proposed development will consist of the development of 1,221 no. residential apartment/duplex dwellings in 11 no. blocks ranging in height from 2 to 15 storeys and including for residential tenant amenity, restaurant/cafe, crèche, car and bicycle parking and public realm, over a site area of c. 6.89 ha.<br>1. The proposed residential development will consist of 1,221 no residential apartment/duplex dwellings (1 no. Studio, 503 No. 1-Bed, 636 No. 2-Bed, 80 No. 3-Bed) set out as follows:<br>• Blocks E1, ranging in height from 6 to 8 storeys, providing 157 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks E2, at 6 storeys, providing 68 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks E3, at 6 storeys, providing 45 no. apartment units with proposed balconies, and external roof terrace and solar panels at roof level.<br>• Blocks E4, at 5 storeys, providing 36 no. apartment units with proposed balconies, and external roof terrace and solar panels at roof level.<br>• Blocks F1, ranging in height from 2 to 5 storeys providing 91 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks F2, ranging in height from 2 to 6 storeys providing 122 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks G1, ranging in height from 5 to 10 storeys providing 169 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks G2, ranging in height from 5 to 10 storeys providing 175 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks G3, at 15 storeys, providing 124 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks G4, at 7 storeys, providing 60 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Blocks G5, ranging in height from 5 to 10 storeys providing 173 no. apartment units with proposed balconies, and solar panels at roof level.<br>• Residential Tenant Amenity Facilities of c.2,301.m located in Blocks E3, E4, G3, G4 & G5 and external communal amenity space of c.10,793 sq.m provided at ground, podium and terrace levels throughout the scheme.<br>2. A crèche of c.452 sq.m in addition to outdoor play space of c.123 sq.m. is proposed in the ground floor of Block G4 and 1 no. restaurant/cafe units of c.205 sq.m is proposed on the ground floor of Block E3. Total non-residential uses is c.785 sq.m<br>3. Car Parking is provided in a mix of undercroft for Blocks E1-E2, F1 and F2 and at basement level for Blocks G1-G3 and G4-G5 with a total parking of 632 spaces for residential units with 33 spaces at surface level for residential use and 8 spaces (4 staff in G4/G5 and 4 drop off) associated with the proposed crèche. 2016 cycle parking spaces are provided for residents and 312 for visitor and commercial uses, in secure locations and within the public realm throughout the scheme. |

| Ref. No. | Address | Proposal |
|---|---|---|
| | | 4. A new central public space between Blocks E1-E2 and E3 and E4 and a new linear space between Blocks G2-G3 and G4-G5 provides pedestrian and cycle connectivity from Longfield Road to the proposed future Racecourse Park to the north is provided.<br>5. Proposed new bus, cycle, pedestrian and taxi ramp to the south of the site and north of Stapolin Square providing access from Longfield Road to Clongriffin Train Station.<br>6. The development will also provide for all associated ancillary site development infrastructure including: ESB sub-stations, bin stores, plant rooms, public lighting, new watermain connection to the north and foul and surface water drainage; internal roads & footpaths; site landscaping, including boundary treatments; associated scheme signage, and all associated engineering and site works necessary to facilitate the development. |
| | Baldoyle, Co. Dublin | Fingal County Council intends to make an application for approval to An Bord Pleanála under Section 177AE of the Planning and Development Act 2000 (as amended) to carry out a park development project at the Racecourse Park located between Baldoyle and Portmarnock, Co. Dublin. The proposed development consists of:<br>4.5km of new walking and cycling routes including a bridge over the Mayne river and the repair to the railway underpass;<br>Public lighting along key walking and cycling routes<br>Expanding the existing car park to cater for up to 161 car parking spaces;<br>Upgrading and expanding the existing playground;<br>A Skate park and Teenage Adventure Playground;<br>A Multi use games area;<br>A dog run;<br>A Bowls green;<br>Four grass football pitches<br>A viewing platform<br>Tracing of circular archaeological feature through soft landscaping and removal of existing fence;<br>Extension of existing reedbed south of Mayne river and creation of new brackish grassland north of Mayne river;<br>All landscaping works in the park.<br>https://consult.fingal.ie/ga/consultation/section-177ae-application-bord-plean%C3%A1la-racecourse-park-development-project<br>. |

The area in which the proposed development is proposed is within an area that is undergoing significant development proximate to Natura 2000 sites. Public open space is being provided within each development and a significant amenity area (Racecourse Park) is currently in Planning which would be seen wider in combination effects. Given this, 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 effects on European sites 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 on European sites.**

## Appropriate Assessment Screening Conclusions

An initial screening of the proposed works, using the precautionary principle (without the use of any standard construction phase controls or mitigation measures) and the Source/Pathway/Receptor links between the proposed works and European sites with the potential to result in significant effects on the conservation objectives and features of interest of the European sites was carried out in Tables 2 and 3. Based on best scientific knowledge and objective information and assessment, the possibility of significant effects caused by the proposed project was excluded for the following European sites within 15km in addition to sites beyond 15km with a direct/indirect pathway:

**Special Areas of Conservation**

- IE0000206 North Dublin Bay SAC
- IE0000205 Malahide Estuary SAC
- IE0000202 Howth Head SAC
- IE0003000 Rockabill to Dalkey Island SAC
- IE0002193 Ireland's Eye SAC
- IE0000210 South Dublin Bay SAC
- IE0000208 Rogerstown Estuary SAC
- IE0000204 Lambay Island SAC

**Special Protection Areas**

- IE0004006 North Bull Island SPA
- IE0004025 Malahide Estuary SPA
- IE0004117 Ireland's Eye SPA
- IE0004024 South Dublin Bay and River Tolka Estuary SPA
- IE0004113 Howth Head Coast SPA
- IE0004015 Rogerstown Estuary SPA
- IE0004069 Lambay Island SPA
- IE0004172 Dalkey Islands SPA

The project is limited in scale and extent and the potential zone of influence is restricted to the immediate vicinity of the proposed development. However, in the absence of mitigation measures there is potential for silt laden material or pollution to enter the watercourse and impact on local biodiversity and European sites immediately downstream from the works.

Acting on a strictly precautionary basis, an NIS is required in respect of the effects of the project on the Baldoyle Bay SAC and Baldoyle Bay SPA because it cannot be excluded on the basis of best objective scientific information following screening, in the absence of control or mitigation measures that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the named European Site/s.

An NIS or Stage 2 Appropriate Assessment is not required for the effects of the project on all other listed Natura sites and those beyond 15km because it can be excluded on the basis of the best objective scientific information following screening that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the European Site/s.

**A Natura Impact Statement is required for the proposed development.**

## Stage 2: Natura Impact Statement

A Natura Impact Statement (NIS) is Stage 2 of the Appropriate Assessment process. In the case of the proposed development at Baldoyle-Stapolin Growth Area 2, Baldoyle, Co. Dublin, acting on a strictly precautionary basis, an NIS is required in respect of the effects of the project on the Baldoyle Bay SAC and Baldoyle Bay SPA (due to the potential for downstream impacts during construction and operation via the surface water drainage network), because it cannot be excluded on the basis of best objective scientific information, in the absence of control or mitigation measures, following screening that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the named European Site/s.

A Stage 2 Appropriate Assessment or NIS is not required for the effects of the project on all other listed Natura sites within, and sites beyond, 15km because, it can be excluded, on the basis of the best objective scientific information following screening, that the plan or project, individually and/or in combination with other plans or projects, will have not a significant effect on the European Site/s.

The NIS evaluates the potential for direct, indirect effects, alone or in combination with other plans and projects having taken into account the use of mitigation measures. The NIS is informed by the accompanying EIAR including the proposed mitigation measures that are outlined to reduce the potential effects of the proposed project on species/habitats of conservation importance and the surrounding environment.

A further review of the Conservation Objectives and features of interest is necessary to determine if significant effects are likely to impact the Baldoyle Bay SAC and Baldoyle Bay SPA.

### Baldoyle Bay SAC (Site code: 000199)

Baldoyle Bay SAC is located 0.19 km from the planning boundary. The proposed development is directly hydrologically connected to Baldoyle Bay SAC via the proposed surface water drainage strategy. Surface water will be directed to a wetland installed within the Mayne River floodplain. Surface water will then discharge to the Mayne River after the wetland. The Mayne River ultimately outfalls to Baldoyle Bay (Figures 12,14,16).

#### Site-specific data

As outlined in the Baldoyle Bay SAC Site Synopsis (NPWS, Version date 12.08.2013):

'*Baldoyle Bay SAC extends from just below Portmarnock village to the west pier at Howth in Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the bay.*

*The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are European codes):*

*[1140] Tidal Mudflats and Sandflats; [1310] Salicornia Mud; [1330] Atlantic Salt Meadows and; [1410] Mediterranean Salt Meadows.*

*Large areas of intertidal flats are exposed at low tide at this site. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (Spartina anglica) occur in the inner estuary. Both the Narrow-leaved Eelgrass (Zostera angustifolia) and the Dwarf Eelgrass (Z. noltii) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (Enteromorpha spp. and Ulva lactuca).*

*The sediments have a typical macrofauna, with Lugworm (Arenicola marina) dominating the sandy flats. The tubeworm Lanice conchilega is present in high densities at the low tide mark and the small gastropod Hydrobia ulvae occurs in the muddy areas, along with the crustacean Corophium volutator.*

*Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as glassworts (Salicornia spp.), Sea-purslane (Halimione portulacoides), Sea Plantain (Plantago maritima) and Sea Rush (Juncus maritimus) are found here. Portmarnock Spit formerly had a welldeveloped sand dune system but this has been largely replaced by golf courses and is mostly excluded from the site. A few dune hills are still intact at Portmarnock Point, and there are small dune hills east of Cush Point and*

*below the Claremont Hotel. These are mostly dominated by Marram (Ammophila arenaria), though Lymegrass (Leymus arenarius) is also found.*

*The site includes a brackish marsh along the Mayne River. Soils here have a high organic content and are poorly drained, and some pools occur. Rushes (Juncus spp.) and salt tolerant species such as Common Scurvygrass (Cochleria officinalis) and Greater Sea-spurrey (Spergularia media) are typical of this area. Knotted Hedgeparsley (Torilis nodosa), a scarce plant in eastern Ireland, has been recorded here, along with Brackish Water-crowfoot (Ranunculus baudotti), a species of brackish pools and ditches which has declined in most places due to habitat loss. Two plant species, legally protected under the Flora (Protection) Order, 1999, occur in the Mayne marsh, Borrer's Saltmarsh-grass (Puccinellia fasciculata) and Meadow Barley (Hordeum secalinum).*

*Baldoyle Bay is an important bird site for wintering waterfowl and the inner part of the estuary is a Special Protection Area under the E.U. Birds Directive as well as being a Statutory Nature Reserve. Internationally important numbers of Pale-bellied Brent Goose (418) and nationally important numbers of two Annex I Birds Directive species - Golden Pover (1,900) and Bar-tailed Godwit (283) - have been recorded. Four other species also reached nationally important numbers: Shelduck (147), Pintail (26), Grey Plover (148) and Ringed Plover (218) - all figures are average peaks for four winters 1994/95 to 1997/1998. Breeding wetland birds at the site include Shelduck, Mallard and Ringed Plover. Small numbers of Little Tern, a species listed on Annex I of the E.U. Birds Directive, have bred on a few occasions at Portmarnock Point but not since 1991.*

*The area surrounding Baldoyle Bay is densely populated and so the main threats to the site include visitor pressure, disturbance to wildfowl and dumping. In particular, the dumping of spoil onto the foreshore presents a threat to the value of the site.*

*Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the E.U. Habitats Directive, and supports two legally protected plant species. The site is also an important bird area and part of it is a Special Protection Area under the E.U. Birds Directive, as well as being a Statutory Nature Reserve. It supports internationally important numbers of Brent Goose and nationally important numbers of six other bird species, including two Annex I Birds Directive species*.'

The Qualifying Interests (QI) (Features of Interest) and the National conservation status of the QI for Baldoyle Bay SAC are seen in Table 5.

***Table 5**. Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for Baldoyle Bay SAC.*

| **Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for relevant European sites** | | |
|---|---|---|
| **European Site Name & Code** | **Qualifying Interests** | **Current Conservation Status & Trend** |
| **Baldoyle Bay SAC IE0000199** | Mudflats and sandflats not covered by seawater at low tide [1140]<br>Salicornia and other annuals colonising mud and sand [1310]<br>Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]<br>Mediterranean salt meadows (*Juncetalia maritimi*) [1410] | **Inadequate**<br>**Favourable**<br>**Inadequate**<br>**Inadequate** |

The Conservation Objectives and overall status of species and habitats in Baldoyle Bay SAC are as follows[4] [5]:

'*Objective: To maintain the favourable conservation condition of Mudflats and sandflats (Figure 16) not covered by seawater at low tide in Baldoyle Bay SAC, which is defined by the following list of attributes and targets.*

*Target 1. The permanent habitat area is stable or increasing, subject to natural processes.*

[4] NPWS (2012). Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
[5]NPWS (2012) Baldoyle Bay SAC (site code: 199) Conservation objectives supporting document -Marine Habitats

*This target refers to activities or operations that propose to permanently remove habitat from a site, thereby reducing the permanent amount of habitat area. It does not refer to long or short-term disturbance of the biology of a site.*

*Target 2. Conserve the following community types in a natural condition:*

- *Fine sand dominated by Angulus tenuis community complex; 257ha.*
- *Estuarine sandy mud with Pygospio elegans and Tubificoides benedii community complex; 152ha.*
- *Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter - Departmental management review is recommended prior to further licensing of such activities.*
- *Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context - specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.'*

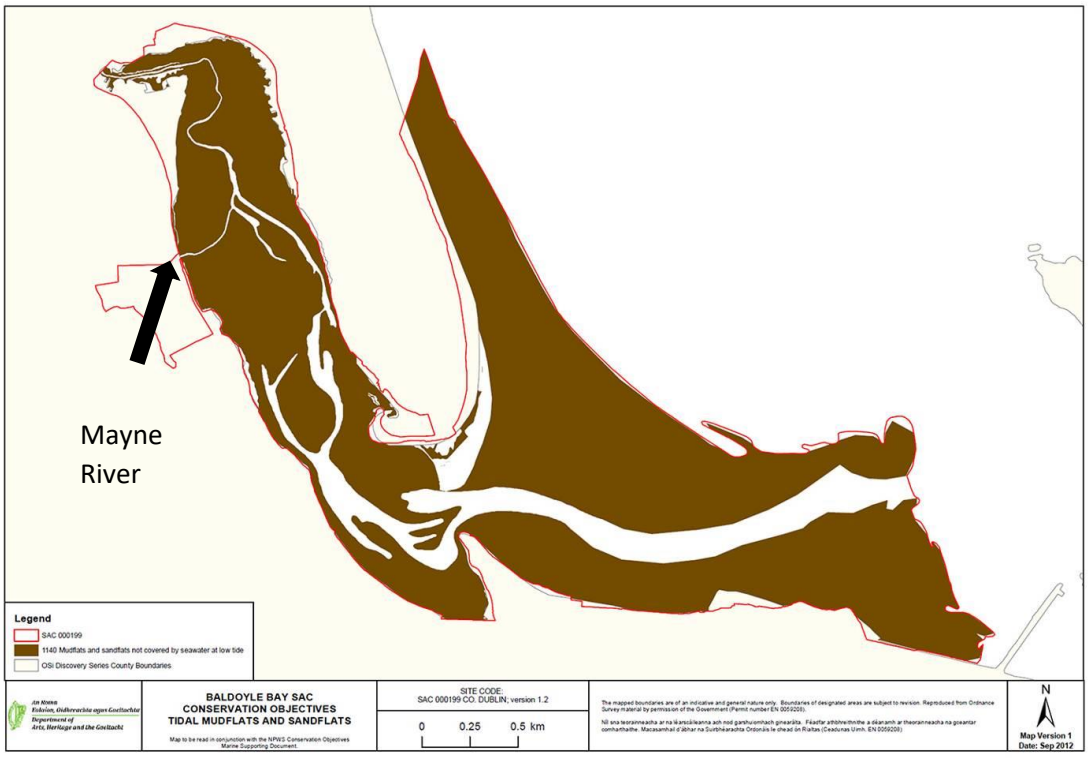


**Figure 15.** Distribution of Mudflats and Sandflats not covered by seawater at low tide in Baldoyle Bay SAC

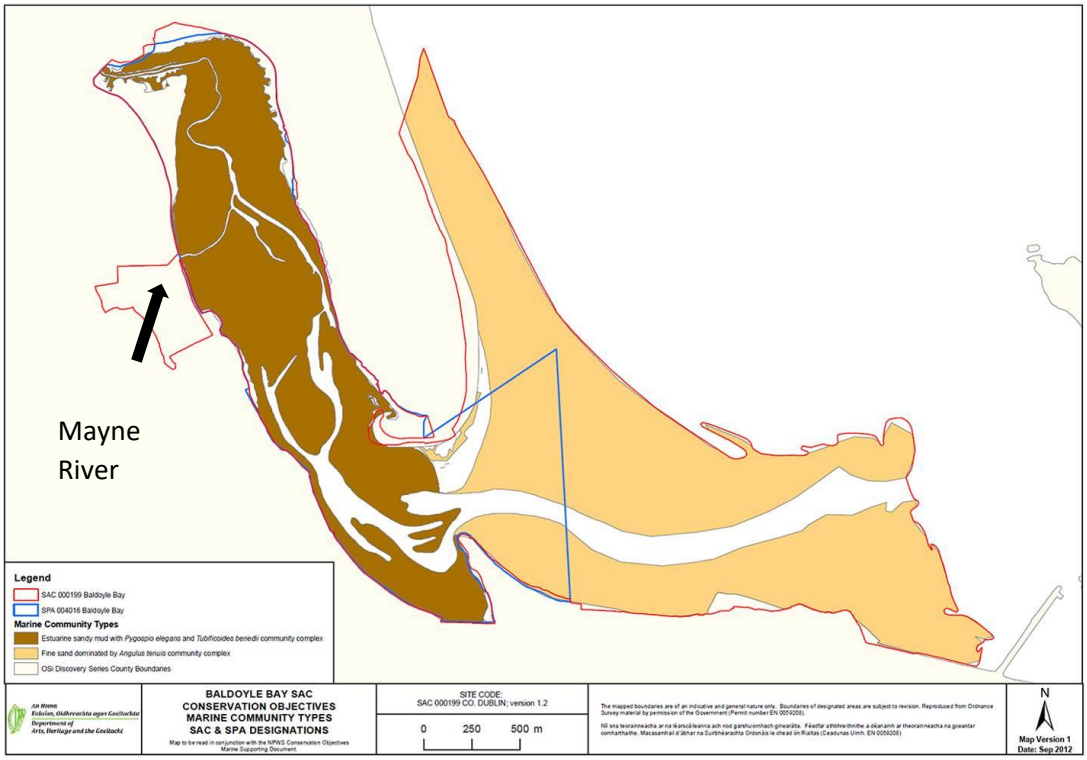


**Figure 16.** Distribution of marine community types in Baldoyle Bay SAC & Baldoyle Bay SPA

As outlined in the Conservation objectives supporting document – coastal habitats (NPWS, 2012):

'*Baldoyle Bay SAC (site code: 199) is designated for a range of coastal habitats, including saltmarsh. The following three coastal habitats are included in the qualifying interests for the site (* denotes a priority habitat):*

- *Salicornia and other annuals colonising mud and sand (1310)*
- *Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (ASM) (1330)*
- *Mediterranean salt meadows (Juncetalia maritimi) (MSM) (1410)*

*These saltmarsh habitats are found in close association with each other.*

*The following habitats were recorded during the Coastal Monitoring Project (Ryle et al. 2009,)* [6] *but they are not listed in the qualifying interests for the site:*

- *Annual vegetation of drift lines (1210)*
- *Embryonic shifting dunes (2110)*
- *Shifting dunes along the shoreline with Ammophila arenaria (white dunes) (2120)*
- *Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130)**
- *Humid dune slacks (2190)'*

Within Baldoyle Bay SAC, there are five main areas of saltmarsh and Atlantic salt meadow (ASM) is the dominant saltmarsh habitat type (Figure 17). As outlined in NPWS 2012:

'*The main area occurs in the north-west corner of the estuary to the south of the estuarine river channel. This area contains the largest area of ASM and contains a band of MSM on its landward side. There is extensive Spartina sward formation on the seaward side, along the river channel and into the estuary.*

*There are several patches of Salicornia habitat located on both sides, towards the lower end of the estuary. ASM habitat dominates the older area and is covered by spring tides in Baldoyle Estuary. The MSM habitat is*

[6] Ryle, T., Murray, A., Connolly, K. and Swann, M. (2009). Coastal Monitoring Project 2004-2006. Unpublished report to the National Parks and Wildlife Service, Dublin.

*characterised by clumps of sea rush (Juncus maritimus) and is found in small scattered clumps along the landward side of most of the saltmarsh (McCorry, 2007)* [7].

*The target is that there should be no decline or change in the distribution of these saltmarsh habitats, unless it is the result of natural processes, including erosion, accretion and succession*'.

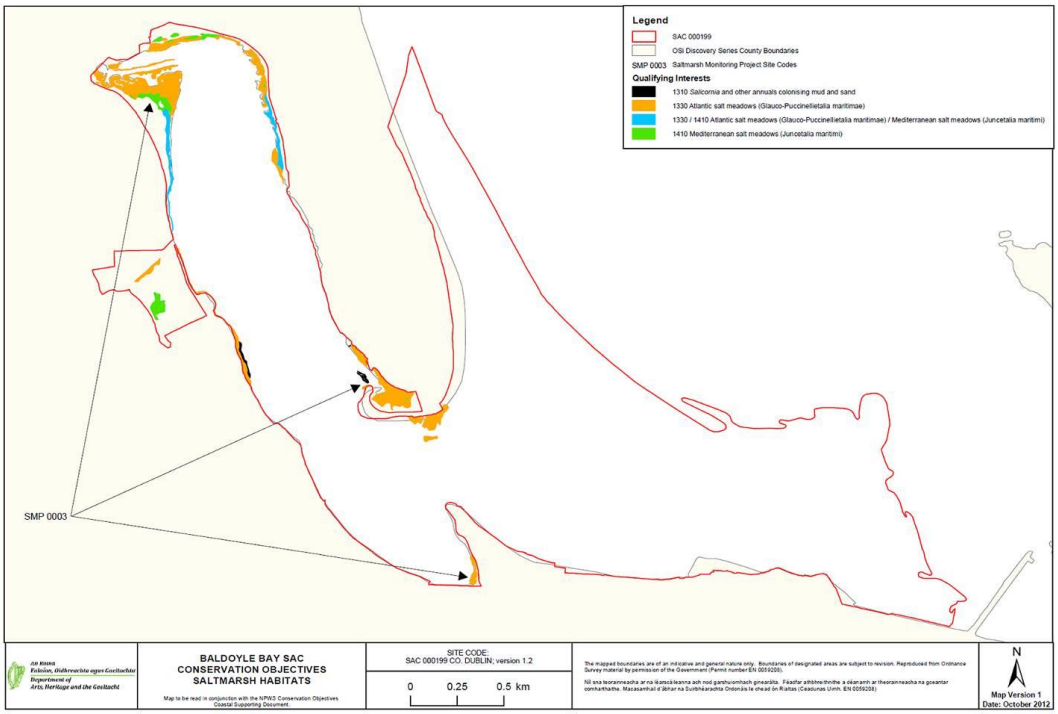


***Figure 17.*** *Saltmarsh habitats found in Baldoyle Bay SAC*

The attribute, measure and target of the site-specific Conservation Objectives for Baldoyle Bay SAC are seen in Table 6.

**Table 6.** Attribute, measure and target of the site conservation objectives for Baldoyle Bay SAC

| Attribute | Measure | Target |
|---|---|---|
| **Salicornia and other annuals colonising mud and sand [1310] (Restore the favourable conservation condition)** | | |
| Habitat area | Hectares | Area stable or increasing, subject to natural processes, including erosion and succession |
| Habitat distribution | Occurrence | No decline, or change in habitat distribution, subject to natural processes |
| Physical structure: sediment supply | Presence/ absence of physical barriers | Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions |
| Physical structure: creeks and pans | Occurrence | Maintain creek and pan structure, subject to natural processes, including erosion and succession |
| Physical structure: flooding regime | Hectares flooded; frequency | Maintain natural tidal regime |
| Vegetation structure: zonation | Occurrence | Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession |
| Vegetation structure: vegetation height | Centimetres | Maintain structural variation within sward |

[7] McCorry, M. (2007). Saltmarsh Monitoring Project 2006. Unpublished report to the National Parks and Wildlife Service, Dublin.

| Attribute | Measure | Target |
|---|---|---|
| Vegetation structure: vegetation cover | Percentage cover at a representative number of monitoring stops | Maintain more than 90% of area outside creeks vegetated |
| Vegetation composition: typical species and subcommunities | Percentage cover | Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009) |
| Vegetation structure: negative indicator species- *Spartina anglica* | Hectares | No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1% |
| **Atlantic salt meadows (Glauco-Puccinellietalia maritimae [1330] (Maintain the favourable conservation condition)** | | |
| Habitat area | Hectares | Area stable or increasing, subject to natural processes, including erosion and succession |
| Habitat distribution | Occurrence | No decline, or change in habitat distribution, subject to natural processes |
| Habitat distribution | Occurrence | No decline, or change in habitat distribution, subject to natural processes |
| Physical structure: sediment supply | Presence/ absence of physical barriers | Maintain natural circulation of sediments and organic matter, without any physical obstructions |
| Physical structure: creeks and pans | Occurrence | Maintain creek and pan structure, subject to natural processes, including erosion and succession |
| Physical structure: flooding regime | Hectares flooded; frequency | Maintain natural tidal regime |
| Vegetation structure: zonation | Occurrence | Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession |
| Vegetation structure:vegetation height | Centimetres | Maintain structural variation within sward |
| Vegetation structure: vegetation cover | Percentage cover at a representative number of monitoring stops | Maintain more than 90% of area outside creeks vegetated |
| Vegetation composition: typical species and subcommunities | Percentage cover at a representative number of monitoring stops | Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009) |
| Vegetation structure: negative indicator species - *Spartina anglica* | Hectares | No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1% |
| **Mediterranean salt meadows (Juncetalia maritimi) [1410] (Maintain the favourable conservation condition)** | | |
| Habitat area | Hectares | Area stable or increasing, subject to natural processes, including erosion and succession |
| Habitat distribution | Occurrence | No decline, or change in habitat distribution, subject to natural processes |
| Physical structure: sediment supply | Presence/ absence of physical barriers | Maintain natural circulation of sediments and organic matter, without any physical obstructions |
| Physical structure: creeks and pans | Occurrence | Maintain creek and pan structure, subject to natural processes, including erosion and succession |
| Physical structure:flooding regime | Hectares flooded; frequency | Maintain natural tidal regime |
| Vegetation structure: zonation | Occurrence | Maintain the range of coastal habitats including transitional zones, subject to |

| Attribute | Measure | Target |
|---|---|---|
| | | natural processes including erosion and succession |
| Vegetation structure: vegetation height | Centimetres | Maintain structural variation within sward |
| Vegetation structure: vegetation cover | Percentage cover at a representative number of monitoring stops | Maintain more than 90% of area outside creeks vegetated |
| Vegetation composition: typical species and subcommunities | Percentage cover at a representative number of monitoring stops | Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009) |
| Vegetation structure: negative indicator species - Spartina anglica | Hectares | No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1% |

## Baldoyle Bay SPA (Site code: 004016)

Baldoyle Bay SPA is located 0.55 km from the planning boundary. The proposed development is directly hydrologically connected to Baldoyle Bay SPA via the proposed surface water drainage strategy. Surface water will be directed to a wetland installed within the Mayne River floodplain, located just beyond the line of the existing North Fringe foul sewer. Surface water will then discharge to the River Mayne after attenuation in the wetland. The River Mayne ultimately outfalls to Baldoyle Bay (Figure 12,14,16).

Further, given the proximity of the planning boundary to the SPA (0.55 km), there is the potential for significant impacts on the bird species protected within the SPA resulting from heightened noise levels during construction and operational phases of development.

### Site-specific data

As outlined in the Baldoyle Bay SPA Site Synopsis (NPWS, Version date 25.03.2014):

'*Baldoyle Bay, located to the north and east of Baldoyle and to the south of Portmarnock, Co. Dublin, is a relatively small, narrow estuary separated from the open sea by a large sand dune system. Two small rivers, the Mayne River and the Sluice River, flow into the inner part of the estuary.*

*Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (Spartina anglica) occur in the inner estuary. Both the Narrow-leaved Eelgrass (Zostera angustifolia) and the Dwarf Eelgrass (Z. noltii) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (Ulva spp.). The sediments have a typical macrofauna, with Lugworm (Arenicola marina) dominating the sandy flats. Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips found along other parts of the estuary. Species such as Glasswort (Salicornia spp.), Sea-purslane (Halimione portulacoides), Sea Plantain (Plantago maritima) and Sea Rush (Juncus maritimus) are found here.*

*The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Shelduck, Ringed Plover, Golden Plover, Grey Plover and Bar-tailed Godwit. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.*

*Baldoyle Bay is an important site for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. It supports an internationally important population of Light-bellied Brent Goose (726), and has a further five species with nationally important populations (all figures are mean peaks for the five winters 1995/96 to 1999/2000): Shelduck (147), Ringed Plover (223), Golden Plover (2,120), Grey Plover (200) and Bar-tailed Godwit (353). Other species which occur include Great Crested Grebe (42), Pintail (35), Teal*

*(138), Mallard (46), Common Scoter (61), Oystercatcher (531), Lapwing (524), Knot (189), Dunlin (879), Black-tailed Godwit (113), Curlew (98), Redshank (224), Greenshank (11) and Turnstone (43).*

*Regular breeding birds include Shelduck, Mallard and Ringed Plover. In autumn, passage migrants such as Curlew Sandpiper, Spotted Redshank and Green Sandpiper are regular in small numbers. Little Egret, a species which has recently colonised Ireland, also occurs at this site.*

*Baldoyle Bay SPA is of high conservation importance, for supporting internationally important numbers of Light-bellied Brent Goose as well as nationally important populations of a further five species, including Golden Plover and Bar-tailed Godwit, both species that are listed on Annex I of the E.U. Birds Directive. The inner part of the site is a Statutory Nature Reserve and also designated as a wetland of international importance under the Ramsar Convention.'*

The Special Conservation Interests (SCIs) for the Baldoyle Bay SPA and the National conservation status of the QI are seen in Table 7.

***Table 7**. Special Conservation Interests (SCIs) for Baldoyle Bay SPA and National status*

| **Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for relevant European sites** | | |
|---|---|---|
| **European Site Name & Code** | **Qualifying Interests** | **Current Conservation Status & Trend** |
| **Baldoyle Bay SPA IE0004016** | Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]<br>Shelduck (*Tadorna tadorna*) [A048]<br>Ringed Plover (*Charadrius hiaticula*) [A137]<br>Golden Plover (*Pluvialis apricaria*) [A140]<br>Grey Plover (*Pluvialis squatarola*) [A141]<br>Bar-tailed Godwit (*Limosa lapponica*) [A157]<br>Wetland and Waterbirds [A999] | **Amber**<br>**Amber**<br>**Green**<br>**Red**<br>**Amber**<br>**Amber**<br>N/A |

The status of qualifying interest species listed for Baldoyle Bay SPA are as follows[8]:

- *'During winter the site regularly supports 1% or more of the biogeographic population of Light-bellied Brent Geese (Branta bernicla hrota). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 726 individuals.*
- *During winter the site regularly supports 1% or more of the all-Ireland population of Ringed Plover (Charadrius hiaticula). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 223 individuals.*
- *During winter the site regularly supports 1% or more of the all – Ireland population of Bar-tailed Godwit (Limosa lapponica). The mean peak number of this Annex I species within the SPA during the baseline period (1995/96 – 1999/00) was 353 individuals.'*

The current population data for waterbirds of Special Conservation Interest in Baldoyle SPA is outlined in the NPWS[7].

'*Non - breeding waterbirds have been counted at Baldoyle Bay each winter as part of the Irish Wetland Bird Survey (I-WeBS) since the survey commenced in 1994/95. The site was counted once in 1994/95; otherwise the core survey months (September to March inclusive) were covered in all seasons. The core count period covers the main wintering period when many species occur in their largest concentrations, but also the autumn and spring passage periods when total waterbird numbers may be enhanced by staging/stopover birds.*

[8] NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

*Baldoyle SPA is an important feeding and roosting resource for Light-bellied Brent Geese, a listed Special Conservation Interest (SCI) species for the site. However, the same geese also utilise other locations that are outside of the SPA but may be inside or outside of the I-WeBS count boundary. These areas, which provide feeding resources for the geese, are largely amenity grasslands and/or agricultural fields. Bird counts for species of conservation importance are seen in Table 8*.

**Table 8. Bird counts of species of conservation importance in Baldoyle Bay**

| | Light-bellied Brent Geese | Ringed Plover | Bar-tailed Godwit | Shelduck | Golden Plover | Grey Plover |
|---|---|---|---|---|---|---|
| (1995/96 -1999/00) | 726 (i) | 223 (n) | 353 (n) | 147 (n) | 2,120 (n) | 200 (n) |
| (2005/06 -2009/10) | 874 (i) | 122 | 134 | 290 (n) | 914 | 96 (n |

*(i) denotes numbers of international importance; (n) denotes numbers of all-Ireland importance.*

*Additional Special Conservation Interests for Baldoyle Bay SPA are as follows:*

- *During winter the site regularly supports 1% or more of the all –Ireland population of Shelduck (Tadorna tadorna). The mean peak number of this species within the SPA during the baseline period (1995/96 –1999/00) was 147 individuals.*
- *During winter the site regularly supports 1% or more of the all – Ireland population of Golden Plover (Pluvialis apricaria). The mean peak number of this Annex I species within the SPA during the baseline period (1995/96 – 1999/00) was 2,120 individuals.*
- *During winter the site regularly supports 1% or more of the all - Ireland population of Grey Plover (Pluvialis squatarola). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 200 individuals.*
- *The wetland habitats contained within Baldoyle Bay SPA are identified of conservation importance for non – breeding (wintering) migratory waterbirds. Therefore, the wet land habitats are considered to be an additional Special Conservation Interest.*

The Conservation Objectives of Baldoyle Bay SPA are as follows[9]:

'*Objective 1 is 'To maintain the favourable conservation condition of the non - breeding waterbird Special Conservation Interest species listed for Baldoyle Bay SPA'. This objective is defined by the following attributes and targets:*

- *To be favourable, the long-term population trend for each Special Conservation Interest species of waterbirds should be stable or increasing;*
- *Waterbird populations are deemed to be unfavourable when they have declined by 25% or more, as assessed by the most recent population trend analysis.*
- *To be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation.*

*The factors that can adversely affect the achievement of Objective 1 include:*

- ***Habitat modification:** Activities that modify discreet areas or the overall habitat(s) within the SPA in terms of how one or more of the listed species use the site (e.g. as a feeding resource) could result in the displacement of these species from areas within the SPA and/or a reduction in their numbers.*
- ***Disturbance:** Anthropogenic disturbance that occurs in or near the site and is either singular or cumulative in nature could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and /or a reduction in their numbers.*
- ***Ex-situ factors:** Several of the listed waterbird species may at times use habitats situated within the immediate hinterland of the SPA or in areas outside of the SPA but ecologically connected to it. The reliance on these habitats will vary from species to species and from site to site. Significant habitat changes or increased levels*

[9] NPWS (2013) Conservation Objectives Supporting Document: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

*of disturbance within these areas could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and/or a reduction in their numbers.*

*Objective 2 is 'To maintain the favourable conservation condition of the wetland habitat at Baldoyle Bay SPA as a resource for the regularly - occurring migratory waterbirds that utilise it.' This objective is defined by the following attributes and targets:*

- *To be favourable, the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263 ha, other than that occurring from natural patterns of variation. The boundary of Baldoyle Bay SPA was defined to include the primary wetland habitats of this site. Objective 2 seeks to maintain the permanent extent of these wetland habitats, which constitute an important resource for regularly-occurring migratory waterbirds. The wetland habitats can be categorised into three broad types: subtidal; intertidal; and supratidal. Over time and though natural variation these subcomponents of the overall wetland complex may vary due to factors such as changing rates of sedimentation, erosion etc. Waterbird species may use more than one of the habitat types for different reasons (behaviours) throughout the tidal cycle.*
- *Subtidal areas refer to those areas contained within the SPA that lie below the mean low water mark and are predominantly covered by marine water. Tidal rivers, creeks and channels are included in this category. For Baldoyle Bay SPA this broad category is estimated to be 34 ha. Subtidal areas are continuously available for benthic and surface feeding ducks (e.g. Wigeon) and piscivorous/other water birds. Various waterbirds roost in subtidal areas. The relatively low proportion of subtidal habitat is due to the fact that this SPA is designated primarily for birds using intertidal habitats.*
- *The intertidal area is defined, in this context, as the area contained between the mean high-water mark and the mean low water mark. For Baldoyle Bay SPA this is estimated to be 164 ha. When exposed or partially exposed by the tide, intertidal habitats provide important foraging areas for many species of waterbirds, especially wading birds, as well as providing roosting/loafing areas. When the intertidal area is inundated by the tide it becomes available for benthic and surface feeding ducks and piscivorous/other waterbirds. During this tidal state this area can be used by various waterbirds as a loafing/roosting resource. The supratidal category refers to areas that are not frequently inundated by the tide (i.e. occurring above the mean high watermark) but contain shoreline and coastal habitats and can be regarded as an integral part of the shoreline.*
- *For Baldoyle Bay SPA this is estimated to be 65 ha. Supratidal areas are used by a range of waterbird species as a roosting resource as well as providing feeding opportunities for some species. The maintenance of the 'quality' of wetland habitat lies outside the scope of Objective 2."*

  *The maintenance of the 'quality' of wetland habitat lies outside the scope of Objective 2. However, for the species of Special Conservation Interest, the scope of Objective 1 covers the need to maintain, or improve where appropriate, the different properties of the wetland habitats contained within the SPA.'*

  The attribute, measure and target of the site-specific conservation Objectives for Baldoyle Bay SPA are seen in Table 9.

**Table 9. Attribute, measure and target of the site conservation objectives for Baldoyle Bay SPA.**

| Attribute | Measure | Target |
|---|---|---|
| A046 Brent Goose (*Branta bernicla hrota*), A048 Shelduck (*Tadorna tadorna*), A137 Ringed Plover (*Charadrius hiaticula*), A140 Golden Plover (*Pluvialis apricaria*), A141 Grey Plover (*Pluvialis squatarola*), A157 Bar-tailed Godwit (*Limosa lapponica*), A999 Wetlands. | | |
| Population trend | Percentage change | Long term population trend stable or increasing |
| Distribution | Range, timing and intensity of use of areas | No significant decrease in the range, timing and intensity of use of areas by all of the above-named species, other than that occurring from natural patterns of variation |
| Wetlands [A999] (Maintain the favourable conservation condition) | | |
| Habitat area | Hectares | The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263ha, other than that occurring from natural patterns of variation |

## Analysis of the Potential Impacts on the Baldoyle Bay SAC and Baldoyle Bay SPA.

The proposed development will involve the removal of existing internal habitats on site, the construction of a housing development and the discharge of surface water to a new wetland area which will discharge to the Mayne River, leading to the Mayne Estuary and ultimately to Baldoyle Bay SAC and Baldoyle Bay SPA.

### Construction Impacts

The construction of the proposed development would potentially impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during the site clearance, re-profiling of the site and the building phases of the proposed development. The potential impacts are outlined in Table 10.

Construction phase mitigation measures are required on site particularly as there are proposals to discharge surface water to a wetland within the open space to the north as required by the LAP, with potential for downstream impacts on the Mayne River and European sites. There is potential for silt laden runoff, dust or contamination to enter surface water network and with potential for downstream impacts.

#### *Designated European Sites*

The proposed development is not within a designated conservation site. A direct pathway exists via surface water to European sites (Baldoyle Bay SAC and Baldoyle Bay SPA) downstream from the proposed development site via the Mayne River. The construction of the proposed development would potentially impact on the watercourse through silt laden runoff and pollution entering the surface water system and being discharged from the site to the wetland area. In addition, noise would be generated during the construction phase and there is potential for pollution during the operation phase. These potential construction impacts on European sites are seen in Table 10. Runoff during site clearance, re-profiling, the construction and operation of project elements including the drainage network, could enter the surface water system and the Mayne River which leads to the European sites. Compliance with the Water Pollution Acts and monitoring would be seen as the primary method of ensuring no significant impact on designated conservation sites. Mitigation measures are required to ensure that the proposed development will not impact on the conservation objectives of the European sites within Baldoyle Bay.

### Operational Impacts

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS and will discharge to a wetland within the open space to the north of the site. This wetland discharges to the Mayne River and ultimately outfalls to Baldoyle Bay and the designated European sites. Mitigation measures will be required to ensure that water quality is maintained prior to discharging to watercourses.

### Mitigation Measures and Monitoring

Construction and operational mitigation will be incorporated into the proposed development project to minimise the potential negative impacts within the Zone of Influence (ZoI) including the Mayne River and downstream European sites (Table 11). SuDs devices will be installed and will ensure that all surface water being discharged from the site will have passed through two SuDs devices before entering the wetland area.

#### *Designated Conservation Sites within 15km*

As the main potential vector for impacts to European sites would be seen to be via the surface water connection to the Mayne River, no additional controls are required besides those outlined below, during the construction and operational phases of the development, to mitigate against potential negative impacts on designated conservation sites. The mitigation has been designed to ensure that the project will comply with the Water Pollution Acts and standard County Council and Inland Fisheries Ireland conditions in relation to construction and drainage operations. Mitigation measures include the control of dust on site. Dust has the potential to enter watercourses directly or via surface water runoff, with potential for downstream impacts. All construction and operational phase controls outlined will be followed.

## Outline Construction Environmental Management Plan

In relation to surface Water Management mitigation as outlined in the AWN Outline Construction Environmental management Plan *'Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Due to the very low fracture connectivity of the calp limestone that makes up the Lucan formation bedrock that underlies the site, infiltration to the underlying aquifer is not anticipated.*

*Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. All run-off will be prevented from directly entering into any water courses as no construction will be undertaken directly adjacent to open water.*

*No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry.*

*The following measures will be put in place during the construction phase to ensure protection of surface waterbodies. These measures are in compliance with the following relevant CIRIA guidance documents:*

- *Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532); and*
- *Environmental Good Practice on Site (3rd edition) (C692).*

*Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be installed prior to the commencement of the construction works to collect surface water runoff by the site during construction.*

*It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet.*

*7.6.1 Pollution Control*

*Management of Suspended solids in run-off*

*Any temporary storage of spoil, hardcore or similar material will be stored as far as possible from any surface water drains and also stored in receptacles where possible. In order to minimise the risk of contamination, the stockpiled material will be removed off-site as soon as possible. Surface water drain gratings in areas near or close to where stockpiles are located will be covered by appropriate durable polyurethane covers or similar.*

*There will be no direct pumping of silty water from the works to any watercourse. Sediment entrapment facilities will be installed to reduce sediment discharges to downstream properties and receiving waters. All run-off leaving a disturbed area should pass through a sediment entrapment facility before it exits the site and flows downstream such as straw bales, silt fencing, silt barriers and diversion dams.*

*<u>Response</u>*

*Concrete Run-off*

*No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.*

*Accidental Spills and Leaks*

*No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately bunded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from surface water drains.*

*Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.*

*The following mitigation measures will be taken at the construction site in order to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:*

- *Refuelling will be undertaken off site where possible;*
- *Where mobile fuel bowsers are used the following measures will be taken:*

- *Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;*
- *The pump or valve will be fitted with a lock and will be secured when not in use;*
- *All bowsers must carry a spill kit;*
- *Operatives must have spill response training; and*
- *Portable generators or similar fuel containing equipment will be placed on suitable drip trays.*

*<u>Monitoring</u>*

*Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 10m from surface water receptors. A regular log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.'*

| Table 10. Potential for adverse effects on the qualifying interests and conservation objectives of European sites | | |
|---|---|---|
| European Site & Site Code | Qualifying Interests | Potential for Adverse Effects |
| **Baldoyle Bay SAC**<br><br>**IE0000199** | Mudflats and sandflats not covered by seawater at low tide [1140]<br><br>[1310] Salicornia and other annuals colonising mud and sand<br><br>[1330] Atlantic salt meadows (*Glauco - Puccinellietalia maritimae*)<br><br>[1410] Mediterranean salt meadows (*Juncetalia maritimi*) | Works on site, dust and surface water runoff on site during construction or operation may lead to silt or contaminated materials from site entering the surface water attenuation pond which discharges to the Mayne River and ultimately Baldoyle Bay SAC. Concrete, silt or pollution could enter the surface water runoff during enabling works including, site clearance, reprofiling and dewatering of foundations, if required during construction. If on-site concrete production is required or cement works are carried out in the vicinity of drains, there is potential for contamination of the watercourse.<br>The use of plant and machinery, as well as the associated temporary storage of construction materials, oils, fuels and chemicals in addition to exporting materials offsite could lead to pollution on site or in adjacent watercourses. The storage of topsoil or works onsite could lead to dust, soil or silt laden runoff entering adjacent watercourses. The use of haul roads could lead to silt laden runoff or dust with downstream effects on the SAC. Contaminated wastewater from onsite toilets, could cause localised pollution.<br>Given the nature of the works, all of these effects would be expected to be localised in nature restricted to the immediate vicinity of the site and would have little effect on European sites. 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 attenuation pond, leading to the Baldoyle Bay SAC.<br><br>Given the nature of the potential effects outlined above, and the presence of saltmarsh at the mouth of the Mayne River, the proposed project could impact on the:<br>1) Habitat area, Community distribution of Mudflats and sandflats not covered by seawater at low tide [1140]<br>2) Habitat area, Habitat distribution, Physical structure: sediment supply, Physical structure: creeks and pans, Physical structure: flooding regime, Vegetation structure: zonation, Vegetation structure: vegetation height, Vegetation structure: vegetation cover, Vegetation composition: typical species and subcommunities, Vegetation structure: negative indicator species-*Spartina anglica* of *Salicornia* and other annuals colonising mud and sand [1310].<br>3) Habitat area, Habitat distribution, Physical structure: sediment supply, Physical structure: creeks and pans, Physical structure: flooding regime, Vegetation structure: zonation, Vegetation structure: vegetation height, Vegetation structure: vegetation cover, Vegetation composition: typical species and subcommunities, Vegetation structure: negative indicator species –1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)<br>4) Habitat area, Habitat distribution, Physical structure: functionality sediment supply, Vegetation structure: zonation, Vegetation composition: plant health of fore dune grasses, Vegetation composition: typical species and subcommunities Vegetation composition: negative indicator species of 1410 Mediterranean salt meadows (*Juncetalia maritimi*)<br><br>The mitigation measures outlined will be carried out to ensure that no silt or pollution enters the Mayne River from the construction or operation phases of the proposed project and create localised pollution. However, the level of effect on Baldoyle Bay SAC, without the use of mitigation measures, is not deemed to be significant due to the presence of the existing pond on site with a sediment forebay, which will enable settlement of particulates. In the event of a pollution incident, it would be expected to be small e.g. maximum capacity of truck/digger fuel tank. However, by following the precautionary principal mitigation measures will be in place. |

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| **Baldoyle Bay SPA**<br><br>**IE0004016** | A046 Brent Goose (*Branta bernicla hrota*)<br><br>A048 Shelduck (*Tadorna tadorna*)<br><br>A137 Ringed Plover (*Charadrius hiaticula*)<br><br>A140 Golden Plover (*Pluvialis apricaria*)<br><br>A141 Grey Plover (*Pluvialis squatarola*)<br><br>A157 Bar-tailed Godwit (*Limosa lapponica*)<br><br>A999 Wetlands. | Works on site, dust and surface water runoff on site during construction may lead to silt or contaminated materials from site entering the attenuation pond and ultimately the Mayne River. Concrete, silt or pollution could enter the watercourse during enabling works including, site clearance, reprofiling and dewatering of foundations, if required during construction. If on-site concrete production is required or cement works are carried out in the vicinity of drains there is potential for contamination of the watercourse.<br><br>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. The storage of topsoil or works onsite could lead to dust, soil or silt laden runoff entering adjacent watercourses. The use of haul roads could lead to silt laden runoff or dust with downstream effects on the SPA.<br><br>Noise would be generated by the construction which may cause disturbance to the qualifying interests. However as outlined in Appendix I '*The maximum likely distance at which disturbance will impact SCIs from the Baldoyle Bay SPA is 300m (Cutts et al., 2013*).'<br><br>It should be noted that baseline noise environment includes the busy R106 that links Portmarnock to Howth, which is between the proposed development and the SPA and within zone C in relation Aircraft Noise (≥ 54dB and < 63dB LAeq, $_{16hr}$ and ≥ 48dB and < 55dB $L_{night}$). Based on Noise assessment (AWN Consulting Ltd. EIAR Chapter 12) the loudest Construction Noise Level at the SPA boundary from the construction works would be 41db.<br><br>A detailed measurement exercise was undertaken by Xodus Group (Postlethwaite and Stephenson, 2012) of noise levels at the Pyewipe mudflats during piling for the new Grimsby River Terminal. The general conclusions from the Xodus Group report included the following:<br><br>*'Noise from the construction site as a whole (not just piling) caused about 1% of the total disturbances observed during construction activities, when measured as the number of birds disturbed. Disturbances to large number of birds at any one time were caused by raptors (mainly peregrine), aircraft and helicopters. Noise levels up to 81 dB LAmax F,in some cases, caused no disturbance during percussive piling.*<br><br>• *Level 1 disturbances (heads up alert) were observed to occur in the noise level range of 66 to 83 dB LAmax Ffor percussive piling.*<br><br>• *Level 2 disturbances (short walk or swim from the source of noise) were observed to occur in the range 68 –81 dB LAmax Ffor percussive piling.*<br><br>• *As no Level 3 (short flight) or Level 4 (flight out of area) noise related disturbances were observed, a percussive piling noise level greater than 83 dB LAmax F would be expected to be required to instigate a flight response.*<br><br>*A percussive piling noise level less than 66 dB LAmax Fgave rise to no noise disturbance.'*<br><br>As outlined by RPS (2018) in their Review of Effects of Construction Noise on Birds in SSSI near Springs Road Exploratory Wellsite in discussing Postlethwaite and Stephenson (2012) it was stated that '*Whilst it was not possible to provide evidence of habituation to percussive piling noise from this study, the Level 1 disturbances generally indicated that where noise is not perceived as a threat, the disturbance is temporary*.'<br><br>Given the nature of the works, all of these effects would be expected to be localised in nature restricted to the immediate vicinity of the site and would have little effect on European sites. 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 attenuation pond, leading to the Baldoyle Bay SPA. Birds from the SPA could potentially use the attenuation pond on site and be impacted. Significant quantities of silt could impact on the infauna and diet of birds within the SPA and the A999 Wetlands. |

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| | | Given the nature of the potential effects outlined above, the proposed project could affect the:<br>1. Distribution and Range, timing and intensity of use of areas of the SPA for Light-bellied Brent Goose (*Branta bernicla hrota*) [A046], Shelduck (*Tadorna tadorna*) [A048], Ringed Plover (*Charadrius hiaticula*) [A137], Golden Plover (*Pluvialis apricaria*) [A140], Grey Plover (*Pluvialis squatarola*) [A141], Bar-tailed Godwit (*Limosa lapponica*) [A157]. The area of Wetlands [A999]<br>Mitigation measures are required to limit the effect of the project on the qualifying interests of the proposed development site. |

**Table 11.** Mitigation Measures

| Sensitive Receptors | Potential Impacts on SPA & SAC | Mitigation Measures to Prevent Impacts on Baldoyle Bay SAC and Baldoyle Bay SPA |
|---|---|---|
| Baldoyle Bay SAC<br><br>Baldoyle Bay SPA | • Habitat degradation<br>• Dust deposition<br>• Pollution<br>• Silt ingress from site runoff<br>• Downstream impacts<br>• Negative impacts on aquatic and bird fauna.<br>• Disturbance. | Mitigation measures are outlined in the accompanying Construction Surface Water Management Plan ('SWMP') (Appendix II) and Outline Construction Environmental Management Plan (OCEMP)(Appendix III) to address the potential impacts outlined in Table 10.<br>These include but are not limited to the following mitigation to address the potential for dust, surface water runoff, contaminated materials from site entering the attenuation pond and ultimately the Mayne River which leads to designated sites:.<br>**Construction**<br>An ecologist will be appointed to monitor the mitigation measures on site. As outlined in the SWMP the following will be implemented:<br><br>***'PRE-CONSTRUCTION***<br>*Prior to the commencement of construction works and site mobilisation the Main Contractor shall undertake an assessment of the site identifying areas of concern at the earliest possible stage to anticipate and plan for how to address those concerns.*<br>*A preconstruction meeting is a key point of communication between the Main Contractor, Project Ecologist (Ecological Clerk of Works), Project Arborist and Landscape Architect, Environmental Health and Safety Staff and Subcontractors. This where potential problem areas can be discussed. The meeting provides an opportunity to interact face-to-face with key representatives where project expectations can be established along with a good working relationship.*<br>*This is preconstruction meeting will:*<br>*• Clarify the objectives of surface water management plan where specific project requirements can be discussed.*<br>*• Designate a contact person for surface water management plan*<br>*• Be sure that all parties go over the surface water management plan so they know what is expected. Discuss any needed field changes to the plan. Always ensure that the approved plan is available on site.*<br>*• Discuss time frames for initiation of mitigation measures for sediment controls, site clearing, grading and stabilisation.*<br>*• The sediment control measures will be implemented prior to the commencement of earthworks.*<br>*• Discuss the maintenance and monitoring requirement set out in this plan requirements so it is clearly understood that practice maintenance is an ongoing obligation.*<br><br>***ESTABLISHMENT OF STABILISED ENTRANCE WAY AND WHEEL WASH***<br>*In order to prevent site access points becoming sources of sediment and then tracking sediments offsite the following measures will be employed:*<br>*• A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.* |

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| | | *• Place aggregate from the construction site boundary extending for at least 10m according to the specifications and contour the aggregate to suit the entrance point.*<br>*• All points of construction site entry and exit with a view to limit traffic to these entrances only.*<br>*• The site entrance will be located so that vehicles cannot bypass these devices. Perimeter silt fences or bunds may assist in achieving this requirement.*<br>*• Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.*<br>*• A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,*<br>*• In the case of a wet wheel wash it is recommended that a designated bunded and impermeable wheel wash area is provided and that the resultant waste water is diverted to a settlement pond for settling out of suspended solids.*<br>*• This also assist in minimising dust generation and disturbance of areas adjacent to the road frontage by providing a defined entry and exit point.*<br><br>***MANAGEMENT OF EXCAVATIONS, EARTHWORKS AND MATERIALS STORAGE***<br>*The volume of material to be excavated has been estimated by the project engineers at c. 135,000 m3. It is envisaged that 129,000 $m^3$ of the excavated material will be required to be removed from site.*<br>*The construction contractor will be required to reused on-site excavated material where possible, this can be used for site levelling, roads, car parking areas and other landscaping purposes.*<br>*The amount of exposed ground will be kept to a minimum by maintaining existing vegetation that would otherwise be prone to erosion. Rather than stripping the entire site months in advance, topsoil extraction will be deferred until just before work begins. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.*<br><br>*Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing. Correct management will ensure that there will be minimal inflow of shallow / perched groundwater into any excavation. Due to the very low permeability of the overburden and the relative shallow nature for foundation excavations, infiltration to the underlying aquifer is not anticipated.*<br>*Movement of material will be minimised to reduce the degradation of soil structure and generation of dust. Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Soil from works will be stored away from existing drainage features to avoid any potential impact.*<br>*Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.*<br>*Any temporary storage of soil, hardcore or similar material on the site will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.*<br>*The material will be stored away from any surface water drains(minimum 20 m buffer zones) and also stored in receptacles where possible..*<br>*The movement of material will be minimised to reduce degradation of soil structure and generation of dust (See the CEMP for further details).*<br>*Stockpiles will be tightly compacted to reduce run-off and graded to aid in run-off collection, and materials will be stored away from any surface water drains.* |

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| | | *While it is acknowledged that there will be waste materials generated from the excavation of soil and stones to facilitate site clearance, construction of new building, basements, foundations and installation of services. Any waste soils will be managed in accordance with the site specific Construction and Demolitions Waste Management Plan (See the CEMP for further details).*<br>*In order to minimise the risk of contamination, any stockpiled material designated for removal will be removed off-site as soon as possible. Surface water drain gratings in areas near or close to where stockpiles are located will be covered by appropriate durable polyurethane covers or similar.*<br>***Material Handling and Storage***<br>*Key materials which will be ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage.*<br>*Where possible it is proposed to source general construction materials from the Dublin area to minimise transportation distances.*<br>*Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in the compound area within the site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.*<br>*Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.*<br>*The majority of construction waste materials generated will be soil from excavation works. Material will be removed from site regularly to ensure there is minimal need for stockpiling.*<br><br>***SURFACE WATER DRAINAGE AND RUNOFF PROTECTION***<br>*On the site, a site drainage and protection system will be built to reduce run-off from the site, prevent soil erosion, and protect water quality in the area of conservations closest to the Site.*<br><br>***Establishment of Silt Fences***<br>*A silt fence is a woven geotextile fabric barrier that is used as a temporary barrier to trap mostly coarse sediments carried in surface water sheet flow. Silt fences temporarily impound sediment-laden runoff, slowing it down and allowing it to settle out of the water.*<br>*Silt fences will be installed around the perimeter of the site where construction is proposed to detain flows from runoff so that deposition of transported sediment can occur through settlement.*<br>*Inspection and maintenance of the silt fences during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire construction phase.*<br><br>***Use of perimeter drains, diversion channels/bunds***<br>*Temporary excavated channels, bunds or ridges or a combination of the three, may be constructed to divert sediment-laden water to an appropriate sediment retention structure.*<br>*These may be installed to provide permanent diversion of clean stormwater away from erosion exposed soil areas, or to provide a barrier between exposed areas and unexposed areas of the construction site.*<br>*Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.*<br>*Silt Dewatering Bags / Dewatering Socks Where small to medium volumes of water need to be pumped from temporary excavations, silt dewatering bags or socks will be employed. Silt Dewatering bags are designed to trap sediment and silt while allowing clean water to flow* |

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| | | *freely back into the environment. When water is pumped into the bag, the geotextile fabric traps most of the silt when water is pumped to the bag, allowing the treated water to pass through.*<br><br>*The main aim of settling tanks is to hold water for an extended period of time, allowing suspended solids to settle to the tank's bottom and leave treated water. Engineered concrete structures or simple clay-lined ponds can be used.*<br>*Settlement systems promote sediment deposition and reduce hydraulic loading by slowing flow velocities allowing sediment to settle.*<br>*Early in the site establishment capture and settlement systems should be constructed to store construction water for reuse or to allow for additional treatment procedures prior to discharge.*<br>*Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing.*<br>*Sediment entrapment facilities will be installed to reduce overland sediment discharges to downgradient properties and receiving waters. All run-off leaving a disturbed area should pass through a sediment entrapment facility before it exits the site and flows downgradient such as straw bales, silt fencing, silt barriers and diversion dams.*<br>*It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet.*<br><br>***PREVENTION OF ACCIDENTAL RELEASES***<br>***Prevention of Concrete Run-off***<br>*Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse.*<br><br>*No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.*<br>*A suitable risk assessment for wet concreting will be completed prior to works being carried out, which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at an appropriate facility off-site.*<br><br>***Fuel and Chemical Handling***<br>*The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and prevent any resulting to surface water systems:*<br>*• Designation of bunded refuelling areas on the Site;*<br>*• Provision of spill kit facilities across the Site;*<br>*• Where mobile fuel bowsers are used, the following measures will be taken:*<br>*o Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;*<br>*o The pump or valve will be fitted with a lock and will be secured when not in use;*<br>*o All bowsers to carry a spill kit and operatives must have spill response training;*<br>*o Portable generators or similar fuel containing equipment will be placed on suitable drip trays.*<br>*In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:* |

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| | | *• Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;*<br>*• Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;*<br>*• All drums to be quality approved and manufactured to a recognised standard;*<br>*• If drums are to be moved around the Site, they will be secured and on spill pallets; and*<br>*• Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.*<br><br>***Other Chemical Storage***<br>*No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately bunded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from any surface water drains (minimum 20 m buffer zone).*<br>*Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.*<br>***The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.***<br><br>***SURFACE WATER TREATMENT AND DISCHARGE***<br>*There shall not be discharge of untreated, silty, or contaminated water from the works to any watercourse or stormwater network. Should any discharge of untreated construction water be required during the construction phase, the discharge will be to foul sewer following agreement with Fingal County Council / Irish Water.*<br>*The discharge of treated construction water from rainfall into excavated areas, or from any localised dewatering may be required during construction. This treated construction water will be discharged to the existing 1,500 diameter concrete stormwater main, that traverses underneath the north fringe sewer and discharges to the Mayne River.*<br>*Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be established prior to the commencement of the construction works to collect, and discharge any treated construction water during construction.*<br>*The pre-treatment and silt reduction measures on-Site will include a combination of the measures proposed in Section 5.5 above.*<br>*Run-off water containing silt will be contained on-site via settlement tanks and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing, settlement measures (silt traps, silt sacks and settlement tanks / ponds).*<br>*Any contaminated construction water that requires removal from site will be contained on-site and treated to ensure adequate silt and contaminant removal prior to discharge.*<br>*The implementation of an multistage-active treatment system such as a siltbuster or similar will be adopted to treat construction waters to ensure it will be safely discharged to the existing surface water network. The multistage treatment system will be designed to remove silt, and hydrocarbons.*<br>*Measures to control surface water will be in compliance with the relevant CIRIA guidance documents referenced above.*<br><br>***FOUL WATER AND ONSITE SANITATION*** |

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| | | *Welfare facilities will be provided for the contractors via portable sanitary facilities within the construction compound site during the construction works. It is an anticipated that initially, waste collected by tanker and disposed of appropriately, and that temporary connections to the existing services will be established to provide service and utilities subject to relevant applications and approvals.*<br><br>***MONITORING AND MAINTENANCE***<br>*Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 20 m from surface water receptors.*<br>*Regular inspection of surface water run-off and any sediment control measures (e.g. silt traps) will be carried out during the construction phase especially rainfall or storms a. Regular maintenance will occur to repair or reinstate if destroyed or damaged by machinery movement or from rainfall.*<br>*Regular auditing of construction / mitigation measures will be undertaken, e.g. concrete pouring, refuelling in designated areas, etc.*<br>*A log the regular inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.'*<br><br>Mitigation outlined in the OCEMP include:<br>*'**AIR QUALITY***<br>*This section describes the site policy with regard to dust management and the specific mitigation measures which will be put in place during construction works. The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the measures set out below have been formulated by drawing on best practice guidance from Ireland, the UK and the US, such as:*<br>*• Department of Environment, Heritage and Local Government (DOEHLG), Quarries and Ancillary Activities, Guidelines for Planning Authorities (2004);*<br>*• US Environment Protection Agency (USEPA), Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated) (1986);*<br>*• The Scottish Office – Development Department, Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings (1996) ; and*<br>*• Institute of Air Quality Management (IAQM), Guidance on the Assessment of Dust from Demolition and Construction (2014)'.*<br><br>'***Site Management***<br>*The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will also be implemented to ensure impacts are minimised:*<br>*• Complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;*<br>*• Equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive; and*<br>*• Pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional.*<br>*Dust deposition levels will be monitored on a regular basis in order to assess the impact that site activities may have on the local ambient air quality. The following procedure will be implemented:* |

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| | | *• The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2) days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities.*<br>*• The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures.*<br>*• After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in mg/m2/day in accordance with the relevant standards.*<br>• Technical monitoring reports detailing all *measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager.*<br>*A limit value of 350 mg/m2/day will be used in comparison with recorded values.*<br><br>*Dust Control Measures*<br>*The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.*<br>*• During working hours, technical staff will be available to monitor dust levels as appropriate; and*<br>*• At all times, the dust management procedures put in place will be strictly monitored and assessed.*<br>*The dust minimisation measures should be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities should be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.*<br><br>***Site Routes***<br>*Site access routes (particularly unpaved areas) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25% to 80% 5.*<br>*• A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles or delivery vehicles within the vicinity of the site;*<br>*• Access gates to the site shall be located at least 10m from sensitive receptors where possible;*<br>*• Bowsers will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering is to reduce dust emissions by 50% 6. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and*<br>*• Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced areas shall be restricted to essential site traffic only.*<br>*Excavation*<br>*Excavation works during periods of high winds and dry weather conditions can be a significant source of dust.* |

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| | | *• During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust;*<br>*• During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.*<br>*The movement of truck containing materials with a potential for dust generation to an off-site location will be enclosed or covered.*<br>*Stockpiling*<br>*The location and moisture content of rubble stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:*<br>*• Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;*<br>*• Regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust;*<br>*• Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.*<br><br>**Site Traffic on Public Roads**<br>*Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:*<br>*• Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust;*<br>*• Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.*<br>*• A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate, and an example of the washing equipment can be seen in Figure 7.1;*<br>*• The site entrance will be located so that vehicles cannot bypass these devices. Perimeter silt fences or bunds may assist in achieving this requirement; and*<br>*• Road sweepers will be employed to clean the site access route as required.*<br>*General*<br>*• The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory management of dust by the construction contractor.'*<br><br>*'**PREVENTION OF ACCIDENTAL RELEASES***<br>*Prevention of Concrete Run-off*<br>*Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse. No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.*<br>*A suitable risk assessment for wet concreting will be completed prior to works being carried out, which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at an appropriate facility off-site.* |

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| | | *Fuel and Chemical Handling*<br>*The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and prevent any resulting to surface water systems:*<br>*• Designation of bunded refuelling areas on the Site;*<br>*• Provision of spill kit facilities across the Site;*<br>*• Where mobile fuel bowsers are used, the following measures will be taken:*<br>*o Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;*<br>*o The pump or valve will be fitted with a lock and will be secured when not in use;*<br>*o All bowsers to carry a spill kit and operatives must have spill response training;*<br>*o Portable generators or similar fuel containing equipment will be placed on suitable drip trays.*<br>*In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:*<br>*• Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;*<br>*• Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;*<br>*• All drums to be quality approved and manufactured to a recognised standard;*<br>*• If drums are to be moved around the Site, they will be secured and on spill pallets; and*<br>*• Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.*<br><br>*Other Chemical Storage*<br>*No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately bunded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from any surface water drains (minumum 20 m buffer zone).*<br>*Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.*<br>*The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.'*<br><br>**Operation**<br>During the Operational Phase of the proposed Project there is limited potential for Site activities to impact on the geological and hydrogeological environment of the area. However, hydrocarbon interception will be put in place. |

## Adverse Effects on the conservation objectives of European sites likely to occur from the project (post mitigation)

A robust series of mitigation measures will be carried out. These have been developed by a multidisciplinary project team. These would ensure that water entering the Mayne River, is clean and uncontaminated, that dust and noise levels are controlled on site and that operational measures are in place to prevent pollution. 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.

With the successful implementation of the outlined mitigation measures, 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. The construction and operational mitigation proposed for the development satisfactorily addresses the potential impacts on designated conservation sites through the application of the construction and operational phase controls as outlined above. In particular, mitigation measures to ensure compliance with Water Pollution Acts and prevent silt, dust and pollution entering the River Mayne will satisfactorily address the potential impacts on downstream biodiversity and European sites. No significant adverse impacts on the conservation objectives of European sites are likely following the implementation of the mitigation measures outlined above.

## Conclusion

In a strict application of the precautionary principle, it has been concluded that mitigation measures were required to prevent impacts on Baldoyle Bay SAC and Baldoyle SPA. Impacts are likely from the proposed works in the absence of mitigation measures, primarily as a result of direct hydrological connection to the site via the Mayne River, which is connected to the site via the surface water outfall which leads to a nearby wetland area, discharging in to the Mayne River. As a result, there is potential for downstream impacts from the project during site clearance, enabling, construction, landscaping and drainage works. In addition, the proximity of the proposed works to the European sites could lead to dust and noise entering the SPA and impacting on the Qualifying interests. For this reason, a NIS was carried out 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.

Construction on this site will create localised light and noise disturbance. Due to the distance to designated sires across a busy environment including the main coastal road these would not impact European sites.

Mitigation measures will be in place to ensure there are no significant impacts on the Mayne River that leads to conservation sites. A project ecologist will be appointed to oversee works in relation to the enabling works and the implementation of mitigation measures as outlined on site. The implementation of mitigation measures outlined, which will be followed, will be sufficient to prevent adverse effects on the integrity of European sites.

Following the implementation of the mitigation measures outlined, the construction and presence of this development would not be deemed to have a significant impact on the integrity of European sites. No significant impacts are likely on European sites, alone in combination with other plans and projects based on the implementation of standard construction phase mitigation measures.

This report presents an Appropriate Assessment Screening and NIS for the proposed development. It outlines the information required for the competent authority to screen for appropriate assessment and to determine whether or not the proposed development, 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.

On the basis of the content of this report, the competent authority is enabled to conduct an Appropriate Assessment and consider whether, 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.

**No significant effects are likely on European sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites.**

## Data used for the AA Screening/NIS Assessment

NPWS site synopses and Conservation objectives of sites within 15km were examined. European sites beyond 15km have no direct connection to the proposed development site. Several site visits were carried out to determine if the site contained possible threats to a European site or any European species or habitats.

## References

The following references were used in the preparation of this AA screening report.


1. Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities March 2010.
2. Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government 2009; www.npws.ie/publications/archive/NPWS_2009_AA_Guidance.pdf
3. Managing EUROPEAN Sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC, European Commission 2000; ec.europa.eu/environment/nature/Natura2000/management/docs/art6/provision_of_art6_en.pdf
4. Assessment of Plans and Projects Significantly Affecting EUROPEAN Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; ec.europa.eu/environment/nature/Natura2000management/docs/art6/Natura_2000_assess_en.pdf
5. Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission; ec.europa.eu/environment/nature/Natura2000/management/docs/art6/guidance_art6_4_en.pdf
6. Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging; ec.europa.eu/environment/nature/Natura2000/management/docs/guidance_doc.pdf
7. The Status of EU Protected Habitats and Species in Ireland. www.npws.ie/publications/euconservationstatus/NPWS_2007_Conservation_Status_Report.pdf
8. Ringsend Wastewater Treatment Plant Upgrade Project Planning Application 180601_RGD-Planning-App-Planning-App-Report.pdf (ringsendwwtpupgrade.ie)
9. NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
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11. NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
12. NPWS (2016) Conservation Objectives: Howth Head SAC 000202. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
13. NPWS (2017) Conservation Objectives: Ireland's Eye SAC 002193. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
14. NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
15. NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
16. NPWS (2013) Conservation Objectives: Rogerstown Estuary SAC 000208. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

17. NPWS (2013) Conservation Objectives: Lambay Island SAC 000204. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
18. NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
19. NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
20. NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
21. NPWS (2022) Conservation objectives for Ireland's Eye SPA [004117]. Generic Version 9.0. Department of Housing, Local Government and Heritage.
22. NPWS (2022) Conservation objectives for Howth Head Coast SPA [004113]. Generic Version 9.0. Department of Housing, Local Government and Heritage.
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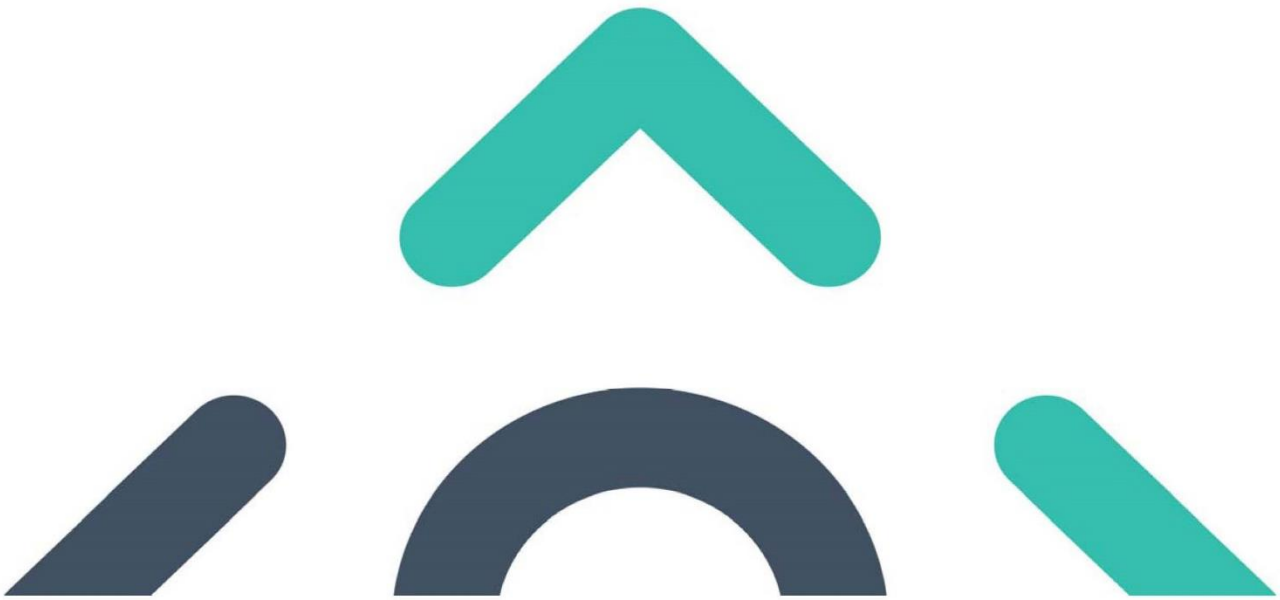
25. NPWS (2022) Conservation objectives for Lambay Island SPA [004069]. Generic Version 9.0.Department of Housing, Local Government and Heritage.
26. NPWS (2022) Conservation objectives for Dalkey Islands SPA [004172]. Generic Version 9.0. Department of Housing, Local Government and Heritage.

MKO Planning and Environmental Consultants

# Winter Bird Survey Report 2019/2020

## Project Shoreline Bird Surveys, Baldoyle, North Co. Dublin



# DOCUMENT DETAILS

| | |
|---|---|
| Client: | **The Shoreline Partnership** |
| Project Title: | **Project Shoreline Bird Surveys, Baldoyle, North Co. Dublin** |
| Project Number: | **191203** |
| Document Title: | **Winter Bird Survey Report 2019/2020** |
| Document File Name: | **191203– F – Winter Bird Survey Report 2019/2020 – 2020.05.21** |
| Prepared By: | **MKO**<br>**Tuam Road**<br>**Galway**<br>**Ireland**<br>**H91 VW84** |

Planning and Environmental Consultants

| Rev | Status | Date | Author(s) | Approved By |
|---|---|---|---|---|
| 01 | Draft | 20/04/2020 | PM/IH | PC |
| 01 | Final | 21/05/2020 | PM/IH | 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 Baldoyle, north County Dublin during the period from December 2019 to March 2020 inclusive. The proposed development scheme consists of a large housing development on a greenfield site dominated by agricultural grassland. The site is approximately 50.7 ha in area and is located between Clongriffin Dart Station to the west and the Coast Road to the east. Figure 1 (Appendix 2) provides a map of the location of the proposed development boundary.

This report describes the ornithological survey methods employed and survey data collected at Baldoyle, north County Dublin for the period from December 2019 to March 2020 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. See Figure 1 and Figure 2 in Appendix 2 for a map of the areas surveyed between December 2019 and March 2020.

The report is supported by Technical Appendix 1 which contains the raw data from the winter bird surveys in 2019/2020. This includes detail on survey times, weather conditions, surveyors, survey results and other additional information. Flight lines and significant flocks recorded 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 Patrick Manley (B.Sc.) an Ornithologist with MKO, Ian Hynes (B.Sc.) and Senior Ornithologist, Padraig Cregg (M.Sc.). The field surveys were undertaken in the 2019 breeding season by Padraig Cregg, Eric Dempsey and Susan Doyle, all of whom are competent experts 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 2019 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. Baldoyle SPA is located directly to the east of the proposed development opposite the R106. The SPA is a narrow estuary totalling 262ha in area and is separated from the sea by sand dunes on its eastern boundary. Two small rivers, the Mayne River and the Sluice River, flow into the inner part of the estuary. The Mayne River runs from west to east along the northern boundary of the proposed development site. At low tide, large areas of intertidal mud flats are exposed. These mud flats comprise mostly of sands but grade to muds in the more sheltered parts of the estuary.

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 Designated sites 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 20/04/2020) | Conservation Objectives | Zone of Influence Determination & Identification of Pathways for Effect |
|---|---|---|---|---|
| Special Protection Areas (SPA) | | | | |
| Baldoyle Bay SPA (004016) | 0.07m to the east of the proposed development site | › Light-bellied Brent Goose *(Branta bernicla hrota)* [A046]<br>› Shelduck *(Tadorna tadorna)* [A048]<br>› Ringed Plover (*Charadrius hiaticula*) [A137]<br>› Golden Plover (*Pluvialis apricaria*) [A140]<br>› Grey Plover (*Pluvialis squatarola*) [A141]<br>› Bar-tailed Godwit (*Limosa lapponica*) [A157] | This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA:<br><br>"To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA."<br><br>This site also has a second conservation objective:<br><br>"To maintain the favourable conservation condition of the wetland habitat in Baldoyle Bay SPA."<br><br>(NPWS (2013) Conservation objectives: Baldoyle Bay SPA [004016]. Version 1. | The proposed development site is directly adjacent to the Baldoyle SPA and is therefore located within the potential foraging range of all the SCI species associated with the SPA. |
| | | | | |

## 2.2.2 Irish Wetland Bird Survey (IWeBS) Records

The study area is not covered by an I-WeBS site, but the nearest site is located directly adjacent to the proposed development site to the east at Baldoyle Bay SPA. 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 Baldoyle Bay SPA was downloaded from www.birdwatchireland.ie and reviewed. The most recent 5-season period and mean counts for this period are presented in Table 2-2. I-WeBS surveys for the 2011/12 and the 2012/13 survey seasons were not undertaken and no data is available for these years.

*Table 2-2 IWeBS data for Baldoyle Bay SPA*

| Species | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 5-season mean (2011/12-2015/16) |
|---|---|---|---|---|---|---|
| Mute Swan | - | - | | | 2 | 2 |
| Light-bellied Brent Goose | - | - | 580 | 588 | 342 | 503 |
| Egyptian Goose | - | - | | | 1 | 1 |
| Shelduck | - | - | 52 | 97 | 88 | 79 |
| Wigeon | - | - | 54 | 54 | 32 | 47 |
| Teal | - | - | 145 | 160 | 108 | 138 |
| Mallard | - | - | 67 | 102 | 106 | 92 |
| Pintail | - | - | 4 | 4 | | 4 |
| Common Scoter | - | - | 16 | 7 | | 12 |
| Red-breasted Merganser | - | - | 6 | 5 | 2 | 4 |
| Red-throated Diver | - | - | 14 | 64 | | 39 |
| Great Northern Diver | - | - | 1 | 2 | | 2 |
| Little Grebe | - | - | 1 | | | 1 |
| Great Crested Grebe | - | - | 124 | 189 | | 156 |
| Cormorant | - | - | 10 | 4 | 3 | 6 |
| Shag | - | - | 7 | | | 7 |
| Little Egret | - | - | 18 | 3 | 7 | 9 |
| Grey Heron | - | - | 5 | 7 | 7 | 6 |
| Moorhen | - | - | | | | |
| Oystercatcher | - | - | 277 | 1113 | 219 | 536 |
| Ringed Plover | - | - | 34 | 59 | 123 | 72 |
| Golden Plover | - | - | 2500 | 450 | 2000 | 1650 |
| Grey Plover | - | - | 55 | 28 | 8 | 30 |
| Lapwing | - | - | 372 | 300 | 137 | 270 |
| Knot | - | - | 553 | | 19 | 286 |
| Sanderling | - | - | 6 | | | 6 |
| Dunlin | - | - | 750 | 233 | 300 | 428 |
| Snipe | - | - | | | | |
| Black-tailed Godwit | - | - | 389 | 139 | 296 | 275 |
| Bar-tailed Godwit | - | - | 162 | 150 | 48 | 120 |
| Curlew | - | - | 90 | 61 | 106 | 86 |
| Greenshank | - | - | 6 | 11 | 3 | 7 |

| Species | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 5-season mean (2011/12-2015/16) |
|---|---|---|---|---|---|---|
| Redshank | - | - | 144 | 152 | 125 | 140 |
| Turnstone | - | - | 17 | 12 | 13 | 14 |
| Black-headed Gull | - | - | 242 | 281 | 52 | 192 |
| Common Gull | - | - | 64 | 11 | 4 | 26 |
| Lesser Black-backed Gull | - | - | 4 | 18 | 1 | 8 |
| Herring Gull | - | - | 47 | 91 | 58 | 65 |
| Great Black-backed Gull | - | - | 7 | 15 | 10 | 11 |

'-' *indicates where no data was available.*

## 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.

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 December 2019 – March 2020 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 Baldoyle Bay SPA Surveys

Surveys of Balydoyle Bay SPA were broadly based on I-WeBS methodology. On each survey of the SPA a total count of each water bird species present was recorded. Information on behaviour (i.e. foraging or roosting) and habitat was also collected. During these surveys, estuarine habitats were described as intertidal, subtidal, supratidal or terrestrial.

Survey effort, including details of survey duration and weather conditions, is presented in Appendix 1, Table 1-1. Figure 2 in Appendix 1 shows the surveyed area.

### 3.1.4 Survey Justification

A comprehensive suite of bird surveys was undertaken at the site between December 2019 and March 2020, 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 18th of December 2019 and 24th of March 2020. Two visits a month were undertaken during this period. Table 3-1 shows the survey effort for the 2019/2020 winter season.

*Table 3-1 Survey Effort*

| Survey Date | Survey Location | Survey Duration | Surveyor |
|---|---|---|---|
| 18/12/2019 | Site and SPA | 05:00 starting at 09:30 | PC |
| 23/12/2019 | Site and SPA | 02:35 starting at 09:20 | ED |
| 15/01/2020 | SPA | 02:20 starting at 10:00 | SD |
| 15/01/2020 | Site | 01:20 starting at 13:10 | SD |
| 28/01/2020 | SPA | 02:35 starting at 08:40 | SD |
| 28/01/2020 | Site | 01:45 starting at 11:40 | SD |
| 10/02/2020 | Site | 02:00 starting at 10:00 | SD |
| 10/02/2020 | SPA | 02:05 starting at 12:10 | SD |
| 24/02/2020 | Site | 02:00 starting at 09:55 | SD |
| 24/02/2020 | SPA | 02:00 starting at 12:30 | SD |
| 11/03/2020 | SPA | 01:55 starting at 12:45 | SD |
| 11/03/2020 | Site | 02:00 starting at 10:20 | SD |
| 24/03/2020 | SPA | 02:15 starting at 11:45 | SD |
| 24/03/2020 | Site | 02:00 starting at 09:30 | SD |

### 3.2.2 Walkover Survey Results

Walkover surveys were undertaken at the site between December 2019 and March 2020 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 | December | | January | | February | | March | | Figure No. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 18th | 23rd | 15th | 28th | 10th | 24th | 11th | 24th | |
| Bar-tailed Godwit (SCI of Baldoyle SPA) | Annex I; BoCCI Amber Listed (Wintering Populations) | | | | | | **35** | | | |
| Light-bellied Brent Goose (SCI of Baldoyle SPA) | BoCCI Amber Listed (Wintering Populations) | 12 | 40 | 49 | 7 | 11 | **80** | | | 1.1 |
| Shelduck (SCI of Baldoyle SPA) | BoCCI Amber Listed | | | | | | 2 | | **4** | 1.2 |
| Black-headed Gull | BoCCI Red Listed (Breeding Populations) | | 1 | 13 | 15 | 8 | **68** | 1 | | 1.3 |
| Black-tailed Godwit | BoCCI Amber Listed (Wintering Populations) | | 12 | | | | | | **35** | 1.4 |
| Common Gull | BoCCI Amber Listed (Breeding Populations) | **24** | | | | | | | 1 | 1.5 |
| Common Snipe | BoCCI Amber Listed | 4 | 1 | | **6** | 4 | 3 | 3 | 5 | 1.6 |
| Cormorant | BoCCI Amber Listed | | | | | | **1** | | | |
| Great Black-backed Gull | BoCCI Amber Listed (Breeding Populations) | | | | | **1** | | | | |
| Grey Heron | BoCCI Green Listed | **2** | 1 | | 1 | 1 | | | 1 | 1.7 |
| Herring Gull | BoCCI Red Listed (Breeding Populations) | | 8 | 14 | **21** | 8 | 2 | 7 | 10 | 1.8 |
| Lapwing | BoCCI Red Listed | | | | | **100** | 30 | | | 1.9 |
| Lesser Black-backed Gull | BoCCI Amber Listed (Breeding Populations) | | | | | | **1** | | | |
| Little Egret | Annex I; BoCCI Green Listed | | | | | | | | 1 | 1.10 |
| Mallard | BoCCI Green Listed | | | | 2 | **20** | 6 | 2 | 8 | 1.11 |
| Moorhen | BoCCI Green Listed | **3** | | | | | | | 1 | 1.12 |
| Oystercatcher | BoCCI Amber Listed | **86** | | | | | | | | 1.13 |
| Teal | BoCCI Amber Listed | | | | | | | | **4** | 1.14 |





### 3.2.3 SPA Survey Results

The SPA surveys were undertaken at Baldoyle Bay SPA between December 2019 and March 2020 inclusive. Summary results from there surveys are presented below. Table 3-3 shoes the total number of each SCI species during each survey. Table 3-4 shows the total number of birds present for all species within the SPA and Table 3-5 shows the total number of each non-SCI species recorded during the SPA surveys. These results are discussed in further detail in Section 4 of this report.

*Table 3-3 Total number of each SCI species recorded within the Baldoyle Bay SPA during the SPA surveys (Peak Counts for each species are presented in bold)*

| Species and Conservation Status | Conservation Status | December | | January | | February | | March | |
|---|---|---|---|---|---|---|---|---|---|
| | | 18th | 23rd | 15th | 28th | 10th | 24th | 11th | 24th |
| Bar-tailed Godwit (SCI of Baldoyle SPA) | Annex I; BoCCI Amber Listed (Wintering Populations) | **47** | | | 18 | 1 | | | |
| Golden Plover (SCI of Baldoyle SPA) | Annex I; BoCCI Red Listed | **50** | | | | | | | |
| Grey Plover (SCI of Baldoyle SPA) | BoCCI Amber Listed (Wintering Populations) | **4** | | | | | | | |
| Light-bellied Brent Goose (SCI of Baldoyle SPA) | BoCCI Amber Listed (Wintering Populations) | 69 | | 29 | 398 | 227 | 167 | **891** | 538 |
| Ringed Plover (SCI of Baldoyle SPA) | BoCCI Green Listed | | | 12 | **50** | | | | |
| Shelduck (SCI of Baldoyle SPA) | BoCCI Amber Listed | 53 | 26 | 47 | **122** | 45 | 41 | 30 | 12 |

*Table 3-4 Overall number of birds per month within the Baldoyle Bay SPA*

| Survey Date | All Species | SCI Species |
|---|---|---|
| 18th December | 890 | 223 |
| 23rd December | 76 | 26 |
| 15th January | 685 | 88 |
| 28th January | 1859 | 588 |
| 10th February | 612 | 273 |
| 24th February | 432 | 208 |
| 11th March | 1236 | 937 |
| 24th March | 1078 | 552 |

*Table 3-5 Total number of each non-SCI species recorded within the Baldoyle Bay SPA during the SPA surveys (Peak Counts for each species are presented in bold)*

| Species | Conservation Status | December | | January | | February | | March | |
|---|---|---|---|---|---|---|---|---|---|
| | | 18th | 23rd | 15th | 28th | 10th | 24th | 11th | 24th |
| Black-headed Gull | BoCCI Red Listed (Breeding Populations) | 32 | 6 | 47 | **129** | 63 | 101 | 16 | 2 |
| Black-tailed Godwit | BoCCI Amber Listed (Wintering Populations) | | | | | | | | **126** |
| Common Gull | BoCCI Amber Listed (Breeding Populations) | **9** | 1 | | 1 | | | | 1 |
| Cormorant | BoCCI Amber Listed | | | 2 | 1 | **6** | 1 | | |
| Curlew | BoCCI Red Listed | 35 | | 57 | **67** | 1 | 3 | 6 | 4 |
| Dunlin | Annex I; BoCCI Red Listed | **20** | | | | | | | |
| Gannet | BoCCI Amber Listed (Breeding Populations) | | | | | | | | **6** |
| Great Black-backed Gull | BoCCI Amber Listed (Breeding Populations) | **16** | 2 | 2 | 11 | | | 1 | 1 |
| Great Crested Grebe | BoCCI Amber Listed | | | | 2 | **6** | 1 | 1 | 1 |
| Greenshank | BoCCI Green Listed | 1 | | 1 | **2** | | | | |
| Grey Heron | BoCCI Green Listed | **1** | **1** | | | | | | |
| Herring Gull | BoCCI Red Listed (Breeding Populations) | **136** | | 41 | 101 | 23 | 14 | 22 | 51 |
| Knot | BoCCI Amber Listed (Wintering Populations) | | | | **160** | 53 | | 25 | |
| Lapwing | BoCCI Red Listed | 1 | 7 | 38 | **144** | 11 | | | |
| Lesser Black-backed Gull | BoCCI Amber Listed (Breeding Populations) | | | | 1 | **2** | | | |
| Little Egret | Annex I; BoCCI Green Listed | | 1 | | | 1 | | 6 | **8** |
| Little Grebe | BoCCI Amber Listed | | | **1** | | | | | |
| Long-tailed Duck | BoCCI Red Listed (Wintering Populations) | 1 | | | | **3** | | | |
| Mallard | BoCCI Green Listed | **53** | | 2 | 14 | 2 | 12 | 33 | 19 |
| Oystercatcher | BoCCI Amber Listed | 155 | | 244 | **538** | 15 | 21 | 49 | 250 |
| Red-breasted Merganser | BoCCI Green Listed | 10 | 1 | 7 | 3 | **15** | 1 | 5 | 7 |
| Redshank | BoCCI Red Listed | 80 | 3 | 108 | 65 | **115** | 48 | **115** | 29 |





| Species | Conservation Status | December | | January | | February | | March | |
|---|---|---|---|---|---|---|---|---|---|
| | | 18th | 23rd | 15th | 28th | 10th | 24th | 11th | 24th |
| Teal | BoCCI Amber Listed | 15 | 11 | 14 | 28 | 16 | 22 | **32** | 16 |
| Turnstone | BoCCI Green Listed | **22** | | 21 | 2 | 7 | | | |
| Whooper Swan | Annex I; BoCCI Amber Listed (Wintering Populations) | 1 | | | | | | | |
| Wigeon | BoCCI Red Listed (Wintering Populations) | **79** | 17 | 12 | 2 | | | 4 | 7 |

### 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 3-6 below and discussed in further detail in Section 4 of this report.

*Table 3-6 Other observations during surveys*

| Species | Survey Type | Observations recorded during surveys | Activity of note |
|---|---|---|---|
| Buzzard | Walkover Survey | 5 | Calling from treeline, at potential nest site |
| Kestrel | Walkover Survey | 1 | None |
| Buzzard | SPA Survey | 1 | None |

# 4. DISCUSSION

The following provides a synopsis of the findings of the surveys undertaken between December 2019 and March 2020.

Within the proposed development site and/or within 500m of the site, there were six main areas of importance to birds. These areas are presented in Appendix 2, Figure 3 and listed below:

- There was a roost site (including lapwing, black-tailed godwit, black-headed gull and teal) along the north-eastern margins of the proposed development area. This roost was partially within the proposed development site and extended to 160m from the proposed development site boundary.
- Light-bellied brent geese were observed foraging in two amenity areas adjacent to the proposed development site. One area was immediately adjacent to the proposed development site and the second area was within 30m of the proposed development site. There was one observation of this species at each amenity area.
- A potential buzzard nest site was located within mature trees along the boundary of the proposed development area.
- There were two areas in which common snipe were regularly observed within the proposed development site boundary.

During the SPA surveys, significant flocks were mapped during each survey; these maps are presented in Appendix 2, Figures 2.1 to 2.4, with one map per month of survey. From these maps, four areas of importance for birds were identified. These areas are presented in Appendix 2, Figure 4 and listed below:

- There was an area frequently used by light-bellied brent goose at the southern end of the Baldoyle Bay SPA. This location was particularly used in very windy conditions. This site was located 1.5 km to the south-east of the proposed development area at its closet point.
- Large flocks of light-bellied brent geese were found in an area on the western side of Baldoyle Bay SPA within 170m of the proposed development site, at its closest point.
- Oystercatcher and curlew were observed roosting along the eastern shoreline of the Baldoyle Bay SPA on multiple occasions.
- At the north-western edge of the Baldoyle Bay SPA, there is an important area for roosting waders (including lapwing, redshank and black-tailed godwits), that has been observed being utilised on multiple occasions. This site is located approximately 850m from the proposed development site at its closet point.

Key impacts that could result from the proposed development for local avian receptors include habitat loss, disturbance/displacement and water pollution.

The site consists of amenity grassland, improved agricultural grassland and areas of scrub. Of the SCI species from the Baldoyle Bay SPA, brent geese are considered the most likely to make use of the proposed development site. However, during the survey period much of grassland onsite was overgrown and did not offer the short grazing favoured by this species. There are two light-bellied brent goose foraging areas within close proximity (1m and 30m, at its closest point) of the development area to the south within amenity grassland habitats. Within the Baldoyle Bay SPA, there is one area of importance for light-bellied brent goose within 300m of the development site. This is a large area of mudflats frequently used by this species which is approximately 170m from the development boundary at its closest point. There is potential for disturbance during the construction phase of the proposed development at these locations.

A wader roost to the north-east of the proposed development site, at the mouth of the Mayne River, lies partially within the development site boundary. Habitat loss for this roost site can therefore not be ruled out and should be considered further in the EIAR.

In addition, the site was found to be utilized by wintering snipe and may contain a buzzard nest in a treeline along the site boundary. Direct habitat loss for these species cannot be ruled out.

# 5. CONCLUSION

As previously discussed, the proposed development area is not within the Baldoyle Bay SPA, however given the proximity of the SPA to the development, there is potential for impacts to result during construction and operational phases of the proposed development. These potential impacts could include:

- Loss of roosting habitat within/along the boundary of the redline at the mouth of the Mayne River.
- Disturbance during construction works and the operational phase to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.
- Pollution of surface water through accidental spillage or discharge of polluting substances, or via elevated suspended solids and siltation through run-off to watercourses.

The maximum likely distance at which disturbance will impact SCIs from the Baldoyle Bay SPA is 300m (Cutts et al., 2013). The magnitude of this impact and its potential significance will require further consideration at the assessment stage of any future planning application.

The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA. 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 Baldoyle village and existing surrounding housing developments. This should be considered in further detail at the assessment stage of any future planning application.

A wide range of environmental factors are required to support water bird species including good water quality and clarity and a good supply of food resources. Thus, water quality impacts resulting from the proposed development (i.e. during the construction and operational phases) could result in a reduction in the availability of suitable habitat for water bird species. The effect of such a reduction in water quality has the potential to be ecologically significant. However, it is likely that best practice design and mitigation can be implemented that would avoid or reduce such impacts. This should be considered in greater detail at the assessment stage of any future planning application.

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# APPENDIX 1

## TECHNICAL APPENDIX

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## TABLE OF TABLES

# 1. APPENDIX 1 (SURVEY DATA)

*Table 1-1 Survey Effort*

| Date | Survey Method | Survey Area | Survey Duration | Weather Conditions | Comments | Surveyor |
|---|---|---|---|---|---|---|
| 18/12/2019 | Walkover | Site and SPA | 05:00 starting at 09:30 | Wind Speed and Direction: Strong Breeze, SE; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 90 Rain: Heavy Showers; Frost: None; Snow: None | Onsite area overgrown agri fields suboptimal for foraging geese | PC |
| 23/12/2019 | Walkover | Site and SPA | 02:35 starting at 09:20 | Light w winds - no rain | | ED |
| 15/01/2020 | Walkover | SPA | 02:20 starting at 10:00 | Wind Speed and Direction: Gentle Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None | | SD |
| 15/01/2020 | Walkover | Site | 01:20 starting at 13:10 | Wind Speed and Direction: Fresh Breeze, W; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None | | SD |
| 28/01/2020 | Walkover | SPA | 02:35 starting at 08:40 | Wind Speed and Direction: Fresh Breeze, NE; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 66 Rain: Drizzle Mist; Frost: None; Snow: Ground | | SD |
| 28/01/2020 | Walkover | Site | 01:45 starting at 11:40 | Wind Speed and Direction: Fresh Breeze, NE; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 66 Rain: None; Frost: None; Snow: None | | SD |
| 10/02/2020 | Walkover | Site | 02:00 starting at 10:00 | Wind Speed and Direction: Strong Breeze, W; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 66 Rain: None; Frost: None; Snow: None | | SD |
| 10/02/2020 | Walkover | SPA | 02:05 starting at 12:10 | Wind Speed and Direction: Strong Breeze, W; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 66 Rain: Heavy Showers; Frost: None; Snow: Ground | | SD |

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Project Shoreline Bird Surveys, Baldoyle, North Co. Dublin
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| Date | Survey Method | Survey Area | Survey Duration | Weather Conditions | Comments | Surveyor |
|---|---|---|---|---|---|---|
| 24/02/2020 | Walkover | Site | 02:00 starting at 09:55 | Wind Speed and Direction: Moderate Gale, NW; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None | | SD |
| 24/02/2020 | Walkover | SPA | 02:00 starting at 12:30 | Wind Speed and Direction: Moderate Gale, NW; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None | | SD |
| 11/03/2020 | Walkover | SPA | 01:55 starting at 12:45 | Wind Speed and Direction: Moderate Breeze, W; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 33 Rain: Heavy Showers; Frost: None; Snow: None | | SD |
| 11/03/2020 | Walkover | Site | 02:00 starting at 10:20 | Wind Speed and Direction: Moderate Breeze, W; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 33 Rain: Light Showers; Frost: None; Snow: None | | SD |
| 24/03/2020 | Walkover | SPA | 02:15 starting at 11:45 | Wind Speed and Direction: Gentle Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None | | SD |
| 24/03/2020 | Walkover | Site | 02:00 starting at 09:30 | Wind Speed and Direction: Gentle Breeze, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None | | SD |

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*Table 1-2 Walkover Survey Data*

| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| MH001 | 18/12/2019 | Moorhen | 3 | FW2, {Depositing/upland rivers} foraging | | PC |
| H001 | 18/12/2019 | Grey heron | 1 | FW2, {Depositing/upland rivers} foraging | | PC |
| OC001 | 18/12/2019 | Oystercatcher | 30 | GA2, {Amenity grassland (improved)} foraging | | PC |
| CM001 | 18/12/2019 | Common Gull | 24 | GA2, {Amenity grassland (improved)} foraging | | PC |
| PB001 | 18/12/2019 | Brent Goose | 12 | GA2, {Amenity grassland (improved)} foraging | | PC |
| OC002 | 18/12/2019 | Oystercatcher | 56 | GA2, {Amenity grassland (improved)} foraging | | PC |
| H002 | 18/12/2019 | Grey heron | 1 | GS2, {Dry meadows and grassy verges} foraging in pool | | PC |
| SN001 | 18/12/2019 | Common Snipe | 1 | GS2, {Dry meadows and grassy verges} foraging in pool | | PC |
| SN002 | 18/12/2019 | Common Snipe | 3 | GS2, {Dry meadows and grassy verges} foraging in pool | | PC |
| BH001 | 23/12/2019 | Black-headed Gull | 1 | | | ED |
| H003 | 23/12/2019 | Grey Heron | 1 | | | ED |
| HG001 | 23/12/2019 | Herring Gull | 6 | | | ED |
| BW001 | 23/12/2019 | Black-tailed Godwit | 12 | | flight oversite | ED |
| PB002 | 23/12/2019 | Brent Goose | 40 | | flight oversite Light bellied brent geese | ED |
| SN003 | 23/12/2019 | Common Snipe | 1 | | | ED |
| HG002 | 23/12/2019 | Herring Gull | 2 | | | ED |
| HG003 | 15/01/2020 | Herring Gull | 14 | ED2, {Spoil and bare ground} loafing near construction area | | SD |
| BH002 | 15/01/2020 | Black-headed Gull | 13 | ED2, {Spoil and bare ground} loafing near construction area | | SD |

3



| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| | 15/01/2020 | Hooded Crow | 14 | GS2, {Dry meadows and grassy verges} ED2, {Spoil and bare ground} ED3, {Recolonising bare ground} flyover | | SD |
| | 15/01/2020 | Magpie | 19 | WL1, {Hedgerows} ED2, {Spoil and bare ground} foraging | | SD |
| | 15/01/2020 | Buzzard | 1 | ED3, {Recolonising bare ground} hunting | | SD |
| PB003/PB004 | 15/01/2020 | Brent Goose | 49 | GS2, {Dry meadows and grassy verges} 41 flying south then north. 8 flying east to west. Flying over site as the tide in SPA rises, but not landing | | SD |
| | 15/01/2020 | Wren | 3 | WS1, {Scrub} foraging | | SD |
| | 15/01/2020 | Song Thrush | 2 | GS2, {Dry meadows and grassy verges} foraging | | SD |
| | 15/01/2020 | Kestrel | 1 | GS2, {Dry meadows and grassy verges} hunting | | SD |
| | 15/01/2020 | Jackdaw | 2 | ED3, {Recolonising bare ground} foraging | | SD |
| BH003 | 28/01/2020 | Black-headed Gull | 15 | ED2, {Spoil and bare ground} loafing near construction area | | SD |
| HG004 | 28/01/2020 | Herring Gull | 9 | ED2, {Spoil and bare ground} loafing near construction area | | SD |
| | 28/01/2020 | Herring Gull | 12 | ED2, {Spoil and bare ground} ED3, {Recolonising bare ground} GS2, {Dry meadows and grassy verges} flyover | | SD |
| PB005 | 28/01/2020 | Brent Goose | 7 | GS2, {Dry meadows and grassy verges} fly over site towards SPA. Do not land | | SD |
| | 28/01/2020 | Song Thrush | 3 | GS2, {Dry meadows and grassy verges} ED2, {Spoil and bare ground} foraging | | SD |
| | 28/01/2020 | Magpie | 7 | WL2, {Treelines} ED2, {Spoil and bare ground} foraging | | SD |
| | 28/01/2020 | Robin | 1 | WS1, {Scrub} foraging | | SD |
| | 28/01/2020 | Jackdaw | 2 | ED2, {Spoil and bare ground} ED3, {Recolonising bare ground} flyover | | SD |

4

| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| | 28/01/2020 | Raven | 1 | ED2, (Spoil and bare ground) mobbed by Jackdaws | | SD |
| | 28/01/2020 | Goldfinch | 1 | GS2, (Dry meadows and grassy verges) foraging | | SD |
| | 28/01/2020 | Hooded Crow | 2 | ED3, (Recolonising bare ground) ED2, (Spoil and bare ground) WL1, (Hedgerows) foraging | | SD |
| | 28/01/2020 | Wren | 1 | WL1, (Hedgerows) foraging | | SD |
| MA001 | 28/01/2020 | Mallard | 2 | FW2, (Depositing/upland rivers) swimming in river | | SD |
| | 28/01/2020 | Blackbird | 2 | WS1, (Scrub) foraging | | SD |
| H004 | 28/01/2020 | Grey Heron | 1 | FW2, (Depositing/upland rivers) GS2, (Dry meadows and grassy verges) moving around site | | SD |
| SN004 | 28/01/2020 | Common Snipe | 6 | GS4, (Wet grassland) flushed from wet grassland | | SD |
| | 10/02/2020 | Herring Gull | 8 | GS2, (Dry meadows and grassy verges) ED2, (Spoil and bare ground) ED3, (Recolonising bare ground) flying | | SD |
| | 10/02/2020 | Magpie | 11 | ED2, (Spoil and bare ground) ED3, (Recolonising bare ground) foraging | | SD |
| | 10/02/2020 | Hooded Crow | 4 | GS2, (Dry meadows and grassy verges) ED2, (Spoil and bare ground) foraging | | SD |
| SN005 | 10/02/2020 | Common Snipe | 1 | GS2, (Dry meadows and grassy verges) flushed | | SD |
| MA002 | 10/02/2020 | Mallard | 5 | GS2, (Dry meadows and grassy verges) fly over site E to W | | SD |
| H005 | 10/02/2020 | Grey Heron | 1 | ED2, (Spoil and bare ground) at pool in spoil | | SD |
| PB006 | 10/02/2020 | Brent Goose | 11 | GS2, (Dry meadows and grassy verges) fly over site E to W | look disturbed from SPA | SD |
| | 10/02/2020 | Robin | 2 | WS1, (Scrub) foraging | | SD |
| | 10/02/2020 | Great Black-backed Gull | 1 | GS2, (Dry meadows and grassy verges) flying | | SD |
| | 10/02/2020 | Buzzard | 1 | GS2, (Dry meadows and grassy verges) hunting | | SD |
| | 10/02/2020 | Blackbird | 2 | WL1, (Hedgerows) foraging | | SD |
| | 10/02/2020 | Rook | 9 | GS2, (Dry meadows and grassy verges) foraging | | SD |

5



| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| L001 | 10/02/2020 | Lapwing | 100 | FS1, (Reed and large sedge swamps) roosting | attempting to roost in pond adjacent to site. Frequently disturbed but do not fly over site | SD |
| | 10/02/2020 | Mallard | 15 | FS1, (Reed and large sedge swamps) flying | flying around reedbed adjacent to site but do not fly over site | SD |
| SN006 | 10/02/2020 | Common Snipe | 3 | GS4, (Wet grassland) flushed | | SD |
| | 10/02/2020 | Dunnock | 1 | WS1, (Scrub) singing | | SD |
| | 10/02/2020 | Starling | 30 | GS2, (Dry meadows and grassy verges) foraging | | SD |
| | 10/02/2020 | Black-headed Gull | 8 | GS2, (Dry meadows and grassy verges) ED2, (Spoil and bare ground) flying | | SD |
| | 10/02/2020 | Wood Pigeon | 8 | BL3, (Buildings and artificial surfaces) foraging on road | | SD |
| | 10/02/2020 | Blue Tit | 1 | WS1, (Scrub) alarm calls | | SD |
| PB007 | 24/02/2020 | Brent Goose | ~80 | GS2, (Dry meadows and grassy verges) foraging | foraging in park adjacent to site | SD |
| | 24/02/2020 | Buzzard | 1 | GS2, (Dry meadows and grassy verges) hunting | | SD |
| | 24/02/2020 | Black-headed Gull | 14 | GS2, (Dry meadows and grassy verges) flying | | SD |
| | 24/02/2020 | Robin | 2 | WS1, (Scrub) foraging | | SD |
| | 24/02/2020 | Robin | 2 | WS1, (Scrub) singing | | SD |
| | 24/02/2020 | Hooded Crow | 5 | GS2, (Dry meadows and grassy verges) WS1, (Scrub) foraging | | SD |
| | 24/02/2020 | Lesser Black-backed Gull | 1 | GS2, (Dry meadows and grassy verges) flying | | SD |
| | 24/02/2020 | Meadow Pipit | 15 | WS1, (Scrub) GS2, (Dry meadows and grassy verges) ED2, (Spoil and bare ground) foraging and displaying | | SD |
| | 24/02/2020 | Blue Tit | 4 | WS1, (Scrub) singing and calling | | SD |
| | 24/02/2020 | Herring Gull | 1 | ED2, (Spoil and bare ground) roosting | | SD |

6

| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| | 24/02/2020 | Magpie | 6 | WL1, (Hedgerows) WS1, (Scrub) ED2, (Spoil and bare ground) foraging | | SD |
| | 24/02/2020 | Blackbird | 3 | WL1, (Hedgerows) foraging | | SD |
| | 24/02/2020 | Skylark | 2 | GS2, (Dry meadows and grassy verges) displaying | | SD |
| | 24/02/2020 | Dunnock | 1 | WS1, (Scrub) singing | | SD |
| | 24/02/2020 | Greenfinch | 1 | WS1, (Scrub) calling | | SD |
| | 24/02/2020 | Goldfinch | 1 | GS2, (Dry meadows and grassy verges) flying | | SD |
| | 24/02/2020 | Chaffinch | 1 | WL1, (Hedgerows) calling | | SD |
| L002 | 24/02/2020 | Lapwing | ~30 | FS1, (Reed and large sedge swamps) roosting | roosting in flooded area adjacent to site | SD |
| | 24/02/2020 | Cormorant | 1 | GS2, (Dry meadows and grassy verges) fly over site W to E | | SD |
| SU001 | 24/02/2020 | Shelduck | 2 | GA1, (Improved agricultural grassland) roosting | roosting near flooded area adjacent to site | SD |
| BH004 | 24/02/2020 | Black-headed Gull | 4 | GA1, (Improved agricultural grassland) roosting | roosting near flooded area adjacent to site | SD |
| | 24/02/2020 | Wood Pigeon | 5 | WL1, (Hedgerows) roosting | | SD |
| | 24/02/2020 | Wren | 1 | WS1, (Scrub) calling | | SD |
| MA003 | 24/02/2020 | Mallard | 6 | GS2, (Dry meadows and grassy verges) fly over site E to W | | SD |
| BH005 | 24/02/2020 | Black-headed Gull | 50+ | GA1, (Improved agricultural grassland) roosting | roosting on farmland adjacent to site | SD |
| SN007 | 24/02/2020 | Common Snipe | 1 | GS2, (Dry meadows and grassy verges) flushed | | SD |
| SN008 | 24/02/2020 | Common Snipe | 2 | GS4, (Wet grassland) flushed | | SD |
| | 24/02/2020 | Rook | 2 | GS2, (Dry meadows and grassy verges) foraging | | SD |
| | 24/02/2020 | Herring Gull | 1 | GS2, (Dry meadows and grassy verges) flying | | SD |
| | 24/02/2020 | Bar-tailed Godwit | 35 | GS2, (Dry meadows and grassy verges) fly over site N to S | flock flies high over site but does not land or use site | SD |

7



| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| | 11/03/2020 | Rook | 2 | GS2, (Dry meadows and grassy verges) ED2, (Spoil and bare ground) foraging | | SD |
| | 11/03/2020 | Magpie | 11 | GS2, (Dry meadows and grassy verges) WL1, (Hedgerows) WS1, (Scrub) foraging | | SD |
| | 11/03/2020 | Skylark | 1 | GS2, (Dry meadows and grassy verges) breeding display | | SD |
| | 11/03/2020 | Herring Gull | 7 | GS2, (Dry meadows and grassy verges) flying over site | | SD |
| | 11/03/2020 | Hooded Crow | 3 | WL1, (Hedgerows) WL2, (Treelines) nest building | | SD |
| | 11/03/2020 | Meadow Pipit | 18 | GS2, (Dry meadows and grassy verges) WL2, (Treelines) foraging | | SD |
| | 11/03/2020 | Wren | 1 | WL1, (Hedgerows) singing | | SD |
| SN009 | 11/03/2020 | Common Snipe | 1 | GS2, (Dry meadows and grassy verges) flushed | | SD |
| | 11/03/2020 | Skylark | 5 | GS2, (Dry meadows and grassy verges) foraging | | SD |
| | 11/03/2020 | Meadow Pipit | 2 | GS2, (Dry meadows and grassy verges) breeding display | | SD |
| | 11/03/2020 | Buzzard | 1 | WL2, (Treelines) calling from treeline on site boundary - potential site for nesting | | SD |
| | 11/03/2020 | Robin | 3 | WL1, (Hedgerows) foraging | | SD |
| | 11/03/2020 | Wood Pigeon | 10 | WL1, (Hedgerows) WS1, (Scrub) foraging | | SD |
| | 11/03/2020 | Dunnock | 1 | WS1, (Scrub) singing | | SD |
| SN010 | 11/03/2020 | Common Snipe | 2 | GS4, (Wet grassland) flushed | | SD |
| | 11/03/2020 | Blackbird | 2 | WL1, (Hedgerows) foraging | | SD |
| | 11/03/2020 | Greenfinch | 1 | WL1, (Hedgerows) foraging | | SD |
| | 11/03/2020 | Goldfinch | 12 | WL1, (Hedgerows) foraging | | SD |
| | 11/03/2020 | Pheasant | 1 | GS2, (Dry meadows and grassy verges) flushed | | SD |
| | 11/03/2020 | Buzzard | 4 | GS2, (Dry meadows and grassy verges) WL2, (Treelines) soaring and calling high over site | | SD |

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| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| | 11/03/2020 | Black-headed Gull | 1 | GS2, (Dry meadows and grassy verges) flying over site | | SD |
| MA004 | 11/03/2020 | Mallard | 2 | FW, (Watercourses) fly into site towards river | | SD |
| | 24/03/2020 | Magpie | 14 | WL1, (Hedgerows) WL2, (Treelines) ED2, (Spoil and bare ground) foraging | | SD |
| | 24/03/2020 | Herring Gull | 10 | GS2, (Dry meadows and grassy verges) scattered individuals flying around site | | SD |
| | 24/03/2020 | Skylark | 4 | GS2, (Dry meadows and grassy verges) displaying | | SD |
| | 24/03/2020 | Hooded Crow | 3 | GS2, (Dry meadows and grassy verges) foraging | | SD |
| | 24/03/2020 | Dunnock | 1 | WS1, (Scrub) singing | | SD |
| | 24/03/2020 | Stonechat | 2 | GS2, (Dry meadows and grassy verges) pair foraging | | SD |
| | 24/03/2020 | Rook | 12 | GS2, (Dry meadows and grassy verges) WL2, (Treelines) foraging | | SD |
| | 24/03/2020 | Meadow Pipit | 15 | GS2, (Dry meadows and grassy verges) foraging | | SD |
| | 24/03/2020 | Robin | 4 | WL1, (Hedgerows) WL2, (Treelines) singing | | SD |
| | 24/03/2020 | Wren | 1 | WS1, (Scrub) singing | | SD |
| MA005/MA006/MA007 | 24/03/2020 | Mallard | 6 | GS2, (Dry meadows and grassy verges) FW, (Watercourses) flying over; 2 may have landed in river | | SD |
| | 24/03/2020 | Wood Pigeon | 21 | WL1, (Hedgerows) foraging | | SD |
| | 24/03/2020 | Blackbird | 2 | WL1, (Hedgerows) foraging | | SD |
| | 24/03/2020 | Jackdaw | 6 | ED2, (Spoil and bare ground) foraging | | SD |
| | 24/03/2020 | Goldfinch | 1 | WL1, (Hedgerows) singing | | SD |
| | 24/03/2020 | Greenfinch | 1 | WL1, (Hedgerows) calling | | SD |
| SN011 | 24/03/2020 | Common Snipe | 2 | GS4, (Wet grassland) flushed | | SD |
| | 24/03/2020 | Goldfinch | 4 | WL1, (Hedgerows) foraging | | SD |





| Map Ref | Survey Date | Species | Number of birds | Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| ET001 | 24/03/2020 | Little Egret | 1 | mixed flock roosting adjacent to site, overlapping site boundary at far NE corner | | SD |
| MA008 | 24/03/2020 | Mallard | 3 | mixed flock roosting adjacent to site, overlapping site boundary at far NE corner | partially within site boundary | SD |
| SU002 | 24/03/2020 | Shelduck | 4 | mixed flock roosting adjacent to site, overlapping site boundary at far NE corner | partially within site boundary | SD |
| BW002 | 24/03/2020 | Black-tailed Godwit | 35 | mixed flock roosting adjacent to site, overlapping site boundary at far NE corner | partially within site boundary | SD |
| T001 | 24/03/2020 | Teal | 4 | foraging in river adjacent to site | | SD |
| MA009 | 24/03/2020 | Mallard | 2 | FW, (Watercourses) foraging in river | | SD |
| MH002 | 24/03/2020 | Moorhen | 1 | FW, (Watercourses) foraging on river's edge | | SD |
| CM002 | 24/03/2020 | Common Gull | 1 | flies over | | SD |
| H006 | 24/03/2020 | Grey Heron | 1 | ED2, (Spoil and bare ground) standing in flooded area | | SD |

*Table 1-3 SPA Survey Data*

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| FL001 | 18/12/2019 | Herring Gull | Intertidal; Roosting | | PC |
| FL001 | 18/12/2019 | Great Black-backed Gull | Intertidal; Roosting | | PC |
| FL001 | 18/12/2019 | Oystercatcher | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Curlew | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Mallard | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Teal | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Redshank | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Black-headed Gull | Supratidal; Feeding | | PC |
| FL002 | 18/12/2019 | Mallard | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Oystercatcher | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Herring Gull | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Black-headed Gull | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Bar-tailed Godwit | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Grey Plover | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Shelduck | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Lapwing | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Common Gull | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Curlew | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Redshank | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Brent Goose | Intertidal; Feeding | | PC |
| FL003 | 18/12/2019 | Brent Goose | Terrestrial; Feeding | Foraging in golf course | PC |
| FL004 | 18/12/2019 | Red-breasted Merganser | Subtidal; Feeding | | PC |
| FL004 | 18/12/2019 | Common Gull | Intertidal; Feeding | | PC |
| FL004 | 18/12/2019 | Herring Gull | Intertidal; Feeding | | PC |
| FL004 | 18/12/2019 | Oystercatcher | Supratidal; Roosting | | PC |
| FL004 | 18/12/2019 | Curlew | Supratidal; Roosting | | PC |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| FL004 | 18/12/2019 | Long-tailed Duck | Subtidal; Feeding | | PC |
| FL005 | 18/12/2019 | Redshank | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Turnstone | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Herring Gull | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Grey Heron | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Curlew | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Teal | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Curlew | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Oystercatcher | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Dunlin | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Redshank | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Bar-tailed Godwit | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Black-headed Gull | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Herring Gull | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Turnstone | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Curlew | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Bar-tailed Godwit | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Redshank | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Oystercatcher | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Bar-tailed Godwit | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Curlew | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Oystercatcher | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Redshank | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Shelduck | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Turnstone | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Greenshank | Intertidal; Feeding | | PC |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| FL008 | 18/12/2019 | Herring Gull | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Black-headed Gull | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Great Black-backed Gull | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Dunlin | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Brent Goose | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Golden Plover | Intertidal; Roosting | | PC |
| FL009 | 18/12/2019 | Teal | Intertidal; Roosting | | PC |
| FL009 | 18/12/2019 | Wigeon | Intertidal; Roosting | | PC |
| FL009 | 18/12/2019 | Whooper Swan | Intertidal; Roosting | | PC |
| FL010 | 23/12/2019 | Lapwing | Above Water; Roosting | | ED |
| FL010 | 23/12/2019 | Redshank | Above Water; Roosting | | ED |
| FL011 | 23/12/2019 | Shelduck | On Water; feeding | | ED |
| FL012 | 23/12/2019 | Wigeon | On Water; feeding | | ED |
| FL012 | 23/12/2019 | Shelduck | On Water; Feeding | | ED |
| FL012 | 23/12/2019 | Teal | On Water; Feeding | | ED |
| FL012 | 23/12/2019 | Wigeon | On Water; Feeding | | ED |
| FL012 | 23/12/2019 | Great Black-backed Gull | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Black-headed Gull | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Common Gull | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Redshank | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Little Egret | Above Water; Feeding | | ED |
| FL012 | 23/12/2019 | Red-breasted Merganser | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Grey Heron | Above Water; Feeding | | ED |
| | 15/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 15/01/2020 | Herring Gull | Intertidal; Feeding | also 15+ HG following fishing boat outside SPA boundary | SD |
| | 15/01/2020 | Curlew | Intertidal; Feeding | | SD |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 15/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 15/01/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 15/01/2020 | Cormorant | Subtidal; Feeding | | SD |
| | 15/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Brent Goose | Flying | | SD |
| | 15/01/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 15/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 15/01/2020 | Brent Goose | Subtidal; Feeding | | SD |
| | 15/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 15/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 15/01/2020 | Redshank | Intertidal; Roosting | | SD |
| | 15/01/2020 | Black-headed Gull | Intertidal; Roosting | | SD |
| | 15/01/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 15/01/2020 | Teal | Intertidal; Roosting | | SD |
| | 15/01/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 15/01/2020 | Herring Gull | Subtidal; Roosting | | SD |
| | 15/01/2020 | Herring Gull | Intertidal; Roosting | | SD |
| | 15/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 15/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 15/01/2020 | Turnstone | Supratidal; Feeding | | SD |
| | 15/01/2020 | Curlew | Intertidal; Feeding | | SD |
| FL013 | 15/01/2020 | Curlew | Intertidal; Roosting | | SD |
| FL013 | 15/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 15/01/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 15/01/2020 | Oystercatcher | Terrestrial; Roosting | | SD |
| | 15/01/2020 | Ringed Plover | Intertidal; Feeding | | SD |
| | 15/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 15/01/2020 | Starling | Supratidal; Feeding | | SD |
| | 15/01/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 15/01/2020 | Wigeon | Subtidal; Feeding | | SD |
| | 15/01/2020 | Herring Gull | Subtidal; Feeding | | SD |
| | 15/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 15/01/2020 | Turnstone | Intertidal; Feeding | | SD |
| | 15/01/2020 | Redshank | Intertidal; Roosting | | SD |
| | 15/01/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 15/01/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 15/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 15/01/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 15/01/2020 | Brent Goose | Subtidal; Feeding | | SD |
| | 15/01/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 15/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Little Grebe | Supratidal; Feeding | | SD |
| FL014 | 15/01/2020 | Lapwing | Supratidal; Roosting | | SD |
| | 15/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 15/01/2020 | Redshank | Supratidal; Roosting | | SD |
| FL015 | 15/01/2020 | Black-headed Gull | Intertidal; Feeding | also 30+ foraging in park adjacent to SPA | SD |
| | 15/01/2020 | Greenshank | Intertidal; Feeding | | SD |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 15/01/2020 | Herring Gull | Flying | | SD |
| | 15/01/2020 | Wigeon | Subtidal; Feeding | | SD |
| | 15/01/2020 | Mallard | Subtidal; Feeding | | SD |
| FL015 | 15/01/2020 | Brent Goose | Subtidal; Feeding | also 60+ foraging in park adjacent to SPA | SD |
| | 15/01/2020 | Brent Goose | Flying | | SD |
| | 15/01/2020 | Wigeon | Subtidal; Feeding | | SD |
| | 15/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 15/01/2020 | Curlew | Supratidal; Roosting | in reeds | SD |
| | 15/01/2020 | Redshank | Intertidal; Roosting | | SD |
| | 15/01/2020 | Teal | Subtidal; Feeding | | SD |
| | 15/01/2020 | Brent Goose | Subtidal; Feeding | | SD |
| FL016 | 15/01/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 28/01/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 28/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 28/01/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 28/01/2020 | Common Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 28/01/2020 | Ringed Plover | Intertidal; Feeding | | SD |
| | 28/01/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 28/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 28/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| FL017 | 28/01/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 28/01/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| FL018 | 28/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| FL018 | 28/01/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 28/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Roosting | | SD |
| | 28/01/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 28/01/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 28/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 28/01/2020 | Curlew | Intertidal; Roosting | | SD |
| | 28/01/2020 | Bar-tailed Godwit | Intertidal; Feeding | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Roosting | | SD |
| | 28/01/2020 | Turnstone | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Greenshank | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 28/01/2020 | Brent Goose | Intertidal; Feeding | | SD |
| FL019 | 28/01/2020 | Brent Goose | Subtidal; Feeding | | SD |
| FL019 | 28/01/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 28/01/2020 | Redshank | Intertidal; Feeding | | SD |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 28/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 28/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 28/01/2020 | Curlew | Intertidal; Roosting | | SD |
| | 28/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| FL020 | 28/01/2020 | Knot | Intertidal; Feeding | | SD |
| | 28/01/2020 | Bar-tailed Godwit | Intertidal; Feeding | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Lapwing | Intertidal; Roosting | | SD |
| | 28/01/2020 | Bar-tailed Godwit | Intertidal; Feeding | | SD |
| | 28/01/2020 | Brent Goose | | in park adjacent to SPA | SD |
| | 28/01/2020 | Black-headed Gull | | in park adjacent to SPA | SD |
| | 28/01/2020 | Mallard | | in park adjacent to SPA | SD |
| | 28/01/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 28/01/2020 | Curlew | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Black-backed Gull | Intertidal; Roosting | | SD |
| | 28/01/2020 | Cormorant | Subtidal; Roosting | | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Mallard | Intertidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 28/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 28/01/2020 | Lapwing | Intertidal; Feeding | | SD |
| | 28/01/2020 | Lapwing | Intertidal; Roosting | | SD |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 28/01/2020 | Lesser Black-backed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Teal | Subtidal; Feeding | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Roosting | | SD |
| | 28/01/2020 | Lapwing | Intertidal; Roosting | | SD |
| | 28/01/2020 | Shelduck | Subtidal; Roosting | | SD |
| | 28/01/2020 | Shelduck | Intertidal; Roosting | | SD |
| | 28/01/2020 | Curlew | Intertidal; Roosting | | SD |
| | 28/01/2020 | Curlew | Terrestrial; Roosting | some roosting within grass | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Black-headed Gull | Intertidal; Roosting | | SD |
| | 28/01/2020 | Herring Gull | Intertidal; Roosting | | SD |
| | 28/01/2020 | Wigeon | Subtidal; Feeding | | SD |
| | 28/01/2020 | Oystercatcher | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 28/01/2020 | Redshank | Intertidal; Feeding | | SD |
| | 28/01/2020 | Bar-tailed Godwit | Intertidal; Feeding | | SD |
| | 28/01/2020 | Great Black-backed Gull | Intertidal; Feeding | | SD |
| | 28/01/2020 | Bar-tailed Godwit | Intertidal; Feeding | | SD |
| | 10/02/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 10/02/2020 | Cormorant | Subtidal; Feeding | | SD |
| | 10/02/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 10/02/2020 | Herring Gull | Intertidal; Feeding | | SD |
| FL021 | 10/02/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 10/02/2020 | Turnstone | Supratidal; Feeding | | SD |
| | 10/02/2020 | Herring Gull | | flying | SD |
| | 10/02/2020 | Black-headed Gull | Subtidal; Feeding | | SD |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 10/02/2020 | Teal | Subtidal; Feeding | | SD |
| | 10/02/2020 | Redshank | Intertidal; Feeding | | SD |
| | 10/02/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 10/02/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 10/02/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 10/02/2020 | Herring Gull | Subtidal; Roosting | | SD |
| | 10/02/2020 | Rook | | flying | SD |
| | 10/02/2020 | Knot | Intertidal; Roosting | | SD |
| | 10/02/2020 | Oystercatcher | Terrestrial; Feeding | | SD |
| | 10/02/2020 | Brent Goose | | flying | SD |
| | 10/02/2020 | Starling | Intertidal; Feeding | | SD |
| | 10/02/2020 | Long-tailed Duck | Subtidal; Roosting | | SD |
| | 10/02/2020 | Knot | Supratidal; Roosting | | SD |
| | 10/02/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 10/02/2020 | Brent Goose | | flying | SD |
| | 10/02/2020 | Oystercatcher | Supratidal; Roosting | | SD |
| | 10/02/2020 | Teal | Subtidal; Feeding | | SD |
| | 10/02/2020 | Brent Goose | Subtidal; Feeding | | SD |
| | 10/02/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 10/02/2020 | Herring Gull | | flying | SD |
| | 10/02/2020 | Cormorant | Subtidal; Roosting | | SD |
| | 10/02/2020 | Lesser Black-backed Gull | | flying | SD |
| | 10/02/2020 | Curlew | Terrestrial; Roosting | | SD |
| FL022 | 10/02/2020 | Redshank | Supratidal; Roosting | | SD |
| | 10/02/2020 | Black-headed Gull | Intertidal; Feeding | | SD |
| | 10/02/2020 | Shelduck | Intertidal; Feeding | | SD |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 10/02/2020 | Lapwing | Supratidal; Roosting | | SD |
| | 10/02/2020 | Mallard | Subtidal; Feeding | | SD |
| | 10/02/2020 | Little Egret | Intertidal; Feeding | | SD |
| | 10/02/2020 | Redshank | Intertidal; Feeding | | SD |
| | 10/02/2020 | Starling | Supratidal; Feeding | | SD |
| | 10/02/2020 | Shelduck | Terrestrial; Roosting | | SD |
| | 10/02/2020 | Brent Goose | Subtidal; Feeding | | SD |
| | 10/02/2020 | Brent Goose | | in park adjacent to SPA | SD |
| | 10/02/2020 | Black-headed Gull | | in park adjacent to SPA | SD |
| | 10/02/2020 | Bar-tailed Godwit | Supratidal; Roosting | | SD |
| | 10/02/2020 | Teal | Subtidal; Feeding | | SD |
| | 10/02/2020 | Teal | | flying | SD |
| | 10/02/2020 | Herring Gull | | flying | SD |
| | 10/02/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 10/02/2020 | Herring Gull | | flying | SD |
| | 10/02/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 24/02/2020 | Cormorant | Subtidal; Feeding | | SD |
| | 24/02/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 24/02/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| FL023 | 24/02/2020 | Brent Goose | Terrestrial; Feeding | | SD |
| | 24/02/2020 | Teal | Intertidal; Feeding | | SD |
| | 24/02/2020 | Hooded Crow | Terrestrial; Feeding | | SD |
| | 24/02/2020 | Herring Gull | Subtidal; Feeding | | SD |
| | 24/02/2020 | Brent Goose | Terrestrial; Feeding | | SD |
| | 24/02/2020 | Herring Gull | | flying | SD |
| | 24/02/2020 | Brent Goose | Subtidal; Feeding | | SD |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 24/02/2020 | Shelduck | Intertidal; Roosting | | SD |
| | 24/02/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 24/02/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 24/02/2020 | Brent Goose | Terrestrial; Feeding | | SD |
| | 24/02/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 24/02/2020 | Oystercatcher | Terrestrial; Feeding | | SD |
| FL024 | 24/02/2020 | Redshank | Supratidal; Roosting | | SD |
| | 24/02/2020 | Curlew | Supratidal; Roosting | | SD |
| | 24/02/2020 | Mallard | Supratidal; Roosting | | SD |
| | 24/02/2020 | Brent Goose | | in park adjacent to SPA | SD |
| | 24/02/2020 | Mallard | | in park adjacent to SPA | SD |
| | 24/02/2020 | Black-headed Gull | | in park adjacent to SPA | SD |
| | 24/02/2020 | Shelduck | Intertidal; Roosting | | SD |
| | 24/02/2020 | Teal | Intertidal; Roosting | | SD |
| | 24/02/2020 | Herring Gull | | flying | SD |
| | 24/02/2020 | Black-headed Gull | Terrestrial; Feeding | | SD |
| | 24/02/2020 | Herring Gull | | flying | SD |
| | 24/02/2020 | Teal | Intertidal; Feeding | | SD |
| | 24/02/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 24/02/2020 | Shelduck | Intertidal; Roosting | | SD |
| | 11/03/2020 | Oystercatcher | Intertidal; Roosting | | SD |
| | 11/03/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 11/03/2020 | Knot | | flyover | SD |
| | 11/03/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 11/03/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 11/03/2020 | Herring Gull | | flyover | SD |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 11/03/2020 | Hooded Crow | Terrestrial; Feeding | | SD |
| FL025 | 11/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 11/03/2020 | Redshank | Intertidal; Feeding | | SD |
| | 11/03/2020 | Herring Gull | Terrestrial; Roosting | | SD |
| | 11/03/2020 | Oystercatcher | Terrestrial; Roosting | | SD |
| | 11/03/2020 | Brent Goose | Terrestrial; Feeding | | SD |
| | 11/03/2020 | Curlew | Terrestrial; Roosting | | SD |
| | 11/03/2020 | Black-headed Gull | Terrestrial; Feeding | | SD |
| | 11/03/2020 | Shelduck | Intertidal; Roosting | | SD |
| | 11/03/2020 | Brent Goose | Subtidal; Roosting | | SD |
| | 11/03/2020 | Shelduck | Subtidal; Roosting | | SD |
| | 11/03/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 11/03/2020 | Black-headed Gull | | flyover | SD |
| | 11/03/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 11/03/2020 | Redshank | Supratidal; Roosting | | SD |
| | 11/03/2020 | Oystercatcher | Terrestrial; Feeding | | SD |
| | 11/03/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 11/03/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 11/03/2020 | Herring Gull | Subtidal; Roosting | | SD |
| | 11/03/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 11/03/2020 | Wigeon | Subtidal; Feeding | | SD |
| | 11/03/2020 | Mallard | | on grass at church adjacent to SPA roosting | SD |
| FL026 | 11/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| FL026 | 11/03/2020 | Redshank | Supratidal; Roosting | | SD |
| | 11/03/2020 | Great Black-backed Gull | Intertidal; Roosting | | SD |
| | 11/03/2020 | Shelduck | Subtidal; Feeding | | SD |





| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| FL027 | 11/03/2020 | Brent Goose | Subtidal; Roosting | | SD |
| | 11/03/2020 | Little Egret | Intertidal; Feeding | | SD |
| | 11/03/2020 | Mallard | | in park adjacent to SPA roosting | SD |
| | 11/03/2020 | Black-headed Gull | | in park adjacent to SPA roosting | SD |
| | 11/03/2020 | Herring Gull | | in park adjacent to SPA roosting | SD |
| FL028 | 11/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 11/03/2020 | Mallard | Terrestrial; Feeding | | SD |
| | 11/03/2020 | Redshank | Intertidal; Roosting | | SD |
| FL029 | 11/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 11/03/2020 | Little Egret | Intertidal; Feeding | | SD |
| | 11/03/2020 | Herring Gull | | flyover | SD |
| | 11/03/2020 | Redshank | Intertidal; Feeding | | SD |
| | 11/03/2020 | Teal | Subtidal; Feeding | | SD |
| | 11/03/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 11/03/2020 | Curlew | Intertidal; Roosting | | SD |
| | 11/03/2020 | Herring Gull | Subtidal; Roosting | | SD |
| | 11/03/2020 | Teal | Subtidal; Feeding | | SD |
| | 24/03/2020 | Hooded Crow | Intertidal; Feeding | | SD |
| | 24/03/2020 | Herring Gull | Subtidal; Roosting | | SD |
| | 24/03/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| | 24/03/2020 | Gannet | Subtidal; Feeding | | SD |
| | 24/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 24/03/2020 | Black-tailed Godwit | Intertidal; Roosting | mixed flock roosting | SD |
| | 24/03/2020 | Redshank | Intertidal; Roosting | mixed flock roosting | SD |
| | 24/03/2020 | Black-headed Gull | Subtidal; Roosting | | SD |
| | 24/03/2020 | Common Gull | Subtidal; Roosting | | SD |

| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 24/03/2020 | Herring Gull | Subtidal; Roosting | | SD |
| | 24/03/2020 | Red-breasted Merganser | Subtidal; Feeding | | SD |
| FL030 | 24/03/2020 | Oystercatcher | Supratidal; Roosting | | SD |
| | 24/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 24/03/2020 | Great Crested Grebe | Subtidal; Feeding | | SD |
| | 24/03/2020 | Great Black-backed Gull | Subtidal; Roosting | | SD |
| | 24/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 24/03/2020 | Shelduck | Intertidal; Feeding | | SD |
| | 24/03/2020 | Mallard | Terrestrial; Roosting | | SD |
| | 24/03/2020 | Brent Goose | | fly north to south | SD |
| | 24/03/2020 | Mallard | | fly north to south | SD |
| | 24/03/2020 | Brent Goose | Intertidal; Feeding | | SD |
| | 24/03/2020 | Herring Gull | Supratidal; Roosting | | SD |
| FL032 | 24/03/2020 | Black-tailed Godwit | Supratidal; Roosting | | SD |
| | 24/03/2020 | Little Egret | Supratidal; Roosting | | SD |
| | 24/03/2020 | Curlew | Intertidal; Feeding | | SD |
| | 24/03/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 24/03/2020 | Mallard | Intertidal; Feeding | | SD |
| | 24/03/2020 | Gannet | Subtidal; Feeding | | SD |
| | 24/03/2020 | Redshank | Supratidal; Roosting | | SD |
| | 24/03/2020 | Wigeon | Intertidal; Feeding | | SD |
| | 24/03/2020 | Buzzard | Intertidal; Feeding | hunting over reedbed; number 3 on map | SD |
| | 24/03/2020 | Herring Gull | Intertidal; | mobbing BZ | SD |
| | 24/03/2020 | Shelduck | Subtidal; Feeding | | SD |
| | 24/03/2020 | Hooded Crow | Terrestrial; Feeding | | SD |
| | 24/03/2020 | Herring Gull | | in park adjacent to SPA foraging | SD |

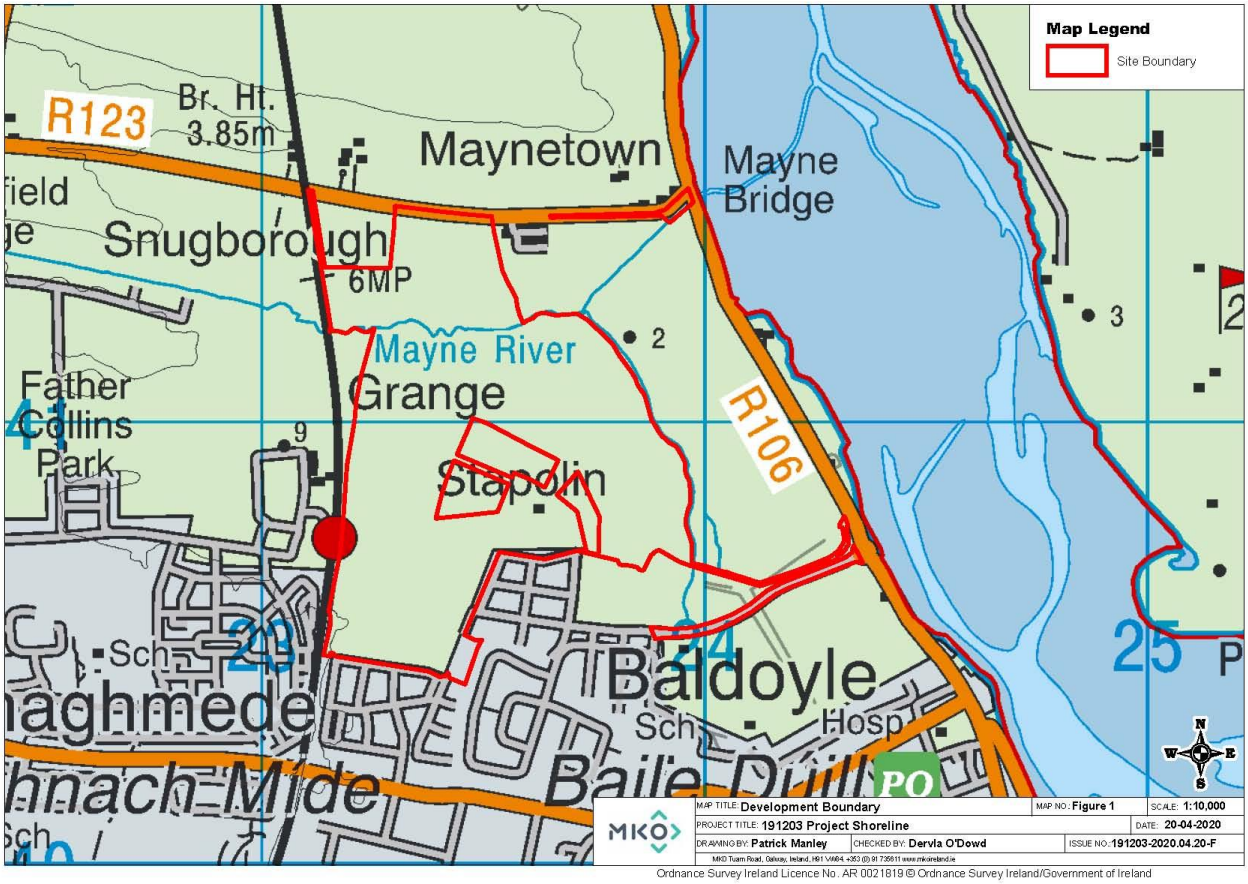




| Map Ref | Date | Species | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|
| | 24/03/2020 | Redshank | Supratidal; Roosting | | SD |
| | 24/03/2020 | Black-headed Gull | | flyover | SD |
| | 24/03/2020 | Teal | Subtidal; Feeding | | SD |
| | 24/03/2020 | Little Egret | Intertidal; Feeding | | SD |
| | 24/03/2020 | Brent Goose | Subtidal; Feeding | | SD |
| | 24/03/2020 | Teal | Subtidal; Feeding | | SD |
| | 24/03/2020 | Herring Gull | | flyover | SD |
| | 24/03/2020 | Herring Gull | Intertidal; Feeding | | SD |
| FL031 | 24/03/2020 | Brent Goose | Subtidal; Feeding | large, loosely dispersed flock | SD |
| | 24/03/2020 | Teal | Subtidal; Feeding | | SD |
| | 24/03/2020 | Herring Gull | Subtidal; Feeding | | SD |
| | 24/03/2020 | Little Egret | Intertidal; Feeding | | SD |

# APPENDIX 2

## FIGURES

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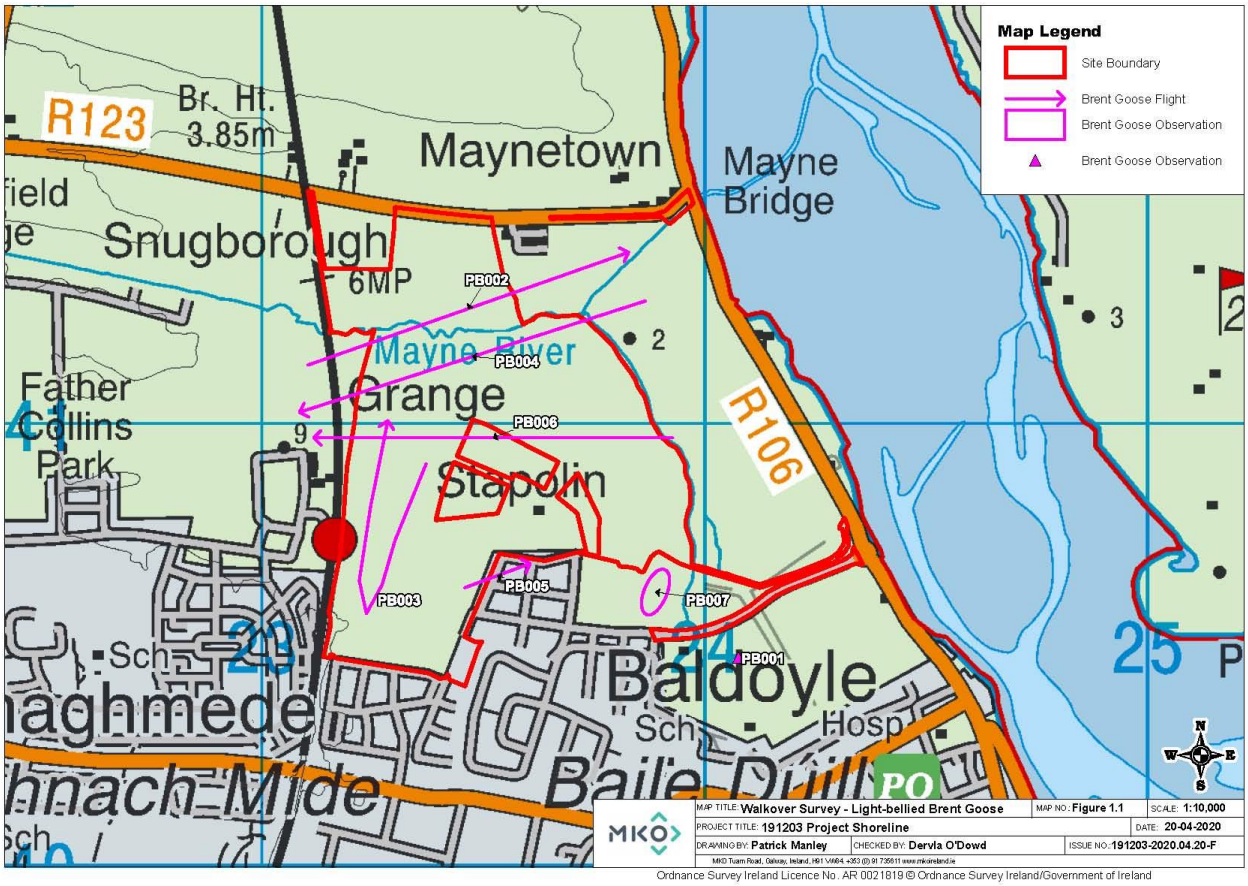


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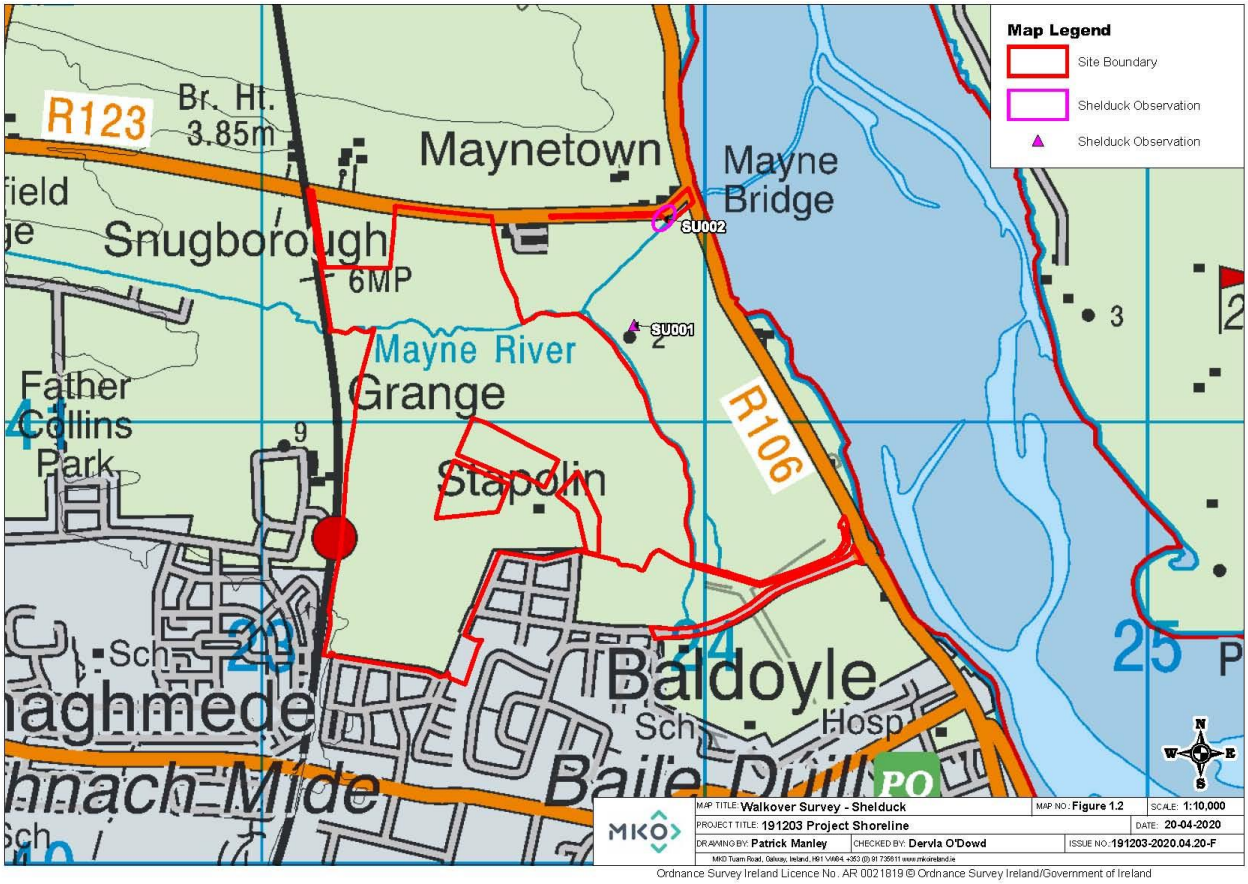


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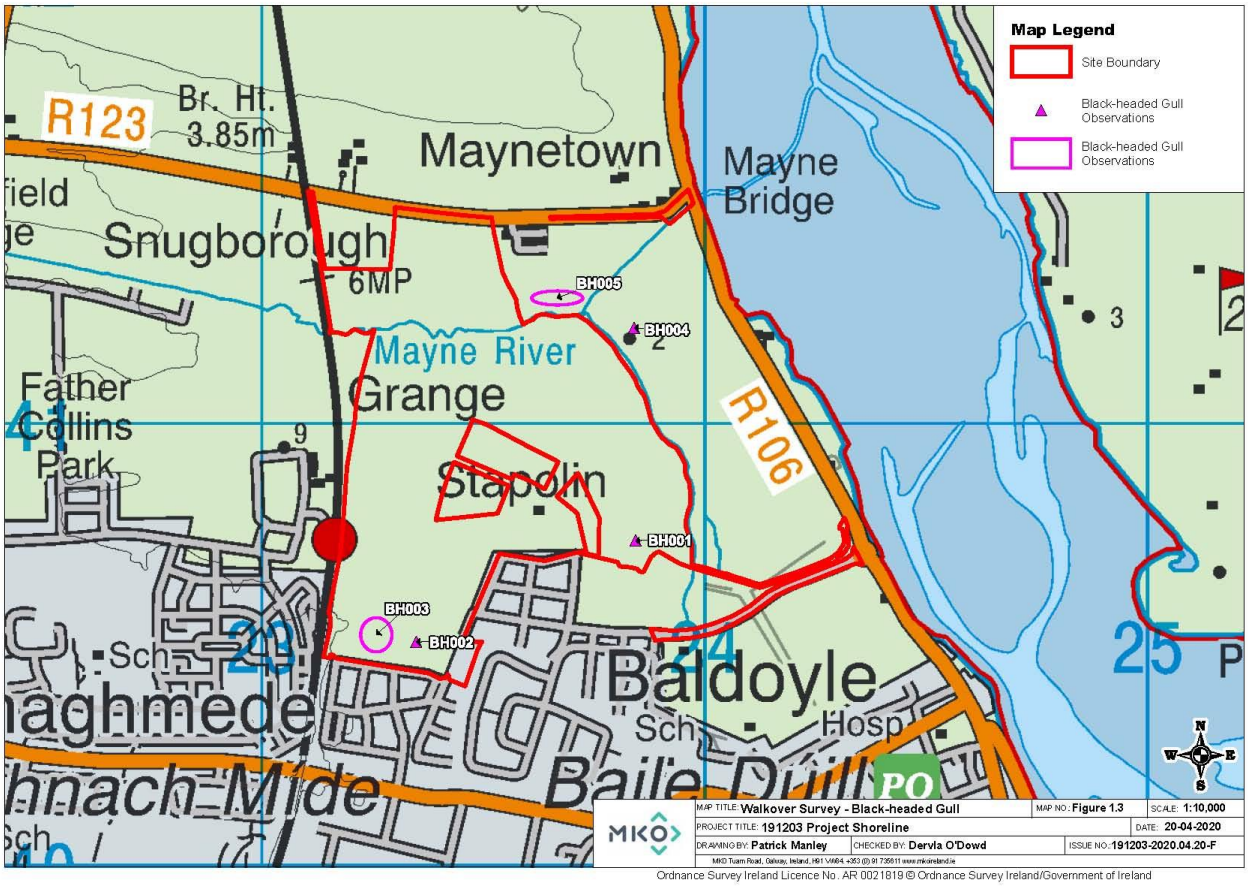


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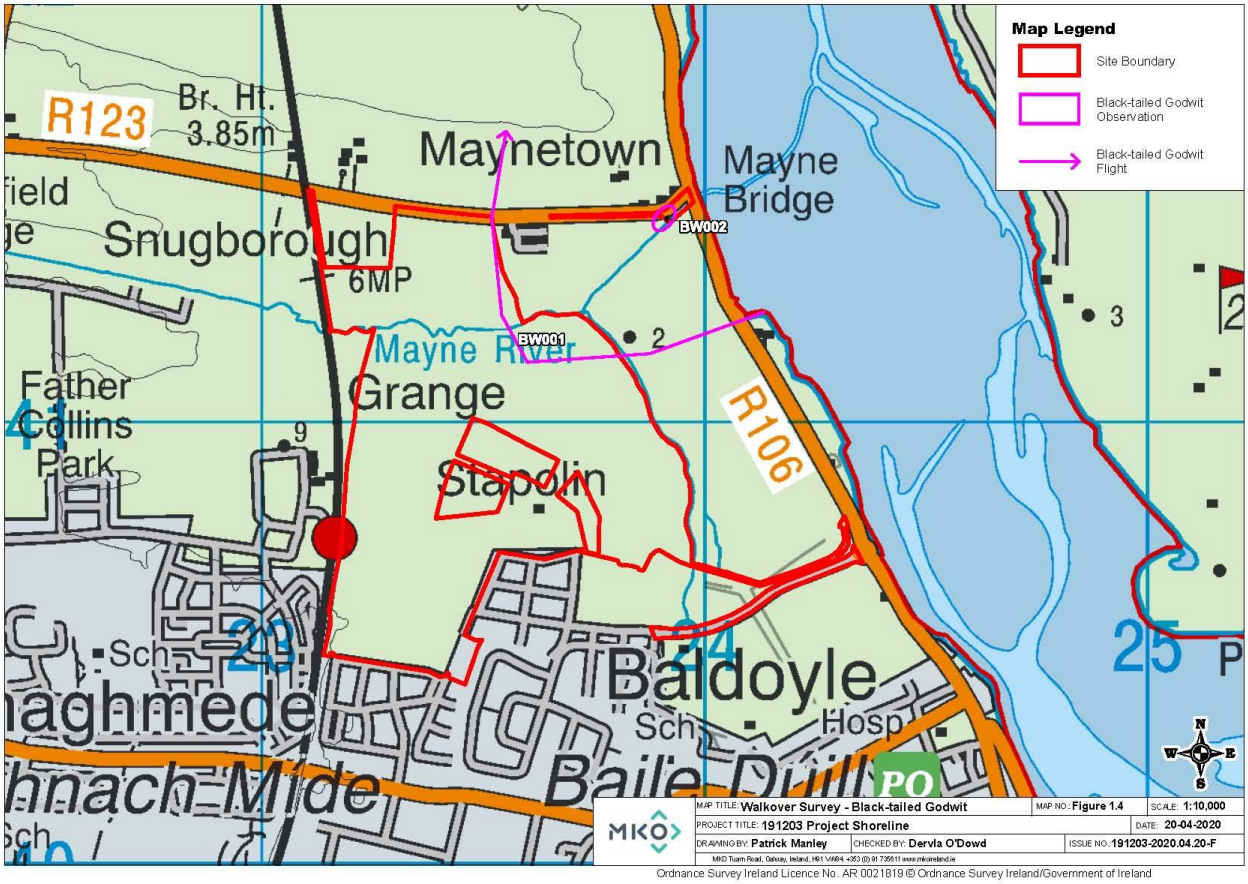


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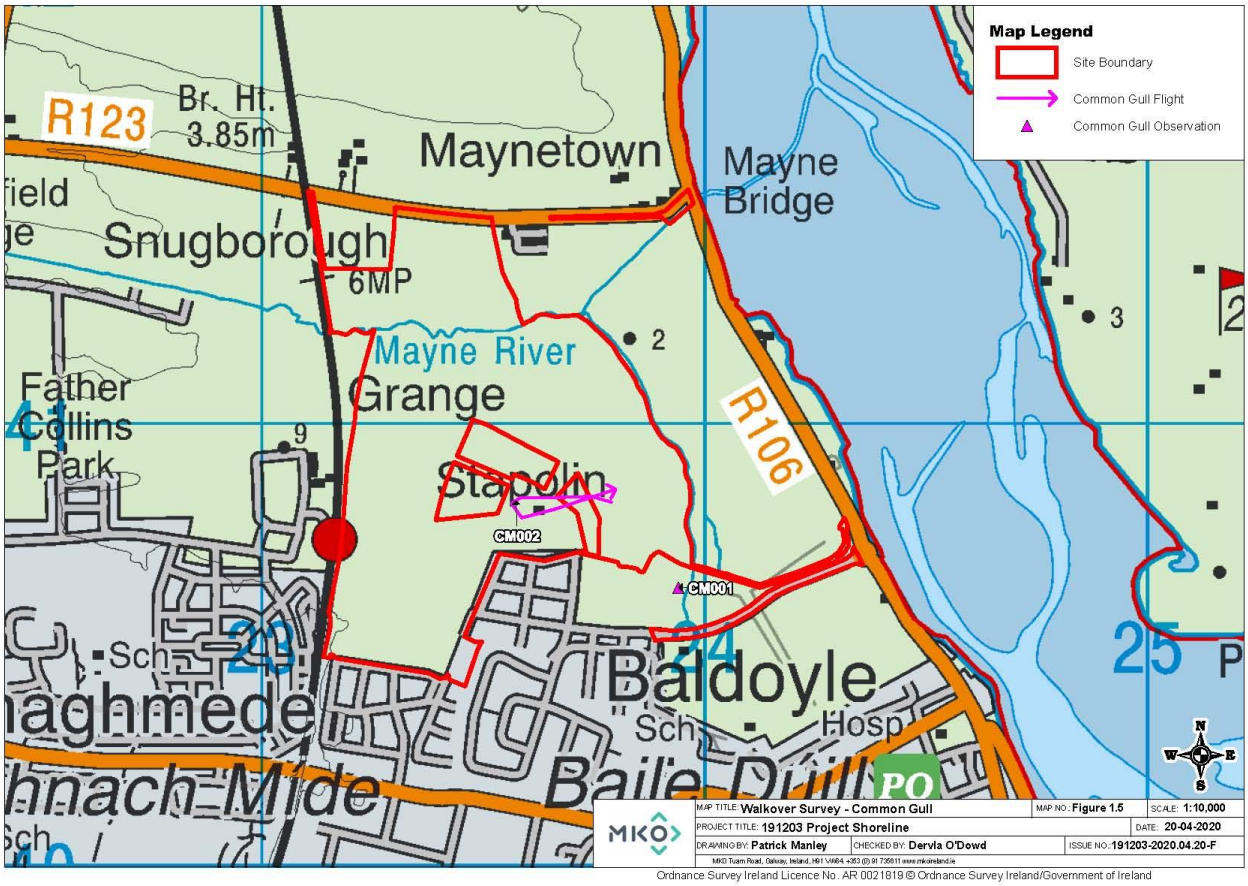


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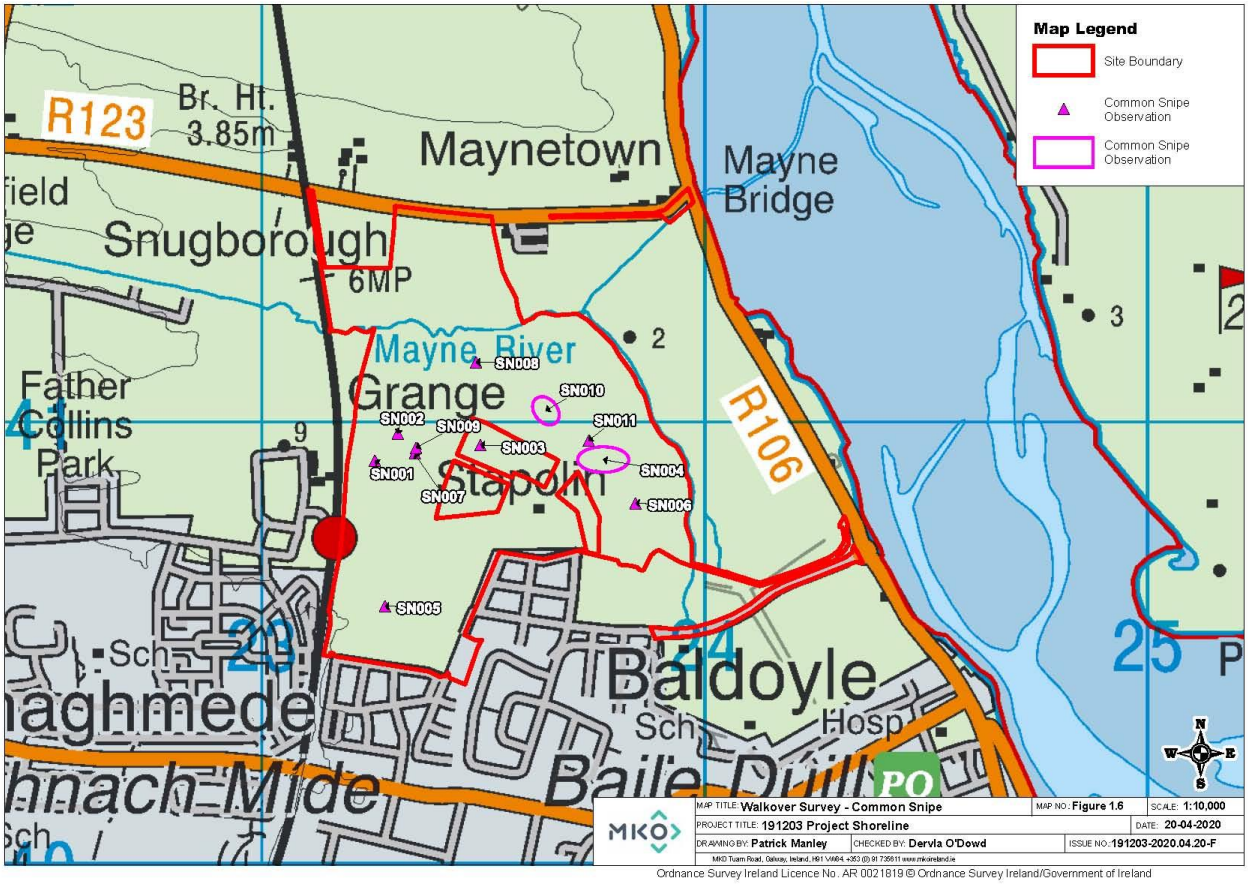




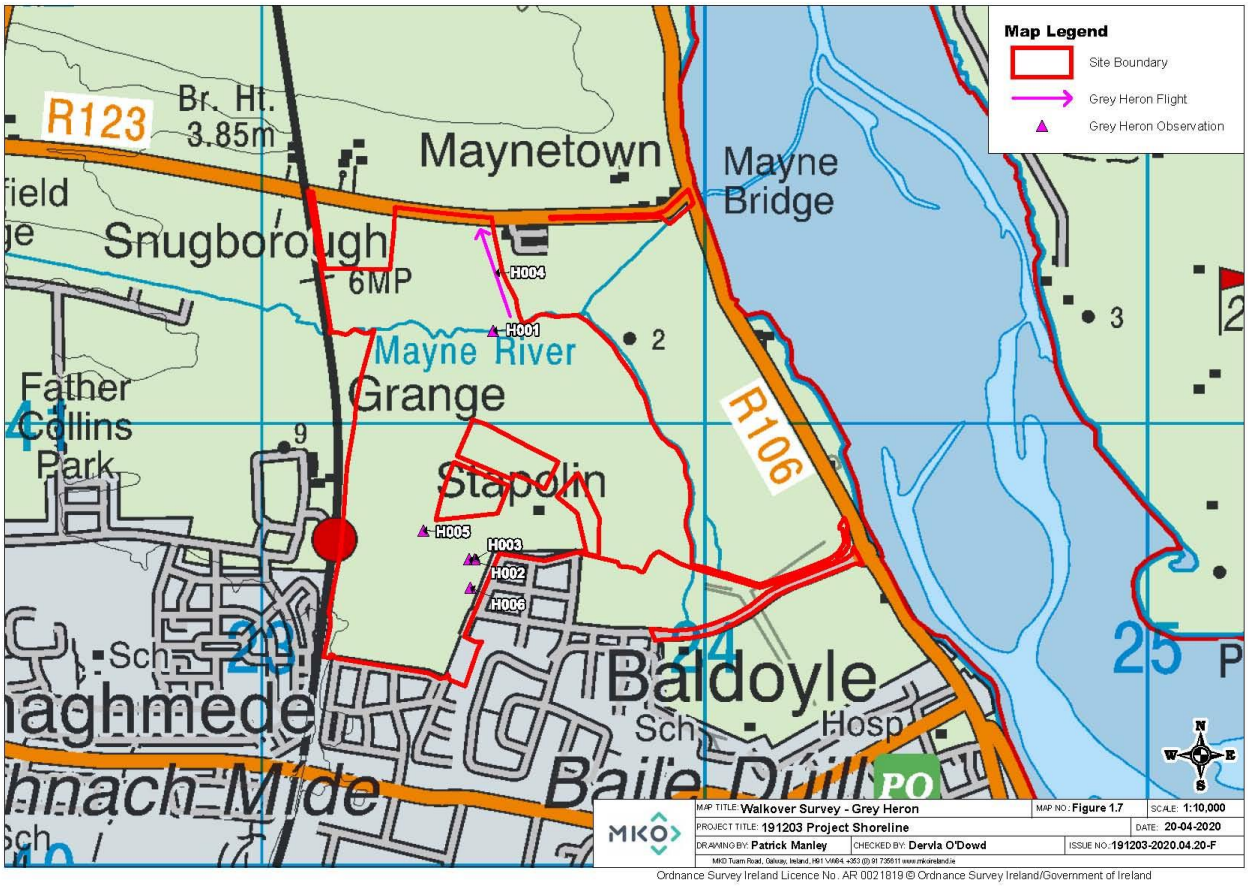

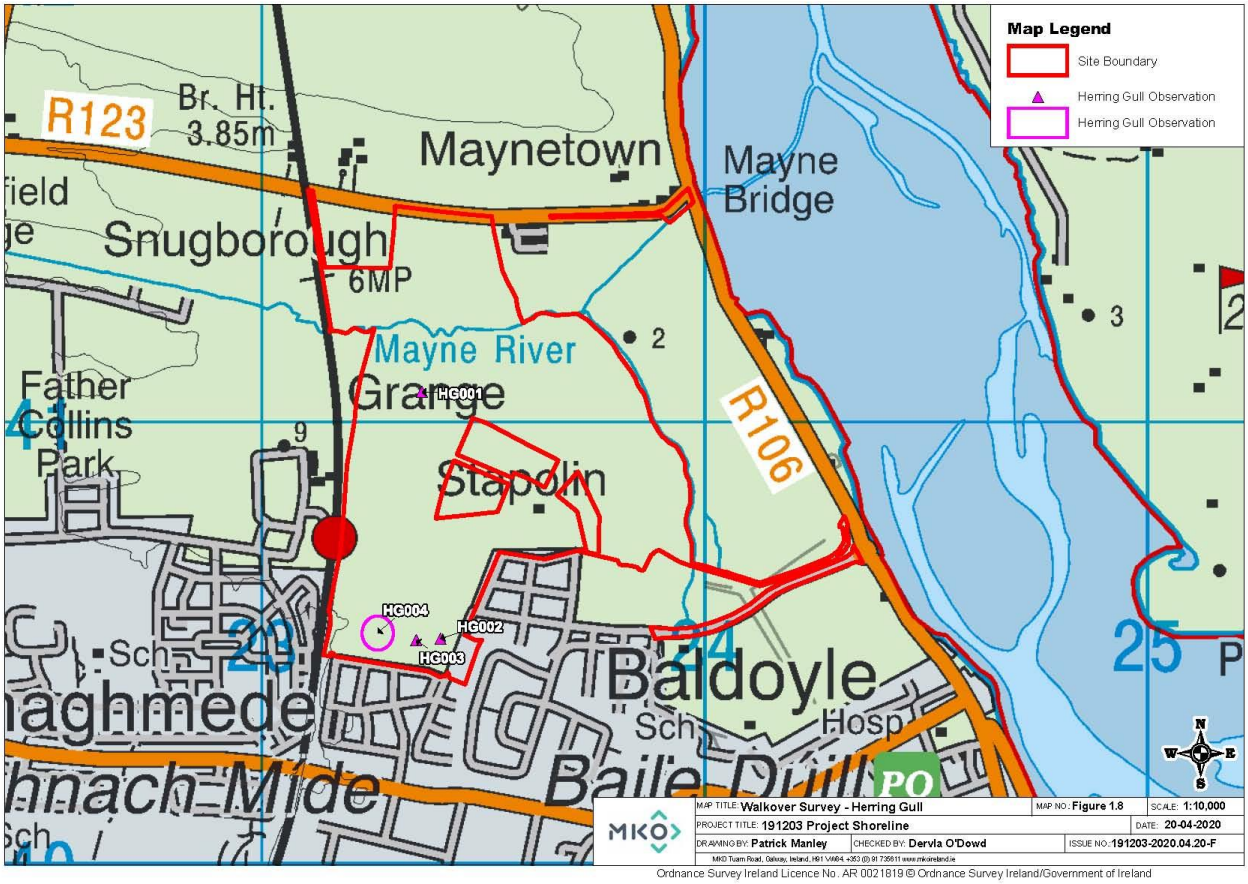


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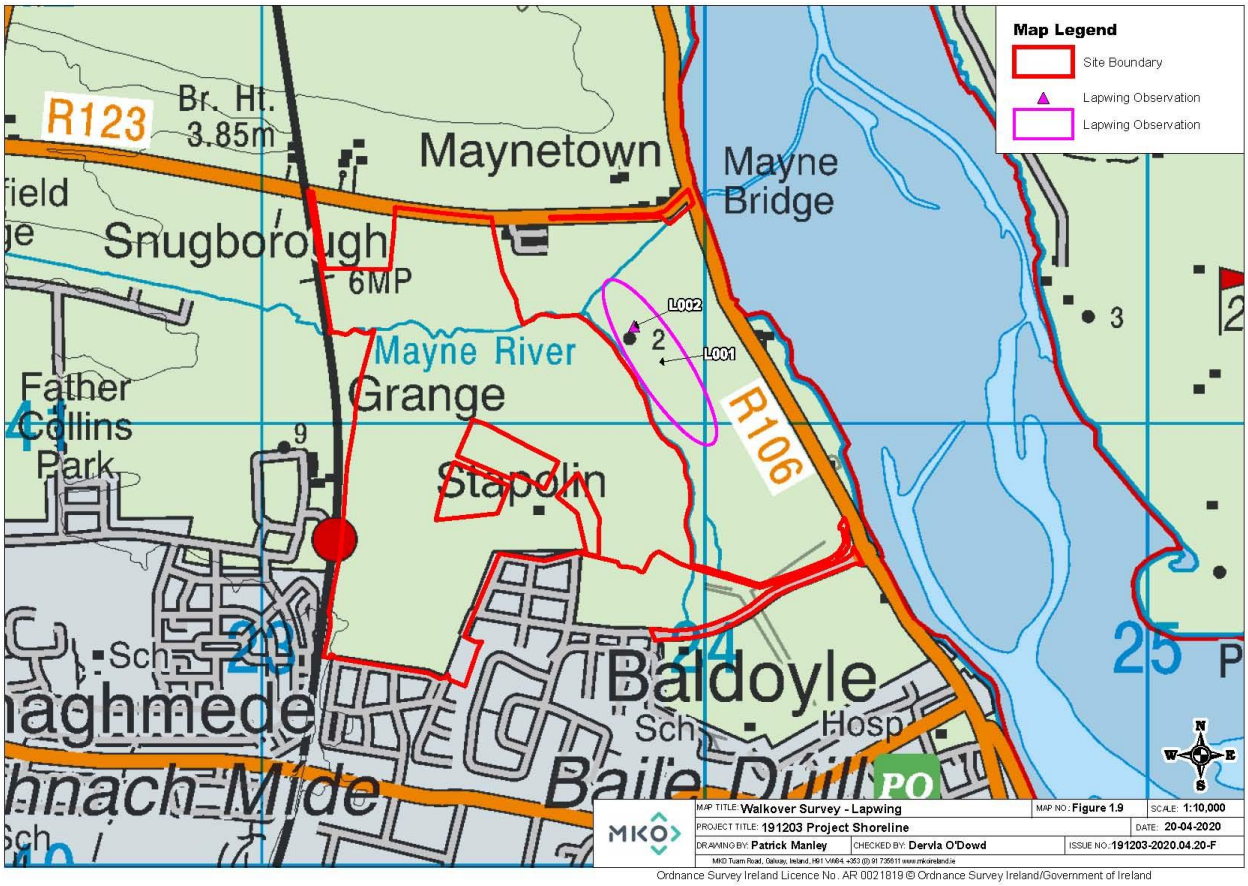


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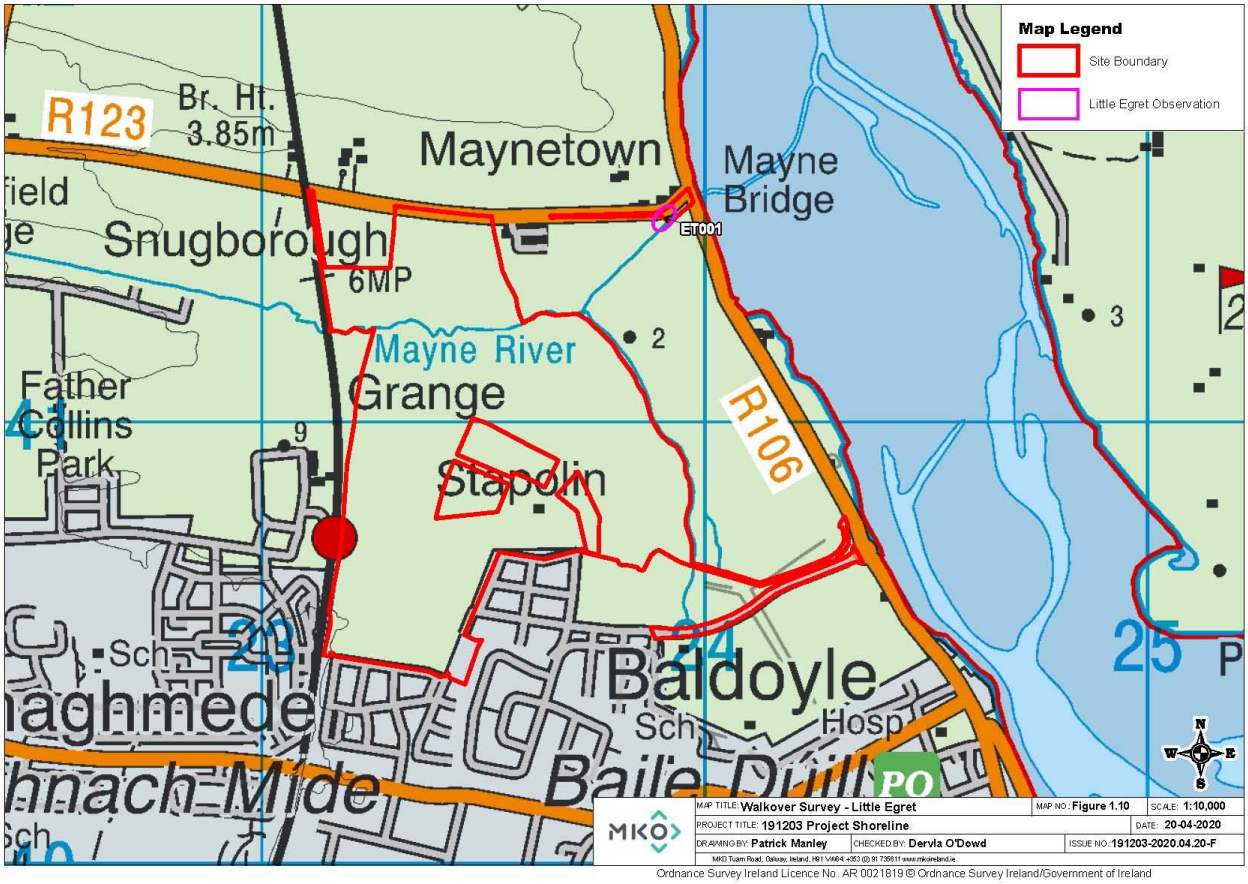

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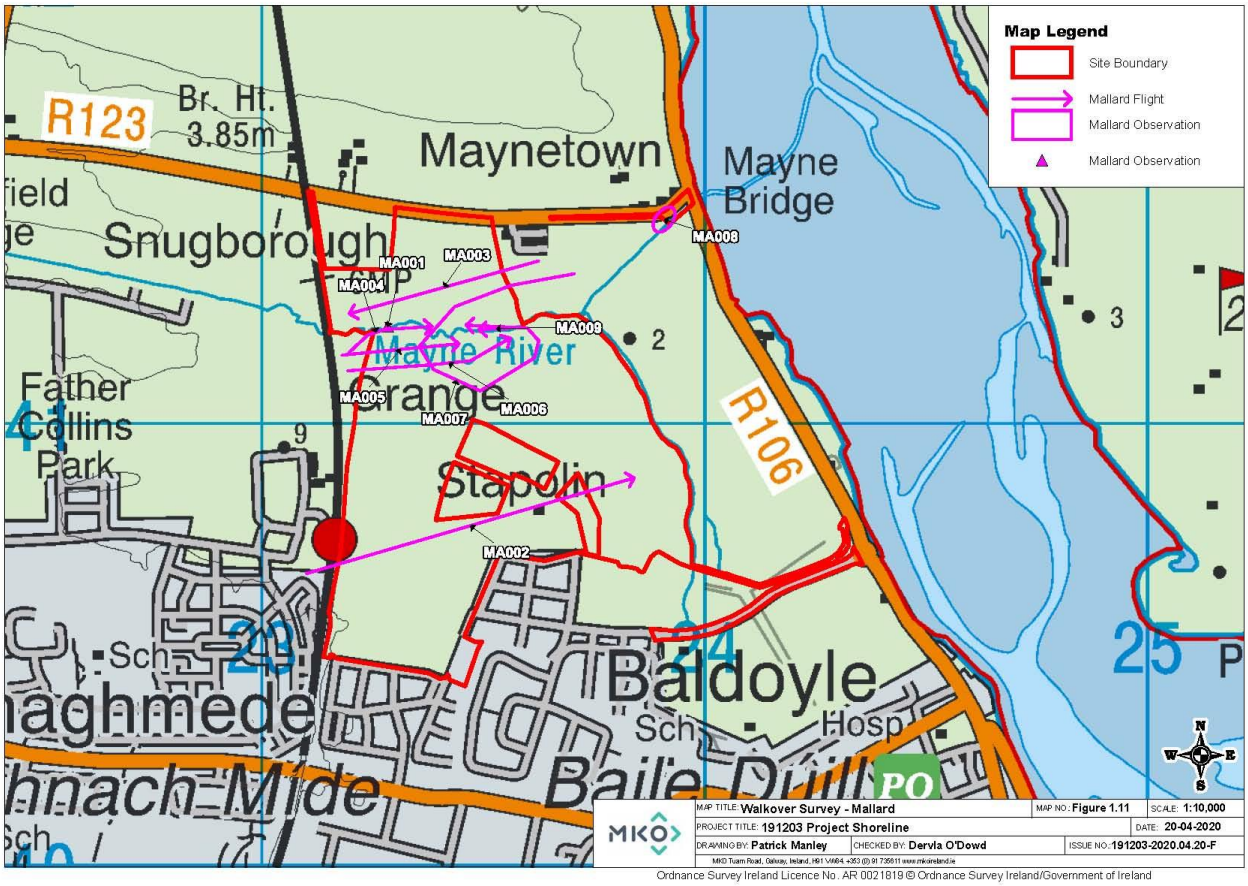

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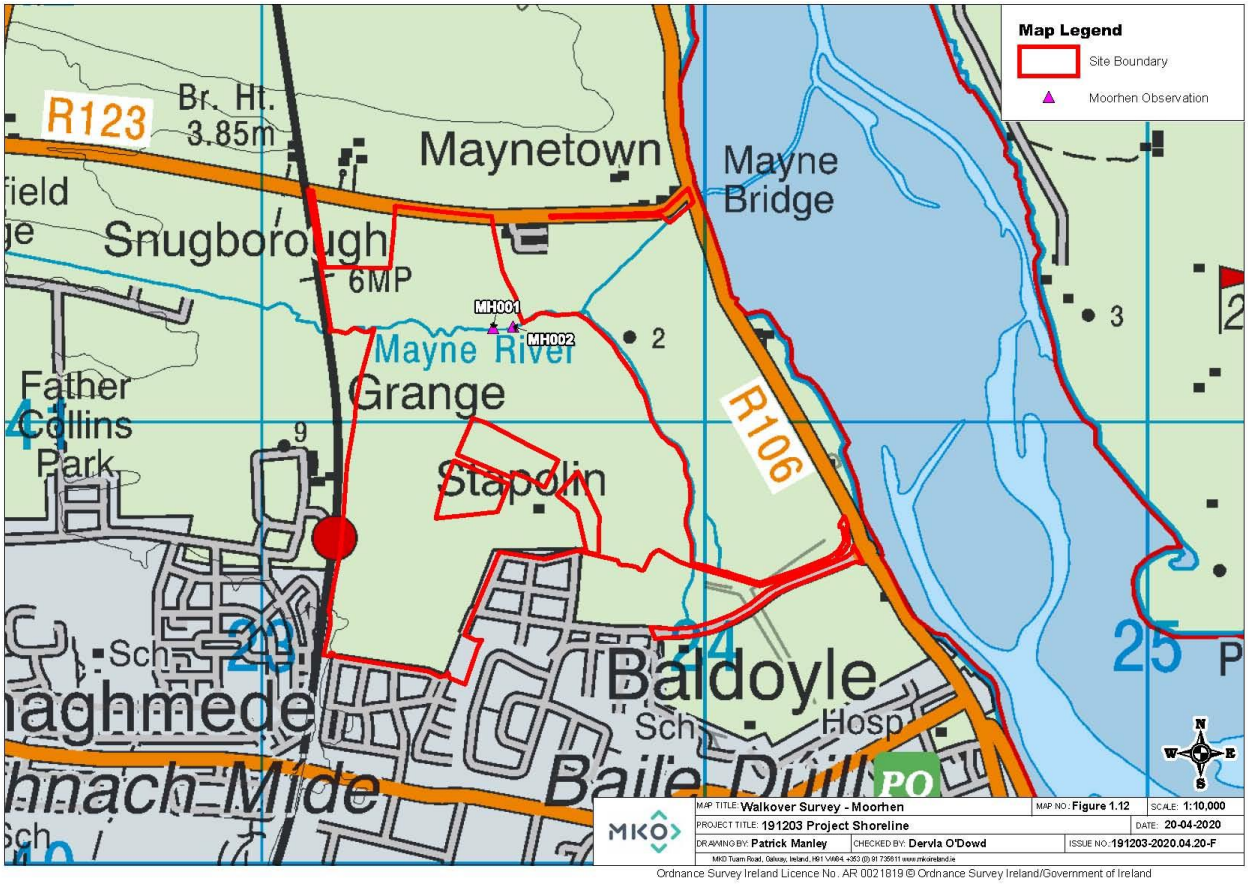


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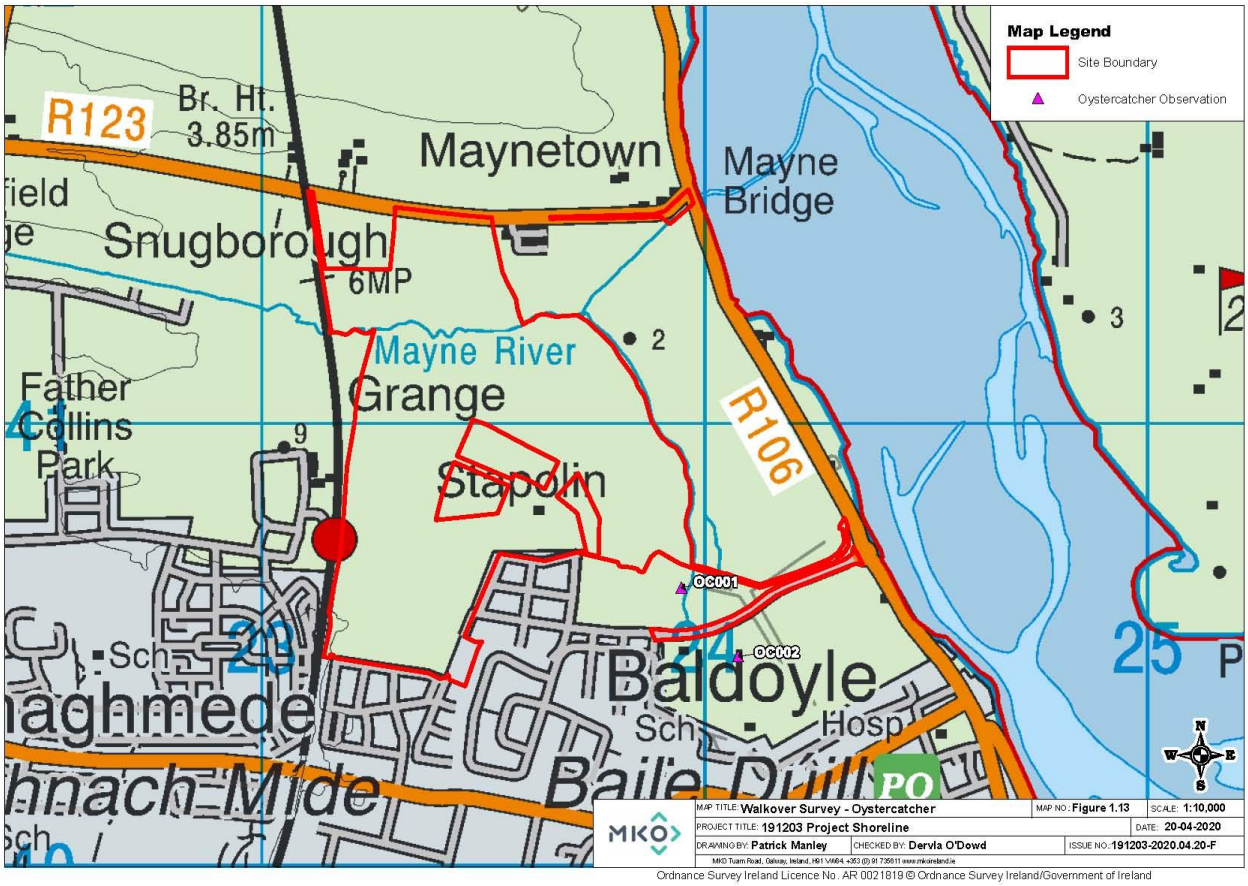


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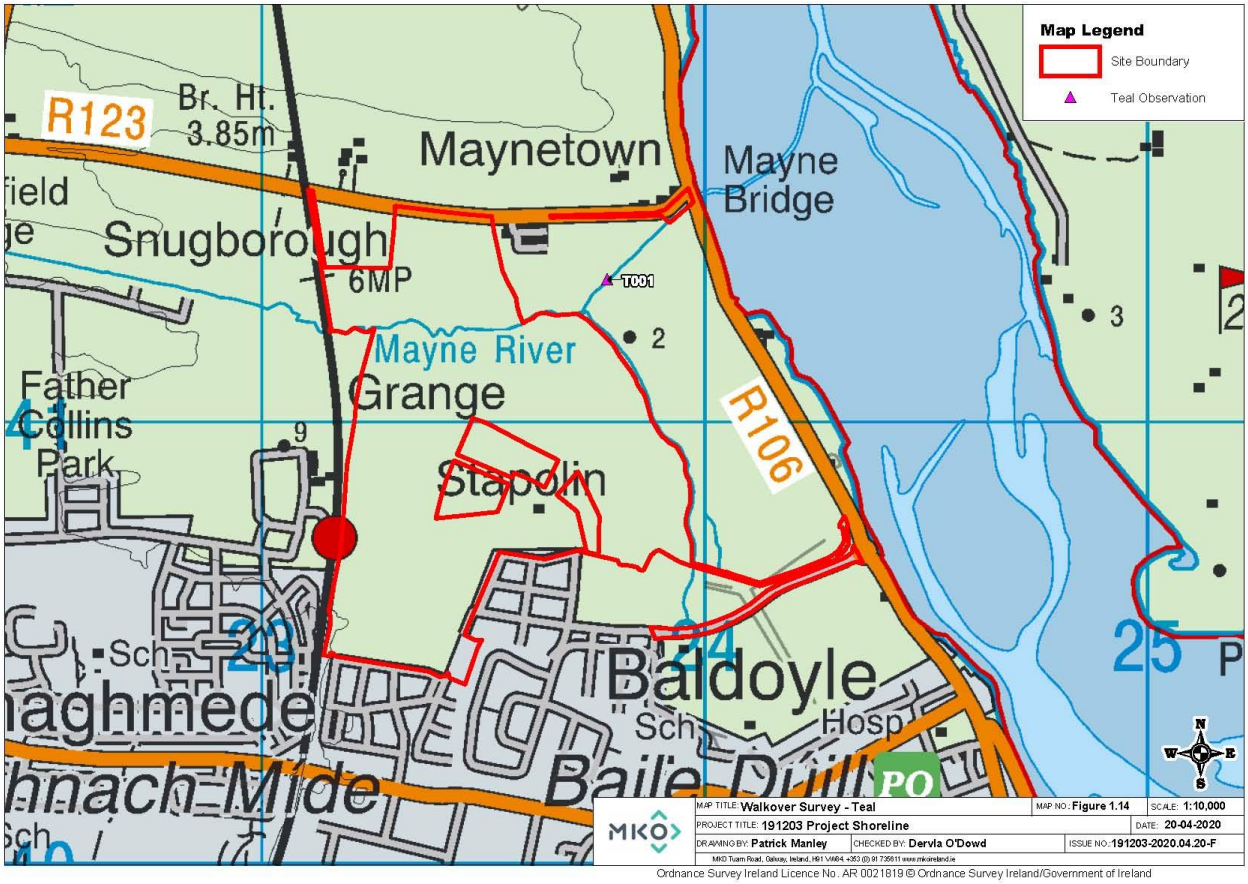


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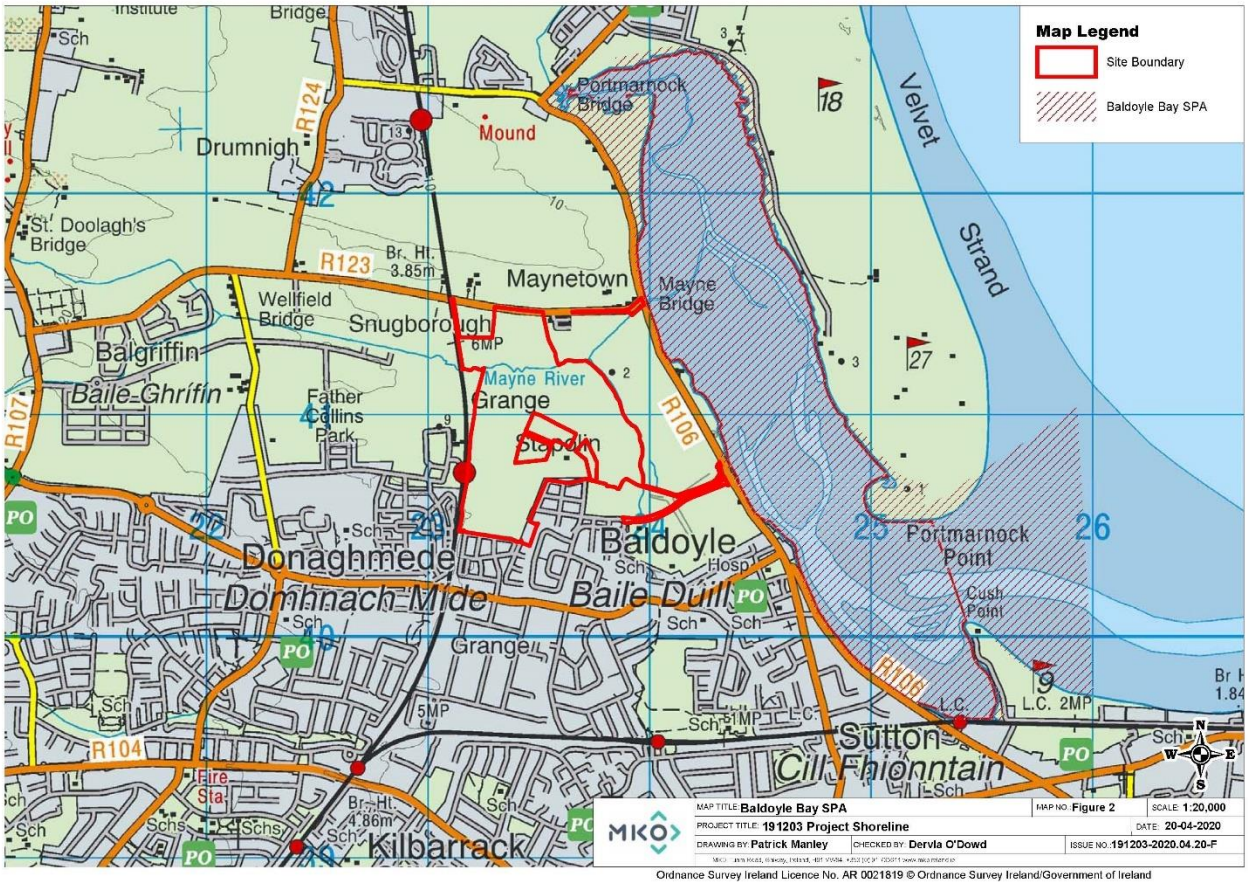


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*Table 1 December 2019 Flock Map*

| Map Ref | Date | Species | Number of birds | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| FL001 | 18/12/2019 | Herring Gull | 96 | Intertidal; Roosting | | PC |
| FL001 | 18/12/2019 | Great Black-backed Gull | 12 | Intertidal; Roosting | | PC |
| FL001 | 18/12/2019 | Oystercatcher | 26 | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Curlew | 2 | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Mallard | 2 | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Teal | 2 | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Redshank | 12 | Intertidal; Feeding | | PC |
| FL001 | 18/12/2019 | Black-headed Gull | 10 | Supratidal; Feeding | | PC |
| FL002 | 18/12/2019 | Mallard | 51 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Oystercatcher | 35 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Herring Gull | 6 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Black-headed Gull | 5 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Bar-tailed Godwit | 4 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Grey Plover | 4 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Shelduck | 36 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Lapwing | 1 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Common Gull | 5 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Curlew | 10 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Redshank | 11 | Intertidal; Feeding | | PC |
| FL002 | 18/12/2019 | Brent Goose | 18 | Intertidal; Feeding | | PC |
| FL003 | 18/12/2019 | Brent Goose | 45 | Terrestrial; Feeding | Foraging in golf course | PC |
| FL004 | 18/12/2019 | Red-breasted Merganser | 10 | Subtidal; Feeding | | PC |
| FL004 | 18/12/2019 | Common Gull | 4 | Intertidal; Feeding | | PC |
| FL004 | 18/12/2019 | Herring Gull | 5 | Intertidal; Feeding | | PC |
| FL004 | 18/12/2019 | Oystercatcher | 10 | Supratidal; Roosting | | PC |
| FL004 | 18/12/2019 | Curlew | 2 | Supratidal; Roosting | | PC |

Project Shoreline Bird Surveys, Baldoyle, North Co. Dublin
191203 – F – Winter Bird Survey Report 2019/2020

| Map Ref | Date | Species | Number of birds | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| FL004 | 18/12/2019 | Long-tailed Duck | 1 | Subtidal; Feeding | | PC |
| FL005 | 18/12/2019 | Redshank | 18 | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Turnstone | 2 | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Herring Gull | 4 | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Grey Heron | 1 | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Curlew | 1 | Intertidal; Feeding | | PC |
| FL005 | 18/12/2019 | Teal | 7 | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Curlew | 1 | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Oystercatcher | 1 | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Dunlin | 4 | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Redshank | 3 | Intertidal; Feeding | | PC |
| FL006 | 18/12/2019 | Bar-tailed Godwit | 8 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Black-headed Gull | 4 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Herring Gull | 9 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Turnstone | 16 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Curlew | 3 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Bar-tailed Godwit | 8 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Redshank | 6 | Intertidal; Feeding | | PC |
| FL007 | 18/12/2019 | Oystercatcher | 21 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Bar-tailed Godwit | 27 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Curlew | 16 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Oystercatcher | 62 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Redshank | 30 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Shelduck | 17 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Turnstone | 4 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Greenshank | 1 | Intertidal; Feeding | | PC |

| Map Ref | Date | Species | Number of birds | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| FL008 | 18/12/2019 | Herring Gull | 16 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Black-headed Gull | 13 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Great Black-backed Gull | 4 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Dunlin | 16 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Brent Goose | 6 | Intertidal; Feeding | | PC |
| FL008 | 18/12/2019 | Golden Plover | 50 | Intertidal; Roosting | | PC |
| FL009 | 18/12/2019 | Teal | 6 | Intertidal; Roosting | | PC |
| FL009 | 18/12/2019 | Wigeon | 79 | Intertidal; Roosting | | PC |
| FL009 | 18/12/2019 | Whooper Swan | 1 | Intertidal; Roosting | | PC |
| FL010 | 23/12/2019 | Lapwing | 7 | Above Water; Roosting | | ED |
| FL010 | 23/12/2019 | Redshank | 1 | Above Water; Roosting | | ED |
| FL011 | 23/12/2019 | Shelduck | 12 | On Water; feeding | | ED |
| FL012 | 23/12/2019 | Wigeon | 1 | On Water; feeding | | ED |
| FL012 | 23/12/2019 | Shelduck | 14 | On Water; Feeding | | ED |
| FL012 | 23/12/2019 | Teal | 11 | On Water; Feeding | | ED |
| FL012 | 23/12/2019 | Wigeon | 16 | On Water; Feeding | | ED |
| FL012 | 23/12/2019 | Great Black-backed Gull | 2 | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Black-headed Gull | 6 | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Common Gull | 1 | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Redshank | 2 | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Little Egret | 1 | Above Water; Feeding | | ED |
| FL012 | 23/12/2019 | Red-breasted Merganser | 1 | Above Water; Roosting | | ED |
| FL012 | 23/12/2019 | Grey Heron | 1 | Above Water; Feeding | | ED |

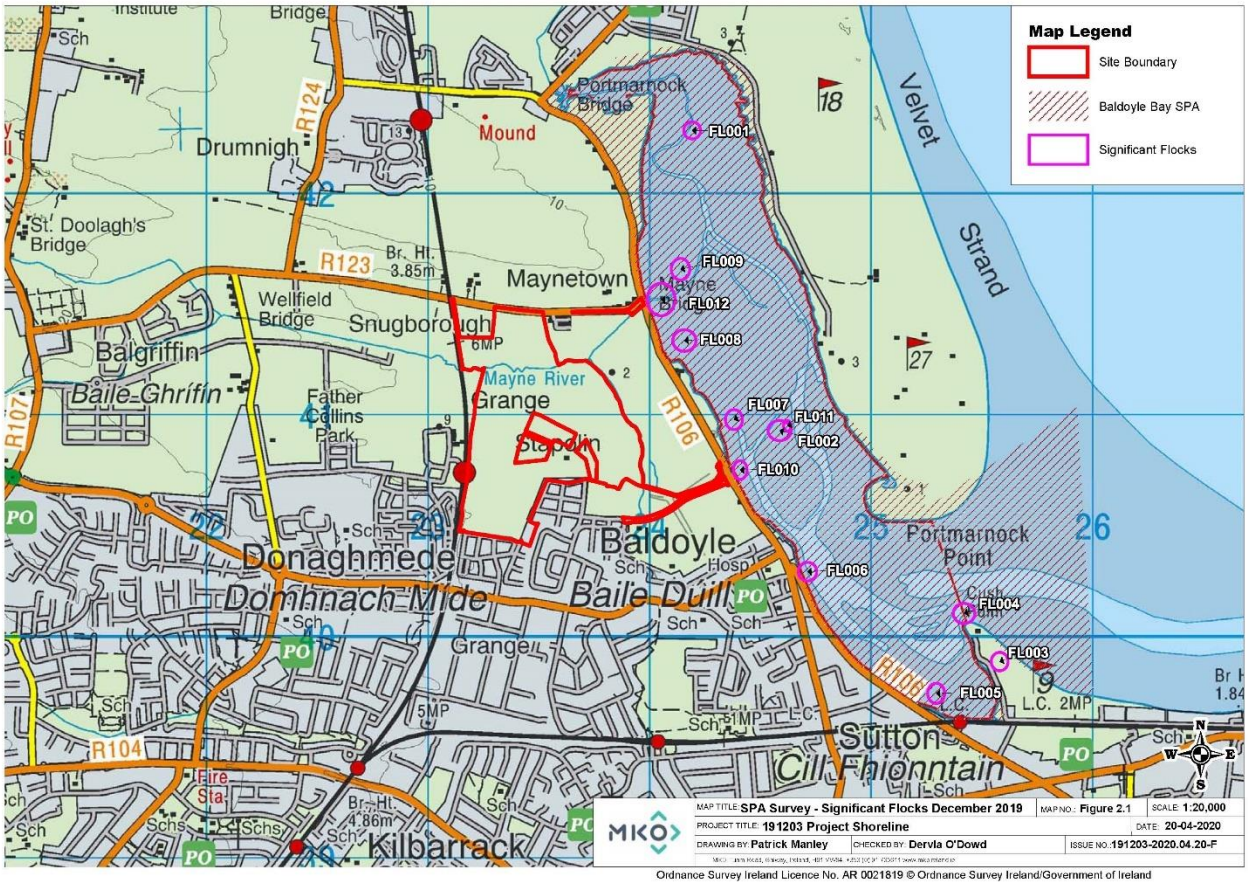

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*Table 2 January 2020 Flock Map*

| Map Ref | Date | Species | Number of birds | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| FL013 | 15/01/2020 | Curlew | 36 | Intertidal; Roosting | | SD |
| FL013 | 15/01/2020 | Oystercatcher | 77 | Intertidal; Feeding | | SD |
| FL014 | 15/01/2020 | Lapwing | 38 | Supratidal; Roosting | | SD |
| FL015 | 15/01/2020 | Black-headed Gull | 5 | Intertidal; Feeding | 30+ foraging in park adjacent to SPA | SD |
| FL015 | 15/01/2020 | Brent Goose | 4 | Subtidal; Feeding | 60+ foraging in park adjacent to SPA | SD |
| FL016 | 15/01/2020 | Black-headed Gull | 29 | Subtidal; Roosting | | SD |
| FL017 | 28/01/2020 | Oystercatcher | 138 | Intertidal; Roosting | | SD |
| FL018 | 28/01/2020 | Oystercatcher | 32 | Intertidal; Feeding | | SD |
| FL018 | 28/01/2020 | Oystercatcher | 45 | Intertidal; Roosting | | SD |
| FL019 | 28/01/2020 | Brent Goose | 50 | Subtidal; Feeding | | SD |
| FL019 | 28/01/2020 | Brent Goose | 303 | Intertidal; Feeding | | SD |
| FL020 | 28/01/2020 | Knot | 160 | Intertidal; Feeding | | SD |

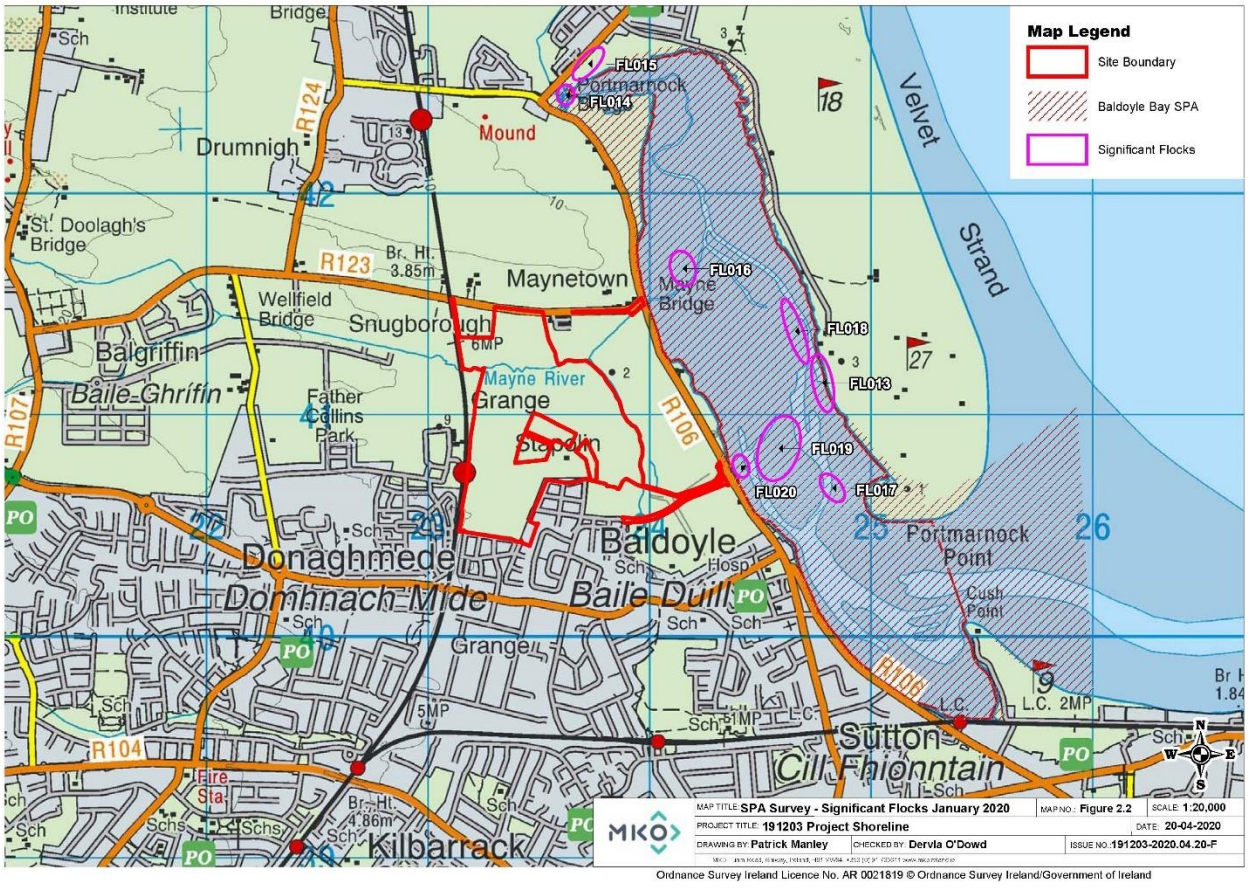


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*Table 3 February 2020 Flock Map*

| Map Ref | Date | Species | Number of birds | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| FL021 | 10/02/2020 | Brent Goose | 119 | Intertidal; Feeding | | SD |
| FL022 | 10/02/2020 | Redshank | 111 | Supratidal; Roosting | | SD |
| FL023 | 24/02/2020 | Brent Goose | 40 | Terrestrial; Feeding | | SD |
| FL024 | 24/02/2020 | Redshank | 48 | Supratidal; Roosting | | SD |

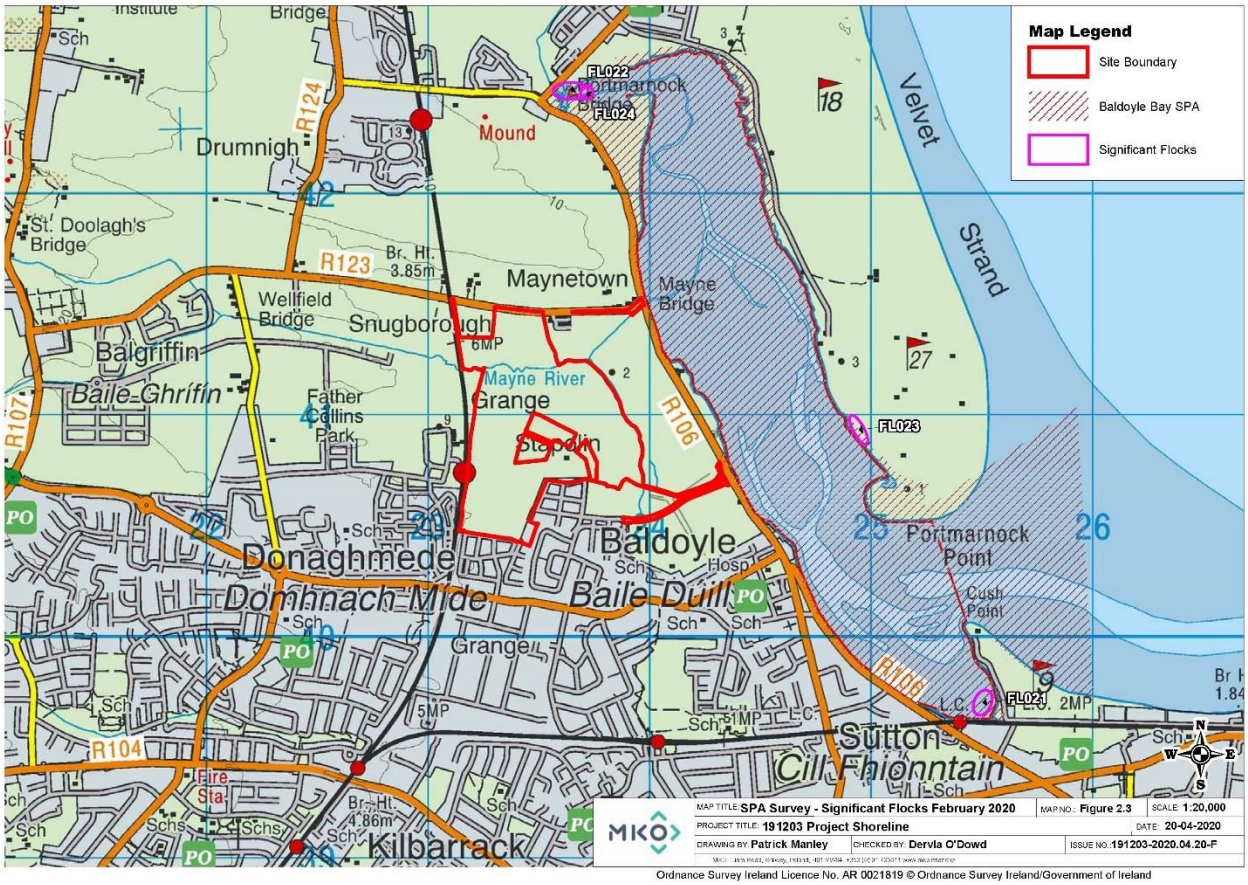

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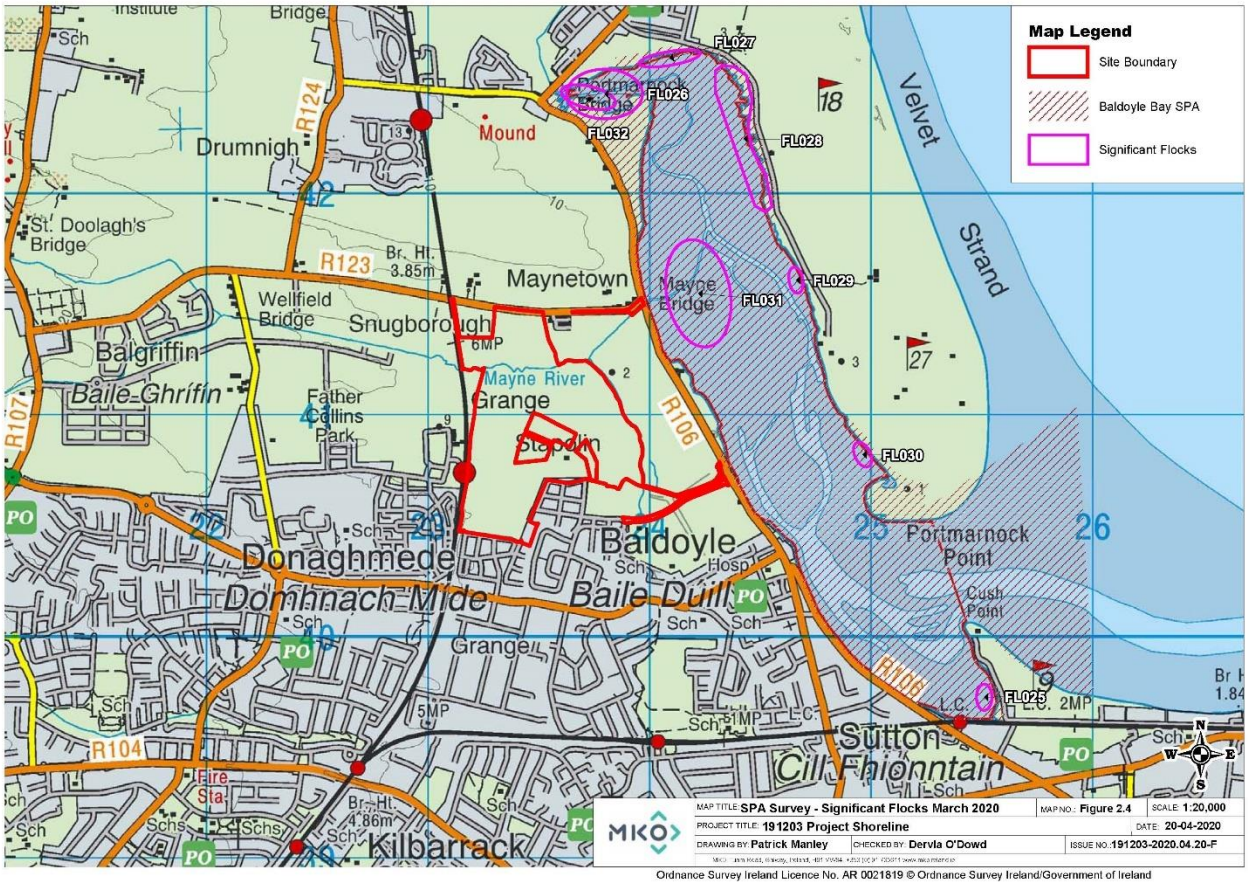
*Table 4 March 2020 Flock Map*

| Map Ref | Date | Species | Number of birds | Notes on Habitat and Activity | Comments | Surveyor |
|---|---|---|---|---|---|---|
| FL025 | 11/03/2020 | Brent Goose | 62 | Intertidal; Feeding | | SD |
| FL026 | 11/03/2020 | Brent Goose | 110 | Intertidal; Feeding | | SD |
| FL026 | 11/03/2020 | Redshank | 73 | Supratidal; Roosting | | SD |
| FL027 | 11/03/2020 | Brent Goose | 114 | Subtidal; Roosting | | SD |
| FL028 | 11/03/2020 | Brent Goose | 470 | Intertidal; Feeding | | SD |
| FL029 | 11/03/2020 | Brent Goose | 101 | Intertidal; Feeding | | SD |
| FL030 | 24/03/2020 | Oystercatcher | 250 | Supratidal; Roosting | | SD |
| FL032 | 24/03/2020 | Black-tailed Godwit | 82 | Supratidal; Roosting | | SD |
| FL031 | 24/03/2020 | Brent Goose | 382 | Subtidal; Feeding | large, loosely dispersed flock | SD |

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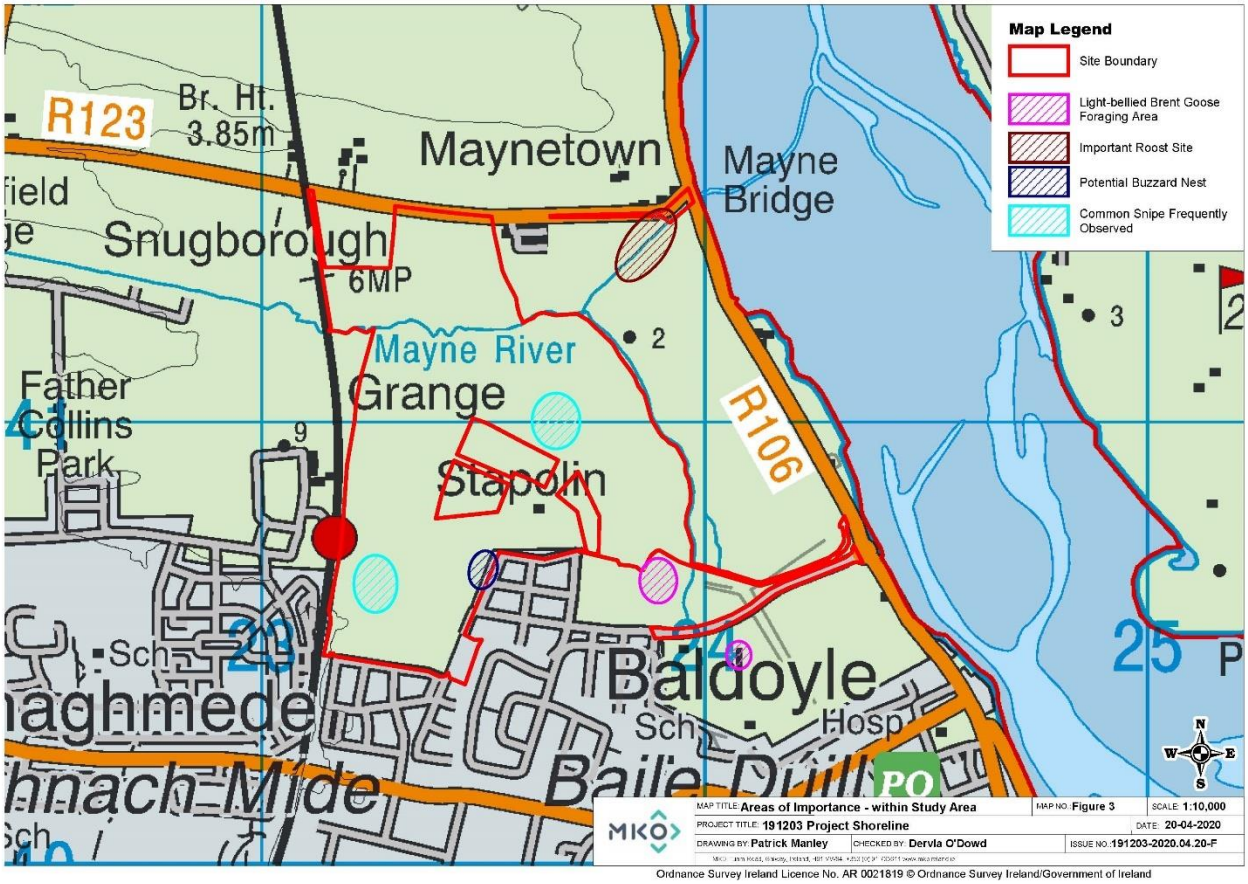


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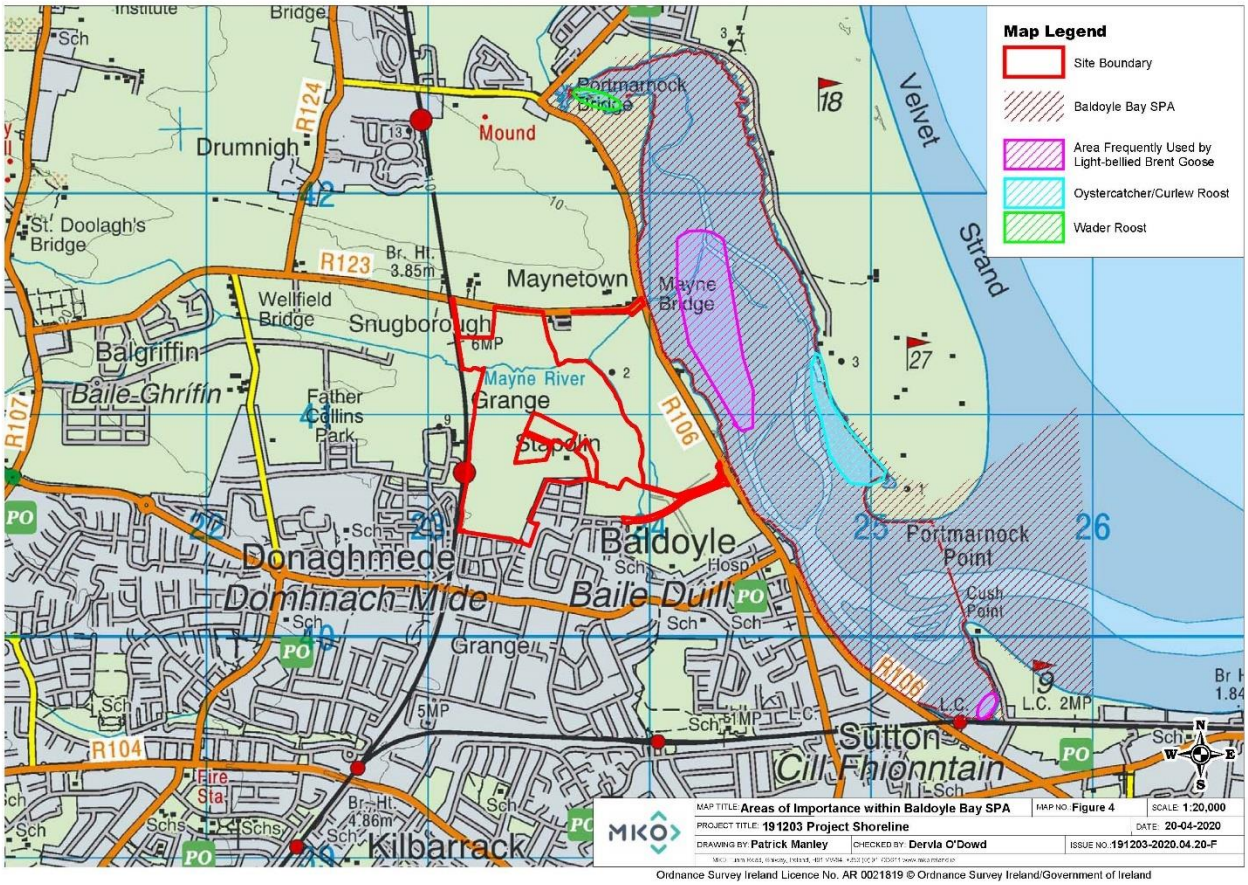


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# APPENDIX 3

## CURRICULUM VITAE

Planning and Environmental Consultants

# CURRICULUM VITAE

Padraig Cregg

Padraig Cregg is a Senior Ornithologist with MKO with over 8 years of experience in both private practice and NGOs. Padraig holds a BSc (Hons) in Zoology and Masters in Evolutionary and Behavioural Ecology. Prior to taking up his position with MKO in December 2018, Padraig worked as a Senior Ornithologist and held previous posts with TOBIN Consulting Engineers, Energised Environments Ltd in Scotland, WSP Environment and Energy Ltd in Scotland and BirdWatch Ireland. Padraig has specialist knowledge in designing, executing and project managing ornithological assessments, primarily in the renewable industry. Padraig's key strengths and areas of expertise are in ornithology and ecology surveying and in writing Natura Impact Statements (NIS) and the Biodiversity chapter of Environmental Impact Assessment Reports (EIAR) to accompany planning applications. Since joining MKO Padraig has been involved in designing, executing and project managing the ornithological assessment on over 20 proposed wind farm developments. He has played a key role in project managing these planning applications through the statutory planning system, with more projects in the pipeline. Within MKO Padraig plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIAR and NIS Reports. Padraig has project managed a range of infrastructure projects, with an emphasis on wind and solar energy projects across the Ireland and the UK.

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|---|---|
| **Current Role** | Senior Ornithologist |
| **Qualifications** | › M.Sc Evolutionary and Behavioural Ecology (University of Exeter, 2008).<br>› B.Sc Zoology (National University of Ireland, Galway, 2007). |
| **Years of Experience** | › Padraig has over seven years' experience working in both the UK and Ireland primarily in the renewable industry. Padraig has a strong technical background in ornithology and ecology surveying and in writing Natura Impact Statements (NIS) and sections of Environmental Impact Assessment Reports (EIAR) to accompany planning applications. |
| **Relevant Experience** | › Wind Farm Projects.<br>Padraig has worked on over 40 wind farm projects in both Ireland and the UK. From his time working in the UK, Padraig provides expert experience in interpreting and implementing Scottish ornithological guidance documents (SNH, 2017) for the surveying of wind farms in an Irish context. Padraig's key responsibilities included: managing the in-house team and sub-consultants, directly liaising with the client and landowner, consulting with the Planning Departments and the Development Applications Unit (DAU), writing sections of and reviewing the Environmental Impact Assessment Reports and Appropriate Assessment (AA) Screening and Natura Impact Statements (NIS) Reports (as appropriate), reviewing GIS mapping and Planning Application drawings.<br>› Solar Farm Projects.<br>Padraig has acted as Senior Ecologist and Project Manager for several Solar Farm Planning Applications. Key responsibilities include liaising directly with client, attending preplanning meetings with local county council, consulting with Development Application Unit (DAU), designing surveys, writing sections of the Planning and Environmental Considerations Reports and Appropriate Assessment (AA) Screening Report and Natura Impact Statement, as appropriate.<br>› Water Supply Project Eastern and Midlands Region (Irish Water).<br>Padraig acted as the Senior Ornithologist for the Water Supply Project. He was responsible for the review and design of breeding and wintering bird surveys for this project: October 2016 to October 2018. He has undertaken consultation with Development Application Unit |

| | |
|---|---|
| | (DAU) and wrote sections of the Environmental Impact Assessment Report and Natura Impact Statement.<br>› Mining Projects.<br>Padraig was the Natura Impact Statement Expert Witness at Boliden Tara Mines Oral Hearing for a tailings extension and integrated constructed wetland for which Planning Permission was partially granted.<br>› Road Projects.<br>Padraig has acted as Senior Ecology on several roads projects in both Ireland and the UK. Project work included the design and execution of various ecological surveys, e.g. badger and bat surveys. The resultant outputs from this work include environment impact assessments and appropriate assessment reports. |
| Key Strengths & Areas of Expertise | › Padraig has a strong technical background in ornithology and ecology surveying and in writing Natura Impact Statements (NIS) and the Biodiversity chapter of Environmental Impact Assessment Reports (EIAR) to accompany planning applications. |
| Practical Skills & Aptitudes | **Field Skills:**<br>› Padraig's ornithological experience has involved carrying out a diverse catalogue of bird surveys throughout Ireland including multi-year studies (breeding, migratory and winter) for various environmental projects. In Scotland he spent two and a half years implementing bird surveys using Scottish Natural Heritage guidance documents to complete his survey work to best scientific practice. Many of his studies involved designing surveys to capture the seasonal change in avian communities at a site. Examples of this include; Breeding Raptor Surveys (following SNH & Hardey methods for species including Hen Harrier, Merlin, Peregrine, Barn Owl, White-tailed Eagle & Golden Eagle), Breeding Wader Surveys (following SNH, Brown & Shepherd and O'Brien & Smith for species including Golden Plover, Curlew, Lapwing, Dunlin & Snipe), Breeding Woodcock (following Gilbert methods), Migratory/Wintering Waterfowl (Following SNH and I-WeBS methods for species including (but not limited to) Whooper Swan, Greenland White-fronted Goose and wintering waders), Red Grouse Tape Lure Survey (following NPWS & BWI methods) Breeding diver species (following SNH & Gilbert methods) Woodland and Coastal species (following SNH and Gilbert methods).<br>› Padraig also has experience of habitat surveying: Phase 1 habitat survey. Padraig has ecological assessment experience in undertaking mammal surveys (common & protected) including bat species, badger, otter and reptiles. Habitats present are also assessed in terms of their potential to support Irish mammals. |
| Management/ Supervision | › Project manager and lead ecologist on large scale ecological projects.<br>› Accustomed to working effectively as part of larger multidisciplinary project design teams.<br>› Supervision of a team of ten internal ornithologist and the management of sub-consultants to coordinate the bird survey programme at MKO.<br>› Within MKO Padraig plays a key role in mentoring junior members of staff. |
| Interpersonal & Communication Skills | › Extensive experience in successful consulting with statutory ecological consultees including NPWS, Birdwatch Ireland and Inland Fisheries Ireland usually regarding sensitive ecological sites. |

| | |
|---|---|
| | › Significant experience coordinating approach to sensitive ecological sites between client and ecological consultees and on-site contractors, etc.<br>› Development of technical working methodologies on behalf of contractors requiring understanding of both proposed works and sensitivities of site. |
| Licenses Held | › Padraig has been a licence holder for the surveying of protected avian species on both the Red List of Bird of Conservation Concern in Ireland and Annex 1 of the EU Birds Directive, e.g. Red Grouse tape lure licence. |
| Physical / Other | › Full Clean Driving Licence<br>› Current Safe Pass Holder |

# CURRICULUM VITAE


Patrick Manley

Patrick Manley is an Ornithologist with MKO with extensive practical experience in field research. Patrick holds a BSc (Hons) in Geology. Prior to taking up his position with MKO in September 2016, Patrick worked as part of the conservation team in BirdWatch Ireland, on projects such as the Dublin bay birds project, Kilcoole Little Tern conservation project and the results based agri-environmental scheme for breeding waders. Patrick's key strengths and areas of expertise are in bird ecology & identification, GIS, project planning and fieldwork skills. Since joining MKO Patrick has been involved as an Ornithologist on several wind and solar energy developments, utilising a broad range of bird survey methodologies including breeding raptor, adapted brown & shepherd and waterfowl distribution. Patrick was also part of a team of bird usage surveyors working on the Shannon/Fergus Estuary. Within MKO Patrick plays an important role as part of the Ornithology team, working independently and planning field surveys in accordance with required standards. Patrick has managed the ornithological surveying at wind energy developments, engaging with sub-contractors and management.

| | |
|---|---|
| Current Role | Ornithologist |
| Qualifications | › BSc Geology, University College Dublin (2013). |
| Years of Experience | › 5 years post graduate experience in wildlife conservation and monitoring. |
| Relevant Experience | **Relevant Work Experience**<br>› Field ornithologist as part of the Little Tern Conservation Project with BirdWatch Ireland for two breeding seasons (2015 & 2016). Patrick gained experience in monitoring and protecting a vulnerable species and in the collection, collation and analyses of large data sets. He was also responsible for liaising with the public, the writing of weekly reports and full technical reports at the end of each breeding season.<br>› Agri-Environmental Liaison Officer for the Results Based Agri-Environmental Payment Scheme with BirdWatch Ireland. Patrick gained experience in liaising with land owners, coordinating and finalizing terms with participants of the scheme. He also gained skills in the ecological applications for GIS, in training landowners in land management for breeding birds and in carrying out breeding bird surveys.<br>› Conservation Team Intern with the Dublin Bay Birds Project for BirdWatch Ireland. Patrick gained experience in compiling, proofing and analysing large datasets, as well as waterbird monitoring during various tidal and weather conditions and writing technical reports.<br>› Field Assistant with the Dublin Bay Birds Project with BirdWatch Ireland. Patrick gained experience doing waterbird surveys, radio tracking surveys and the tracking of colour ringed waders. He also gained experience in collating, proofing and validating large datasets. He was also responsible for fitting colour rings to waders during multiple catching sessions.<br>› Volunteer Bird Surveyor on various projects including the Irish wetlands bird survey, the Inishmurray all-island breeding bird survey, the national Hen Harrier survey and the countryside bird survey.<br><br>**Relevant Surveys for MKO:**<br>› Derryadd Windfarm, County Longford (Client: Bord na Mona)<br>Carried out Vantage point surveys, waterfowl surveys and breeding raptor surveys for this site.<br>› Timahoe Solar, County Laois (Client: Bord na Mona)<br>Carried out breeding walkover surveys for this site.<br>› Lissinagroagh Windfarm, County Leitrim (Client: Coillte)<br>Carried out Vantage point surveys for this site<br>› Slieve Rusheen Windfarm, County Cavan (Client: Coillte)<br>Carried out Vantage point surveys, winter walkovers, hen harrier roost surveys and red grouse surveys for this site. |

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| | › Cullenagh Windfarm, County Laois (Client: Coillte)<br>Carried out Vantage point, breeding walkover and breeding raptor surveys for this site.<br>› Carrownagowan Windfarm, County Clare (Client: Coillte)<br>Carried out Vantage point surveys, waterfowl surveys, hen harrier roost surveys and winter walkovers for this site.<br>› Glenard Windfarm, County Donegal (Client: Coillte)<br>Carried out Vantage point surveys for this site.<br>› Cahermurphy Windfarm, County Clare (Client: Mid Clare Renewable Energy Ltd.)<br>Carried out Vantage point surveys for this site<br>› Coole Windfarm, County Westmeath (Site located on raised bogs)<br>Carried out Vantage point surveys, breeding walkovers, breeding raptor surveys, breeding woodcock surveys and waterfowl distribution surveys for this site.<br>› Clonbern Windfarm, County Galway<br>Carried out Vantage point surveys, and waterfowl surveys for this site.<br>› Ardderroo Windfarm, County Galway (Client: Enerco)<br>Carried out Vantage point surveys, hen harrier/white-tailed eagle roost surveys and waterfowl surveys for this site.<br>› Boolynaghleragh Windfarm, County Clare (Client: Enerco)<br>Carried out pre-commencement hen harrier surveys for this site. |
| **Practical Skills & Aptitudes** | › Planning and carrying out ornithological surveys.<br>› Working Independently and effectively in the field.<br>› Planning surveys with sub-contractors and management.<br>› Data presentation.<br>› Proficient in MS Office, GIS and MapInfo software.<br>› Adhering to required guidelines and SOP's on bird survey methodologies.<br>› Experience surveying birds using line transects, vantage point counts, flush counts, mist netting, radio tracking and GSM trackers |
| **Management/ Supervision** | › Management of all bird surveys carried out on site.<br>› Demonstrated ability to manage workload and plan surveys based on own initiative.<br>› Experience managing field sites and coordinating large teams of volunteers for the Little Tern Conservation Projects 2015 and 2016<br>› Experience coordinating and supervising volunteers during the all-island seabird survey on Inishmurray.<br>› Experience coordinating and liaising with volunteers/surveyors with BirdWatch Ireland and Irish Midlands Ringing Group on various projects. |
| **Interpersonal & Communication Skills** | › Extensive dealings with ecology team in planning of bird survey work and standard operating procedures.<br>› Effective and clear communicator.<br>› Proven ability to manage extensive survey requirements and collation of data upon completion.<br>› Planning surveys with team members and sub-contractors.<br>› Experience coordinating workloads and delegating tasks as a member of both large and small teams of volunteers on a number of different projects with BirdWatch Ireland and the Irish Midlands Ringing Group, often in challenging fieldwork environments.<br>› Experience as lead author or co-author on technical project reports.<br>› Managed public relations and public outreach for the Little Tern Conservation Project in 2015 and 2016 (including an appearance on RTE series "EcoEye" in January 2016). |

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| | › Experience giving bird ringing demonstrations to various groups including BirdWatch Ireland branch members, Dublin Field Naturalist club and during heritage week. |
| Licenses Held | › Full Clean Driving Licence.<br>› Safe Pass. |
| Physical / Other | › Ability to plan and organize fieldwork in line with published survey methodologies and company SOP's.<br>› Qualified bird ringer and ringing trainer with British Trust for Ornithology |

Planning and Environmental Consultants

# CURRICULUM VITAE

Ian Hynes

Ian Hynes is a Graduate Ecologist with MKO. Ian Graduated with an Honours Degree in Environmental Science from National University of Ireland, Galway in 2017 and joined the Ornithology team in December of the same year. Ian has a broad knowledge of ecology ranging from invertebrate sampling and identification, habitat classification and vegetation surveys. In his time with MKO he has developed a broad understanding of SNH Guidance and its application to bird surveys for wind farm developments. Ian has over two years of experience in using GIS software. Ian has also gained experience in report writing through his final year thesis and assisting in the production of EIARs and ornithological reports.

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| **Current Role** | Ecologist |
| **Qualifications** | › B.Sc. (Hons) Environmental Science from National University of Ireland, Galway |
| **Years of Experience** | › 1-2 years |
| **Relevant Experience** | › June-September 2016 – Thesis, Inis Oirr, Aran Islands – Investigated the contribution of habitat patches to invertebrates on HNV farmland using a rapid biodiversity assessment. Worked alongside members of AranLIFE and the Applied Ecology Unit, NUIG.<br>› Attended BCI Training course on the identification of bats, use of detectors and interpretation of results (30th June-1st July 2018).<br>› Undertook surveys as part of the Breeding Woodcock surveys 2019 (UCC Woodcock Research Group) in Galway and Kildare. |
| **Practical Skills & Aptitudes** | › Proficient in using ArcGIS software to produce maps representing ecological data, also has extensive experience in QGIS and Map Info.<br>› Proficient in Microsoft Office programs (Word, Excel, PowerPoint, Visio).<br>› Good knowledge of Python programming language (QQI Level 5)<br>› Experience in invertebrate sampling and identification, habitat classification and plant identification.<br>› Experience in producing a Habitat Management Plan.<br>› Good knowledge of EIS/EIAR and Appropriate Assessment.<br>› Bat surveys – acoustic sampling and analysis of results.<br>› Involved in the preparation of desk study's, GIS maps and bird data for use in ornithology reports/EIARs.<br>› Experience in using 'Windfarm' and ZVI to produce Viewshed Analysis on Vantage Points and ground truthing Vantage Points in the field. |
| **Interpersonal & Communication Skills** | › Presented findings of final year thesis to members of staff at National University of Ireland, Galway in 2016.<br>› Liaised with members of the AranLIFE project and local landowners on Inis Oirr, Aran Islands over the course of his final year thesis.<br>› Works as part of a multi-disciplinary team within MKO and regularly liaises with surveyors/clients and other in-house teams daily. |
| **Licenses Held** | › Current Safe Pass Holder.<br>› Current Driver's Learner Permit holder. |

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| Physical/Other | • Member of Bat Conservation Ireland<br>• Member of Birdwatch Ireland<br>• Attended NBDC workshop on improving land for pollinators (13/04/2019)<br>• Attended NBDC workshop on identifying Irelands pollinators (12/05/2019)<br>• Attended 2-day Irish Crayfish Seminar on identification of NICS and biosecurity methods (21&22/05/2019) |

## Curriculum Vitae

## Eric Dempsey


| | | | |
|---|---|---|---|
| Address: | Sycamore Hill<br>Tiglin<br>Newcastle<br>Co. Wicklow | Email:<br>Website:<br>Telephone: | birdsireland@gmail.com<br>www.birdsireland.com<br>087 907 5669 |


Born in Dublin and now living in Co. Wicklow, I am a professional bird guide, writer, broadcaster, photographer, consultant and speaker. I have over 40 years birdwatching field experience in Ireland and am the author of many bird and wildlife books. I am a Heritage Expert with the Heritage Council, and a team member and advisor to the Mooney Goes Wild Show on RTE Radio 1

### Employment & Relevant Expertise

2015 - Present: Engaged in a wide variety of environmental bird surveys requiring the implementation of all survey methodologies, in-depth knowledge on bird identification, the submission of maps and spreadsheets, and a commitment to accurate and timely reporting. My recent survey experience includes:

- Ongoing twice monthly Dublin Bay Wetland counts
- VP surveys on Hen Harrier breeding sites
- Breeding bird transects and walk-throughs
- Hinterland breeding raptor surveys
- Woodcock breeding surveys
- Winter bird surveys
- Hen Harrier Winter roost surveys
- High tide wader roost surveys – Dublin Bay
- Evening gull roost surveys – Dublin Bay
- Bio-diversity surveys for OPW

I am currently commissioned by Dublin City Council to do bird surveys along the River Camac from November 2018 to December 2019

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1990 - Present: Director of the Birds of Ireland News Service (BINS Ltd), promoting an awareness of Irelands birdlife through educational workshops and acting in an advisory role to a wide selection of environmental groups and media organisations.

2002 – Present: Ireland's first professional bird tour guide and advisor to eco-tourism initiatives.

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| 2003 – Present: | Heritage Expert - working with the Heritage Council to educate and promote bird awareness in National Schools throughout Ireland. |
| 2013 - Present: | Patron and Chief Advisor to Dublin Swift Conservation Group – advising and presenting on Swift Conservation to city planners (including DCC) and a wide variety of concerned environmental and residence groups. |
| 2014 – Present: | Ireland's first 'Swarovski Ambassador' in recognition of my dedication to the promotion of an interest in Ireland's rich birdlife and habitats. |

**Other Positions**

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|---|---|
| 1979 - 2009: | Chairman of Dublin Branch, Irish Wildbird Conservancy, and Founder and Chairman of Tolka Branch of Birdwatch Ireland. |
| 1988- 1992: | Member of the Executive Board of Directors with Birdwatch Ireland (Irish Wildbird Conservancy) |
| 1983 – 1988: | Irish Representative to Birdlife International |
| 1990- 1995: | Editor/Publisher - Irish Birding News, |
| 1998-2000: | Co-editor of the Irish Bird Report |

**Books Published**

| | |
|---|---|
| 1993: | The Complete Guide to Ireland's Birds |
| 1995: | The Pocket Guide to the Common Birds of Ireland |
| 2002: | The Complete Guide to Ireland's Birds (2nd edition) |
| 2007: | Finding Birds in Ireland |
| 2008: | Birdwatching in Ireland with Eric Dempsey |
| 2010: | The Complete Field Guide to Ireland's Birds |
| 2011: | Ireland's Wildlife Year |
| 2012: | The New Pocket Guide to the Common Birds of Ireland |
| 2014: | Finding Birds in Ireland (2nd edition) |
| 2015: | Don't Die in Autumn – a memoir |

## Susan Doyle

Susan is a freelance ornithologist for MKO. She is currently a final-year PhD candidate at University College Dublin, conducting research into the population demography and movements of Arctic-breeding birds. She completed her primary degree in Zoology at Trinity College Dublin and went on to complete her masters in Ecological Assessment at University College Cork. Susan has extensive field survey skills, including winter and breeding bird survey, bat survey, small mammal survey, terrestrial and freshwater macroinvertebrate sampling and animal GPS and radio tracking, as well as plant surveys, habitat identification and mapping. She also has experience in Annex I habitat quality assessment, Ecological Impact Assessment and Appropriate Assessment (including Natura Impact Statements).

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| **Proposed Role** | Field ornithologist |
| **Qualifications** | MSc Ecological Assessment, University College Cork, 2014<br>BA Zoology, Trinity College Dublin, 2013 |
| **Years of Experience** | 5 years post-graduate experience as an ecologist |
| **Relevant Experience** | **Professional experience in bird survey**<br>Violet Hill Wind Farm, Co. Clare: breeding bird vantage point surveys<br>Shannon-Fergus estuary, Co. Clare and Co. Kerry: co-ordinated bird counts and mapping<br>Oatfield Wind Farm, Co. Clare: breeding and winter bird vantage point surveys and habitat evaluation<br>Cloncreen Wind Farm, Co. Offaly: breeding and winter bird vantage point surveys and transects and wetland waterbird counts<br>Ardderoo Wind Farm, Co. Galway: breeding and winter bird vantage point surveys<br>Ship Street development, Co. Dublin: breeding Swift surveys<br>Lisbeg Wind Farm, Co. Galway: pre-construction raptor surveys<br>Coole Wind Farm, Co. Westmeath: winter bird vantage point surveys<br>Lettergull Wind Farm, Co. Donegal: bird transect surveys<br>Lough Derg Canoe trail, Co. Tipperary: site survey of birds for Natura Impact Statement<br>Residential development, Knocknacarra, Co. Galway: appropriate assessment screening<br><br>**Research experience in birds**<br>GPS tracking Barnacle Geese from Ireland to Iceland and Greenland<br>2018 international census of Greenland Barnacle Geese in Ireland<br>Review of anthropogenic impacts to Arctic breeding birds<br>Novel parasitic infection in Goldfinch and Greenfinch of the Irish midlands<br>Post-breeding movements of Lesser Black-back and Black-headed Gull<br>Conservation of breeding Little Terns in Co. Louth and Co. Wicklow<br>Radio-tracking Oystercatcher in Dublin Bay<br>Breeding seabird survey and mapping of Inishmurray Island<br>Behavioural variation of Lemon-bellied White-eyes on the Wakatobi Archipelago, Indonesia |
| **Licences Held** | Full driving licence<br>Safe pass<br>British Trust of Ornithology Bird Ringing Licence |

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# CONSTRUCTION SURFACE WATER MANAGEMENT PLAN FOR PROPOSED DEVELOPMENT AT BALDOYLE-STAPOLIN, DUBLIN 13

Technical Report Prepared For

**Lismore Homes Ltd.**

Prepared By

Marcelo Allende

Environmental Consultant

Our Reference

MA/21/12473SR01

Date of Issue

23 March 2022

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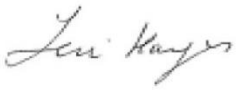
| Signature |  |  |
| Name | Marcelo Allende | Teri Hayes |
| Title | Environmental Consultant | Director |
| Date | 23 March 2022 | 23 March 2022 |

# CONTENTS

## 1.0 INTRODUCTION

This Construction Surface Water Management Plan ('SWMP') has been prepared by AWN Consulting ('AWN') on behalf of Lismore Homes Ltd. for a proposed residential development. The proposed development consists of the construction of 1,007 residential apartments, communal residential community rooms, and a ground floor creche in 16 no. buildings with heights varying from 4 to 12 storeys, basement and surface level car parking, secure bicycle parking, landscaping, water supply connection at Red Arches Road, and all ancillary site development works on a site located in the townland of Stapolin, Coast Road, Baldoyle, Dublin.

During construction run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. The purpose of the plan is to set out clear guidelines on the management of surface water during construction works to prevent impact on receiving drainage and waterbodies.

## 2.0 SCOPE OF THE SURFACE WATER MANAGEMENT PLAN

The following Surface Water Management Plan (here after referred to as 'SWMP') provides the water management measures to be implemented by the construction Contractor(s) to ensure that work is carried out with to protect water quality. The mitigation and control measures outlined in the SWMP will be employed on site during the construction phase.

This report describes briefly the existing hydrological and hydrogeological setting of the site, and then sets out the proposed measures required for surface water management during the construction phase of the proposed development. All mitigation measures outlined within this SWMP will be implemented during the construction phase, as well as any additional measures required pursuant to planning conditions which may be imposed.

Contamination of the receiving surface water environment during the construction phase has the potential to cause environmental damage mainly through the movement of silt either directly or indirectly into receiving waters. Non-sediment contaminants consist of general site and materials management measures that directly or indirectly discharge into receiving environments from site activities. Other possible construction impacts include accidental release of oils and diesel, or discharge of alkaline water during cementing works. The main aim of the surface water management plan is to ensure protection of the local receiving water and compliance with current guidance documents. This is to be achieved through the following measures:

- Understanding of the local receiving water environment, pollutant linkage pathways and the legislative requirements;
- Implementation of measures to protect the receiving water environment;
- Set out a monitoring schedule, check list and training programme.

The main areas of water related concerns covered by this document are:

- Pre-Construction, Construction Phase drainage controls;
- Management of Earthworks and Materials Storage;
- Surface water runoff protection (sit fences, silt traps, diversion channels);
- Prevention of Accidental Releases (concrete, fuel, and chemical handling); and
- Surface Water Treatment and Discharge, and

- Foul Water And Onsite Sanitation.

The SWMP a live document and will be modified over time as detailed contractor methods of work are developed. If the development is permitted an updated version of this document will be issued to all parties involved in the construction process when appropriate changes are deemed necessary.

## 2.1 RELEVANT LEGISLATION

It is proposed that all surface water control measures relating to the proposed development will be constructed using best practice and in conformance with the requirements of the relevant regulatory authorities.

The key legislation which will be adhered to are defined as follows:

- Water Framework Directive (2000/60/EC);
- Local Government (Water Pollution) Act, 1977–1990;
- Water Quality (Dangerous Substances) Regulations, 2000;
- Arterial Drainage Act, 1945;
- S.I. No. 41 of 1999 Protection of Groundwater Regulations, resulting from EU
- Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances (the Groundwater Directive);
- S.I. No. 272 of 2009 and amendments European Communities Environmental
- Objectives (Surface Waters) Regulations; and,
- S.I. No. 9 of 2010 and amendments European Communities Environmental Objectives (Groundwater) Regulations.

The key drainage and water quality guidance documentation relevant to this site are defined set out as follows:

- Guidelines on protection of fisheries during construction works in and adjacent to waters Inland Fisheries Ireland (2016).
- Dublin City Council (2005) Greater Dublin Strategic Drainage Study (GDSDS):
- Technical Documents of Regional Drainage Policies. Dublin: Dublin City Council;
- Construction Industry Research and Information Association (CIRIA):
    - CIRIA Report C502 Environmental Good Practice on Site;
    - CIRIA Report C532 Control of Water Pollution from Construction Sites;
    - CIRIA Report C648 Control of Pollution from Linear Construction Project; Technical Guidance;
    - CIRIA Handbook C650 Environmental good practice on site;
    - CIRIA Handbook C651 Environmental good practice on site checklist;
    - CIRIA Report C609 - SUDS – hydraulic, structural & water quality advice; and,
    - CIRIA Report C697 – The SUDS Manual

As Baldoyle Bay (the final receptor of the Mayne River and site catchment waters) is designated an SAC, it comes under the protection of the Habitats Directive 92/43/EEC which are implemented in Irish legislation as S.I. No 233/1998 – European Communities (Birds & Natural Habitats) Regulations 2011.

## 3.0 EXISTING ENVIRONMENT

The proposed development is located within the previously defined Eastern River Basin District (ERBD), now the Ireland River Basin District, in Hydrometric Area No. 09 of the Irish River Network. It is within the River Liffey catchment and mayne Sub-catchment (Mayne_SC_010). The River Liffey catchment encompasses an area of approximately 1,369 km2. The River Liffey extends from the mountains of Kippure and Tonduff in County Wicklow to the sea at Dublin Bay. The main channel covers a distance of c. 120 km west to east. The Snugborough Stream lies 650 m to the east and the Mayne River lies 550 m to the north (EPA designations). The Snugborough rises to the south and is culverted between Seagrange Park and the Red Arches Road (refer to Figure 3.1 below).

According to the NPWS (2021) online database, the following area of conservations are located closest to the Site:

- Baldoyle Bay Special Area of Conservation (SAC) (Site Code 000199) – c. 350 m east of the site. (Both the bay itself and saltwater marshland which is part of the old Baldoyle Racecourse).
- Baldoyle Bay Special Protection Area (SPA) (Site Code 004016) – c. 700 m east of the site.
- Baldoyle Bay proposed Natural Heritage Area (pNHA) – c. 400 m east of the site.

The North Dublin Bay SAC is c. 1.8 km south of the site.


**Figure 7.3.1** Local Hydrological Environment

Currently, storm water run-off discharges through an existing 1500 mm stormwater culvert passing underneath the north Fringe Sewer, flowing south to north, which discharges into the Mayne River.

There is an indirect hydraulic connection via the stormwater system which is discharged to the Mayne River. The Mayne River ultimately discharges to the Baldoyle Estuary.

In accordance with the WFD, each river catchment within the former Eastern River Basin District (ERBD) was assessed by the EPA and a Water Management Plan detailing the programme of measures was put in place for each. Currently, the EPA classifies the WFD River Waterbody risk score of 1a, 'At risk of not achieving good status'. The WFD Status for the Mayne River waterbody was previously denoted as 'Poor' (2nd Cycle Status 2013-2018). The transitional waterbodies of the Mayne Estuary and North Bull Island WFD status is currently 'under review' and these were not assigned a status in the previous cycle (2013 – 2015). The Irish Sea Dublin (HA 09) and the Dublin Bay Coastal Waterbodies to the east and south-east of the Site have a 'Good Status' and are listed as 'Not at Risk' by the EPA.

The EPA assesses the water quality of rivers and streams across Ireland using a biological assessment method (Q-Value), which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 – Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality.

The surface water quality data for the nearest monitoring station (Hole in the Wall Bridge) to the Site of the proposed development (upstream) for the Mayne River (including the Snugborough Stream) shows a Q rating of Q2-3 denoting a poor (moderately polluted) status (refer to Chapter 7 of the EIAR for further details).

The proposed project development was subject to Site Specific Flood Risk Assessment (SSFRA) undertaken by JBA Consulting Ltd in accordance with OPW Flood Risk Management Guidelines and is included as in the present EIAR Appendix 7.2.

This Flood Risk Assessment, contains a hydraulic study of the Mayne River, has been carried out (as required by Objective FRM3 of the Baldoyle-Stapolin LAP). Reference to the basements is contained in Section 5.3 of the Flood Risk Assessment as required by Objective FRM4 of the Baldoyle-Stapolin LAP.

A review of the historic flood information does not provide any evidence of flooding at the site. The nearest flood event is situated along Coast Road, 600 m east of the site, Review of the FEM FRAM (Fingal East Meath Flood Risk Assessment and Management Study) predictive flood maps confirms that the majority of the site is not at risk of flooding. In summary, the SSFRA states that all residential properties are located in Flood Zone C and are protected from inundation up to the 0.1% AEP Mid-Range Future Scenario (MRFS) flooding event. The Flood Risk Assessment was undertaken in accordance with OPW's 'The Planning System and Flood Risk Management' guidelines. The FRA is in agreement with the core principles contained within the Planning Guidelines.

Reference to the GSI Bedrock Geology Map indicates that the site is underlain by Lower Carboniferous (Courceyan Stage) Limestones which is referred to as Malahide Formation (Rock Unit code: CDMALH). This geological formation comprises argillaceous bioclastic limestone and shale.

In addition, the GSI National Draft Bedrock Aquifer Map indicates that the site is underlain by a Locally Important Bedrock Aquifer (Ll), which is described by the GSI as bedrock as being "moderately productive only in local zones".

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. The GSI presently classifies the aquifer vulnerability in the region of the site as 'Low' (L) which indicates that an overburden depth of >10 m of low permeability soil is present. This was confirmed in 2019 and 2020 investigations undertaken by GII (refer to Chapter 6 of the EIAR for further details). The aquifer vulnerability class in the region of the site is presented below as Figure 3.2.


**Figure 7.3.2** Aquifer Vulnerability Map with the proposed site layout (Source: GSI, 2022)

## 4.0 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The development will consist of the construction of 1,007 apartments (consisting of 58 no. studio units (38.1 – 52.3 sq.m.), 247 no. 1 bedroom units (48.9 – 79.7 sq.m.), 94 no. 2 bedroom 3 person units (67.3 – 80.42 sq.m.), 563 no. 2 bedroom 4 person units (77.7 – 106.1 sq.m.), and 45 no. 3 bedroom units (93.5 – 130.66 sq.m.), 6 no. communal residential community rooms, and a ground floor creche in 16 no. buildings with heights varying from 4 to 12 storeys, basement and surface level car parking, secure bicycle parking, landscaping, water supply connection at Red Arches Road, and all ancillary site development works on a c. 6.1 hectare site.

A full description of the proposed development can be found in the EIAR, Chapter 2 - Description of the Proposed Development. Construction activities associated with the proposed development which are relevant to the surface water environment are presented below. These activities primarily pertain to the site preparation, excavation, levelling and infilling activities required to facilitate construction of the proposed development, and ancillary services.

### 4.1 SITE PREPARATION, EXCAVATION, LEVELLING AND INFILLING ACTIVITIES

Land clearing, earthworks and excavations will be required for construction phase operations to facilitate site clearance, construction of new building, basements, foundations and installation of services. This will include site levelling, construction, and building foundation excavation, this will necessitate the removal of vegetation cover and the excavation of soil and subsoils.

The volume of material to be excavated has been estimated by the project engineers at c. 135,000 m3. It is envisaged that 129,000 m3 of the excavated material will be required to be removed from site as either a waste or by-product.

No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry.

### 4.2 STORAGE OF HAZARDOUS CONSTRUCTION MATERIALS

Construction activities will include the storage of fuel and use of machinery, and temporary storage of fuel required for on site for construction traffic. Liquid materials i.e., fuel storage will be located within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications - BS8007-1987) to prevent spillage. These will be stored within the contractor yard.

### 4.3 FOUL DRAINAGE DURING CONSTRUCTION

Welfare facilities will be provided for the contractors via portable sanitary facilities within the construction compound site during the construction works. It is an anticipated that initially, waste collected by tanker and disposed of appropriately, and that temporary connections to the existing services will be established to provide service and utilities subject to relevant applications and approvals.

There shall not be discharge of ***untreated***, silty, or contaminated water from the works to any watercourse or stormwater network. Should any discharge of ***untreated*** construction water be required during the construction phase, the discharge will be to foul sewer following agreement with Fingal County Council / Irish Water.

### 4.4 SURFACE WATER DISCHARGE DURING CONSTRUCTION

There shall not be discharge of ***untreated***, silty, or contaminated water from the works to any watercourse or stormwater network. Should any discharge of ***untreated*** construction water be required during the construction phase, the discharge will be to foul sewer following agreement with Fingal County Council / Irish Water.

There is no significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry.

The discharge of ***treated*** construction water from rainfall into excavated areas, or from any localised dewatering may be required during construction. This ***treated*** construction water will be discharged to the existing 1500 diameter concrete stormwater main, that traverses underneath the north fringe sewer and discharges to the Mayne River.

## 5.0 SURFACE WATER MANAGEMENT MEASURES

### 5.1 PRE-CONSTRUCTION

Prior to the commencement of construction works and site mobilisation the Main Contractor shall undertake an assessment of the site identifying areas of concern at the earliest possible stage to anticipate and plan for how to address those concerns.

A preconstruction meeting is a key point of communication between the Main Contractor, Project Ecologist (Ecological Clerk of Works), Project Arborist and Landscape Architect, Environmental Health and Safety Staff and Subcontractors. This where potential problem areas can be discussed. The meeting provides an opportunity to interact face-to-face with key representatives where project expectations can be established along with a good working relationship.

This is preconstruction meeting will:

- Clarify the objectives of surface water management plan where specific project requirements can be discussed.
- Designate a contact person for surface water management plan
- Be sure that all parties go over the surface water management plan so they know what is expected. Discuss any needed field changes to the plan. Always ensure that the approved plan is available on site.
- Discuss time frames for initiation of mitigation measures for sediment controls, site clearing, grading and stabilisation.
- The sediment control measures will be implemented prior to the commencement of earthworks.
- Discuss the maintenance and monitoring requirement set out in this plan requirements so it is clearly understood that practice maintenance is an ongoing obligation.

### 5.2 ESTABLISHMENT OF STABILISED ENTRANCE WAY AND WHEEL WASH

In order to prevent site access points becoming sources of sediment and then tracking sediments offsite the following measures will be employed:

- A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.
- Place aggregate from the construction site boundary extending for at least 10m according to the specifications and contour the aggregate to suit the entrance point.
- All points of construction site entry and exit with a view to limit traffic to these entrances only.
- The site entrance will be located so that vehicles cannot bypass these devices. Perimeter silt fences or bunds may assist in achieving this requirement.
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- In the case of a wet wheel wash it is recommended that a designated bunded and impermeable wheel wash area is provided and that the resultant waste water is diverted to a settlement pond for settling out of suspended solids.
- This also assist in minimising dust generation and disturbance of areas adjacent to the road frontage by providing a defined entry and exit point.


*Figure 5.1 Example of Wheel Washing System*

## 5.3 MANAGEMENT OF EXCAVATIONS, EARTHWORKS AND MATERIALS STORAGE

The volume of material to be excavated has been estimated by the project engineers at c. 135,000 m3. It is envisaged that 129,000 m3 of the excavated material will be required to be removed from site.

The construction contractor will be required to reused on-site excavated material where possible, this can be used for site levelling, roads, car parking areas and other landscaping purposes.

The amount of exposed ground will be kept to a minimum by maintaining existing vegetation that would otherwise be prone to erosion. Rather than stripping the entire site months in advance, topsoil extraction will be deferred until just before work begins. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.

Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing. Correct management will ensure that there will be minimal inflow of shallow / perched groundwater into any excavation. Due to the very low permeability of the overburden and the relative shallow nature for foundation excavations, infiltration to the underlying aquifer is not anticipated.

Movement of material will be minimised to reduce the degradation of soil structure and generation of dust. Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Soil from works will be stored away from existing drainage features to avoid any potential impact.

Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

Any temporary storage of soil, hardcore or similar material on the site will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.

The material will be stored away from any surface water drains(minimum 20 m buffer zones) and also stored in receptacles where possible.. The movement of material will be minimised to reduce degradation of soil structure and generation of dust (See the CEMP for further details). Stockpiles will be tightly compacted to reduce run-off and graded to aid in run-off collection, and materials will be stored away from any surface water drains.

While it is acknowledged that there will be waste materials generated from the excavation of soil and stones to facilitate site clearance, construction of new building, basements, foundations and installation of services. Any waste soils will be managed in accordance with the site specific Construction and Demolitions Waste Management Plan (See the CEMP for further details).

In order to minimise the risk of contamination, any stockpiled material designated for removal will be removed off-site as soon as possible. Surface water drain gratings in areas near or close to where stockpiles are located will be covered by appropriate durable polyurethane covers or similar.

### 5.3.1 Material Handling and Storage

Key materials which will be ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage.

Where possible it is proposed to source general construction materials from the Dublin area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in the compound area within the site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.

The majority of construction waste materials generated will be soil from excavation works. Material will be removed from site regularly to ensure there is minimal need for stockpiling.

## 5.4 SURFACE WATER DRAINAGE AND RUNOFF PROTECTION

On the site, a site drainage and protection system will be built to reduce run-off from the site, prevent soil erosion, and protect water quality in the area of conservations closest to the Site.

### 5.4.1 Establishment of Silt Fences

A silt fence is a woven geotextile fabric barrier that is used as a temporary barrier to trap mostly coarse sediments carried in surface water sheet flow. Silt fences temporarily impound sediment-laden runoff, slowing it down and allowing it to settle out of the water.

Silt fences will be installed around the perimeter of the site where construction is proposed to detain flows from runoff so that deposition of transported sediment can occur through settlement.

Inspection and maintenance of the silt fences during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire construction phase.

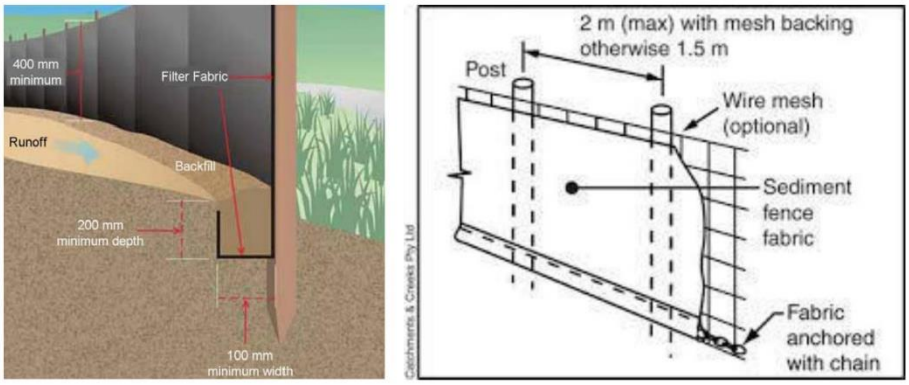



*Figure 5.2 Still Fence Installation*

*Figure 5.3 Example of Silt Fencing*

### 5.4.2 Use of perimeter drains, diversion channels/bunds

Temporary excavated channels, bunds or ridges or a combination of the three, may be constructed to divert sediment-laden water to an appropriate sediment retention structure.

These may be installed to provide permanent diversion of clean stormwater away from erosion exposed soil areas, or to provide a barrier between exposed areas and unexposed areas of the construction site.

Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.

### 5.4.3 Silt Dewatering Bags / Dewatering Socks

Where small to medium volumes of water need to be pumped from temporary excavations, silt dewatering bags or socks will be employed. Silt Dewatering bags are designed to trap sediment and silt while allowing clean water to flow freely back into the environment. When water is pumped into the bag, the geotextile fabric traps most of the silt when water is pumped to the bag, allowing the treated water to pass through.

*Figure 5.4 Example of Silt Dewatering Bag*

### 5.4.4 Settlement Systems/ Settlement Tanks / Ponds

The main aim of settling tanks is to hold water for an extended period of time, allowing suspended solids to settle to the tank's bottom and leave treated water. Engineered concrete structures or simple clay-lined ponds can be used.

Settlement systems promote sediment deposition and reduce hydraulic loading by slowing flow velocities allowing sediment to settle.

Early in the site establishment capture and settlement systems should be constructed to store construction water for reuse or to allow for additional treatment procedures prior to discharge.

Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing.

Sediment entrapment facilities will be installed to reduce overland sediment discharges to downgradient properties and receiving waters. All run-off leaving a disturbed area should pass through a sediment entrapment facility before it exits the site and flows downgradient such as straw bales, silt fencing, silt barriers and diversion dams.

It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet.

## 5.5 PREVENTION OF ACCIDENTAL RELEASES

### 5.5.1 Prevention of Concrete Run-off

Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.

A suitable risk assessment for wet concreting will be completed prior to works being carried out, which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at an appropriate facility off-site.

### 5.5.2 Fuel and Chemical Handling

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and prevent any resulting to surface water systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

### 5.5.3 Other Chemical Storage

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately bunded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from any surface water drains (minumum 20 m buffer zone).

Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

## 5.6 SURFACE WATER TREATMENT AND DISCHARGE

There shall not be discharge of ***untreated***, silty, or contaminated water from the works to any watercourse or stormwater network. Should any discharge of ***untreated*** construction water be required during the construction phase, the discharge will be to foul sewer following agreement with Fingal County Council / Irish Water.

The discharge of ***treated*** construction water from rainfall into excavated areas, or from any localised dewatering may be required during construction. This ***treated*** construction water will be discharged to the existing 1,500 diameter concrete stormwater main, that traverses underneath the north fringe sewer and discharges to the Mayne River.

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be established prior to the commencement of the construction works to collect, and discharge any treated construction water during construction.

The pre-treatment and silt reduction measures on-Site will include a combination of the measures proposed in Section 5.5 above.

Run-off water containing silt will be contained on-site via settlement tanks and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing, settlement measures (silt traps, silt sacks and settlement tanks / ponds).

Any contaminated construction water that requires removal from site will be contained on-site and treated to ensure adequate silt and contaminant removal prior to discharge.

The implementation of an multistage-active treatment system such as a siltbuster or similar will be adopted to treat construction waters to ensure it will be safely discharged to the existing surface water network. The multistage treatment system will be designed to remove silt, and hydrocarbons.

Measures to control surface water will be in compliance with the relevant CIRIA guidance documents referenced above.

## 5.7 FOUL WATER AND ONSITE SANITATION

Welfare facilities will be provided for the contractors via portable sanitary facilities within the construction compound site during the construction works. It is an anticipated that initially, waste collected by tanker and disposed of appropriately, and that temporary connections to the existing services will be established to provide service and utilities subject to relevant applications and approvals.

## 6.0 MONITORING AND MAINTENANCE

Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 20 m from surface water receptors.

Regular inspection of surface water run-off and any sediment control measures (e.g. silt traps) will be carried out during the construction phase especially rainfall or storms a. Regular maintenance will occur to repair or reinstate if destroyed or damaged by machinery movement or from rainfall.

Regular auditing of construction / mitigation measures will be undertaken, e.g. concrete pouring, refuelling in designated areas, etc.

A log the regular inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

An example inspection log form is included as Appendix A to this SWMP.

## 7.0 REVIEW

The Main Contractor appointed representative will review the inspection forms on a weekly basis to confirm that the checks, and subsequent required maintenance works are being carried out. Additional inspections will be required after significant changes in site changes, or system maintenanceas construction progresses.

Regular meetings will be held on site by key personnel to discuss the results of the daily, weekly and monthly site monitoring.

Should inspections indicate that any environmental protection and controls measures are not functioning as intended, the Contractor will instigate a review of the CEMP or relevant sub-plan, as required.

## 8.0 TRAINING

Site training should include at minimum:

- Induction training including environmental requirements for all operatives and subcontractors;
- More detailed training for staff or subcontractors with specific responsibilities e.g. Waste Rep;
- Toolbox talks, depending on the type of works being undertaken and the environmental impacts that may result from these activities e.g. training on water pollution prevention before works near watercourses. Training to be given will include:
    - Protected species/habitats
    - Environmental incidents
    - Invasive plants
    - Water pollution prevention
    - Waste management
    - Spill control & spill kits
    - Dust and Air Quality
    - Storage and use of petrol diesel and oils

Contact specific information should be displayed on notice boards and briefed to all staff.

## 9.0 KEY CONTACTS

A list of personnel that should be contacted in the requirement for further information or to be notified of a breakdown in the mitigation measures should be prepared and communicated within this SWMP prior to the commencement of construction

*Main Contractor Contacts*

| Position Title: | Name: | Phone: |
|---|---|---|
| Main Contractor | | |
| Project Manager | | |
| Construction Manager | | |
| Design Engineer | | |
| Environmental Manager | | |
| Safety Officers | | |
| | | |
| Site Emergency Number | | |
| Project Ecologist | | |
| Project Archaeologist | | |
| Project Arborist | | |
| Waste Management Coordinator | | |

*Emergency Services and Third Party Contacts*

| Organisation: | Position: | Phone: |
|---|---|---|
| Inland Fisheries Ireland | Eastern River Basin District | (01) 2787022 |
| National Parks and Wildlife Service | North Eastern Region | (076) 1002594 |
| Environmental Protection Agency (EPA) | EPA | (053) 9160600 |
| Department of Culture, Heritage and the Gaeltacht | National Monuments Service | (01) 8882000 |
| Health and Safety Authority | Health and Safety Authority | (01) 6147000 |
| Emergency Services | Ambulance and Fire Service | 999 or 112 |

## Appendix A

| Inspection Checklist | | | | | | |
|---|---|---|---|---|---|---|
| Name of Inspector: | | | | | | |
| Construction Project: | | | | | Contractor: | |
| Location: | | | | | | |
| Date of Inspection: | | | Time | Start: | | |
| | | | | Finish: | | |
| Weather Conditions : | | | | | | |
| Description of current phase of construction: | | | | | | |
| Construction Element | Maintenance Required | | | Comments on the effectiveness of sediment control measure | | |
| | Yes | No | N/A | | | |
| French drain clear? | | | | | | |
| Swale – level of water? | | | | | | |
| Silt pond/ silt fences required? | | | | | | |
| Integrity of spoil heaps | | | | | | |
| Gully protection in place | | | | | | |
| Mobile Treatment Tanks: | | | | | | |
| De-sludging required? | | | | | | |
| Other: | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Additional Comments: | | | | | | |
| Inspector | | | | Supervisor | | |
| Signed | | | | Signed | | |
| Date | | | | Date | | |

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# OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN FOR A PROPOSED RESIDENTIAL DEVELOPMENT

## BALDOYLE-STAPOLIN, DUBLIN 13.

## "GROWTH AREA 2"

Report Prepared For

**Lismore Homes Ltd.**

Report Prepared By

**Chonaill Bradley**, Principal Environmental Consultant

Our Reference

CB/21/12473WMR03

Date of Issue

23 March 2022

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**Record of Approval**

| Details | Written by | Approved by |
|---|---|---|
| Signature |  |  |
| Name | Chonaill Bradley | Fergal Callaghan |
| Title | Principal Environmental Consultant | Director |
| Date | 23 March 2022 | 23 March 2022 |

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## 1.0 INTRODUCTION

This Outline Construction Environmental Management Plan (CEMP) has been prepared by AWN Consulting (AWN) on behalf of Lismore Homes Ltd. for a proposed residential development. The proposed development consists of the construction of 1,007 residential apartments, communal residential community rooms, and a ground floor creche in 16 no. buildings with heights varying from 4 to 12 storeys, basement and surface level car parking, secure bicycle parking, landscaping, water supply connection at Red Arches Road, and all ancillary site development works on a site located in the townland of Stapolin, Coast Road, Baldoyle, Dublin

The outline CEMP provides a framework from which a more detailed CEMP will be developed to implement the mitigation measures described below which are designed to avoid, minimise or mitigate adverse construction effects on the environment prior to commencement on site.

This Outline CEMP has been prepared to account for activities at the site during the excavation and construction phase of the project.

The main issues that have been considered within this document are as follows;

- Description of works;
- Construction programme and phasing;
- Site logistics;
- Workforce;
- Public relations and community liaison;
- Construction traffic and access; and
- Safety, health and environmental management.

## 2.0 DESCRIPTION OF THE PROJECT

The site of the proposed development ('the site') is c. 5.9 hectares located at Baldoyle-Stapolin, Dublin 13. The site located 8km northeast of Dublin city centre, the site forms part of the overall Coast residential community that has been planned on c. 41 hectares of residential zoned land around Clongriffin DART station. The proposed development site and surrounding site context is shown on Figure 2.1 below.

The site is located on the southern boundary of the Fingal County Council (FCC) administrative area and is subject to the Fingal County Council Development Plan (CDP) 2017-2023 and Baldoyle-Stapolin Local Area Plan (LAP) 2013. The Dublin City Council administrative boundary is located just beyond the Dublin-Belfast / DART railway line and Clongriffin rail station. To the west of the railway lies the developing mixed use area of Clongriffin within Dublin City Council's wider North Fringe Area encompassing Northern Cross/Clare Hall/Belmayne to Clongriffin.

The wider area is characterised by a predominantly residential uses as the site surrounded by the residential centres of Donaghmede, Bayside and Clongriffin. The coastal towns of Portmarnock and Malahide are located further to the north. The Mayne Marsh Conservation Area and Baldoyle Estuary Nature Reserve is located beyond the future Racecourse Regional Park; these areas, including the bay itself), from part of the Baldoyle Bay Special Protection Area (SPA),Special Area of Conservation (SAC), proposed Natural Heritage Area (pNHA), and Ramsar Convention Wetland.


***Figure 2.1*** *Proposed location of site*

The proposed development consists of the construction of 1,007 residential apartments (consisting of 58 no. studio units, 247 no. 1 bedroom units, 94 no. 2 bedroom 3 person units, 563 no. 2 bedroom 4 person units, and 45 no. 3 bedroom units), communal residential community rooms, and a ground floor creche in 16 no. buildings with heights varying from 4 to 12 storeys, basement and surface level car parking, secure bicycle parking, landscaping, water supply connection at Red Arches Road, and all ancillary site development works.

The residential development will comprise a mix of 1,007 residential apartment types and sizes as follows apartments units. A ground floor creche facility is proposed to serve the proposed development. It is shown at ground level within Sector 8A, Block 1 and it includes a dedicated creche outdoor area and set down car parking.

## 3.0 CONSTRUCTION PROGRAMME AND PHASING

The construction works associated with the development will be undertaken in one phase. There will be no demolition required as part of this development, there will however be excavations required to accommodate site levelling, services and foundations.

Subject to detailed planning at the construction stage, it is currently envisaged that the construction compound, offices and storage areas will be located at one location and can be viewed in Figure 3.1.


***Figure 3.1*** *Proposed Site Phasing and Potential Compound & Staff Parking Location Options*

## 3.1 DEMOLITION PHASE

There will be no demolition required as part of this development.

## 3.2 EXCAVATION & CONSTRUCTION PHASE

The project excavations will involve excavations for new foundations, site levelling and excavations for roads and services. The Construction and Demolition Waste Plan prepared by AWN Consulting (ref CB21_12473WMR01), for the development will be updated by the main contractor and will be in compliance with the requirements of the "Best Practice Guidelines for the Preparation of Waste Management Plans for the Construction and Demolition Projects" published by the Department of the Environment Heritage and Local Government and the 'Best Practice Guidelines for the Preparation of Resource Management Plans for Construction & Demolition Projects' will identify and categorise any waste arising from the development.

The plan will also contain the proposals for the minimisation, re-use and re-cycling of site generated waste. As part of this plan separate storage areas will be designated on the site for various types of material in order to maximise the re-use and re-cycling potential. Procedure will also be put in place to ensure that all sub-contractors fulfil the requirements of the Waste Management Plan.

Estimates for the duration of the construction works are included in the table below. The overall start-to-finish duration is estimated to be 48 months with some development and fit out aspects overlapping.

The scheme is split into 5 phases generally moving from East to West across the site. Following the numbering as shown in figure 4.1.

***Table 3.1*** *Estimated Construction Duration*

| Development Element | Sector | Estimated Construction Duration |
|---|---|---|
| Phase 1 | 8B | 12 |
| Phase 2 | 8C | 12 |
| Phase 3 | 8A | 12 |
| Phase 4 | 6A, 6B | 12 |
| Phase 5 | 7 | 12 |

The works will include:

- Site set up, welfare facilities and compound establishment, decommissioning and movement of site compound and facilities as needed.
- Set up of hoarding around compound and the site boundary.
- Erection of safety signage to all areas and implementation of traffic/pedestrian management plan.

# 4.0 EXCAVATIONS

## 4.1 ARCHAEOLOGICAL AND ARCHITECTURAL HERITAGE

To set the proposed development within its wider archaeological, architectural and cultural heritage landscape, and to assess the potential of encountering such features on the site, a paper survey of archaeological, architectural heritage, historical and cartographic sources was undertaken.

As the proposed development lands were previously in agricultural use, there is the possibility of sub-surface archaeological features surviving within the site boundary. In order to mitigate against the potential impacts of the proposed development on such features, should they exist, the following mitigation measures will be undertaken.

Given the level of disturbance of the land, it is likely that a geophysical survey would be of value in identifying potential sub-surface features.

Therefore, a programme of archaeological testing will be undertaken across the greenfield areas of the proposed development lands prior to the commencement of construction works, under license to the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht.

Should any features of archaeological potential be identified, then they will be assessed, and following consultation with the National Monuments Service, should it not be possible to preserve these in-situ, then they will be excavated in full (preservation by record) under license to the National Monuments Service.

## 4.2 GROUND CONDITIONS

Ground Investigations Ireland (GII) carried out an environmental site investigation directly to the east of the proposed development site between October 2019 and February 2020 (BSM, 2021). The scope of works included trial pitting, borehole drilling, subsoil sampling, interpretation of chemical data and reporting. Site investigation works also entailed Geotechnical & Environmental Laboratory testing (12 No in total for environmental testing).

During the 2019 and 2020 site investigations, samples were recovered from the on-site trial pit and borehole locations and sent for analysis. In order to assess materials, which may be excavated and removed from Site, in terms of waste classification, a

selection of samples collected were analysed for a suite of parameters which allows for the assessment of the soils in terms of total pollutant content for classification of materials as hazardous or non-hazardous referred to as the 'RILTA Suite'. The parameter list for the RILTA suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead, nickel, mercury, zinc, speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen. The total pollutant content analysis also provides analytical data which can be used to assess the quality of the subsoils underlying the Site and allow an assessment of their suitability for a range of proposed uses against generic assessment criteria.

The RILTA Suite also includes those parameters specified in the EU Council Decision Establishing Criteria for the Acceptance of Waste at Landfills (Council Decision 2003/33/EC), referred to as Waste Acceptance Criteria (WAC), which for the solid samples are pH; total organic carbon (TOC); speciated aliphatic and aromatic petroleum hydrocarbons; benzene, toluene, ethylbenzene and xylene (BTEX); phenol; polychlorinated biphenyls (PCB); and polycyclic aromatic hydrocarbons (PAH).

In line with the requirement of Council Decision 2003/33/EC, leachate was generated from the solid samples, which was in turn analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS). The suite was selected due to the unknown origin of the material underlying the Site and no evidence of specific contaminants of concern highlighted in the Site history. The laboratory testing was competed by Element Materials Technology (EMT) in the UK; EMT is a UKAS accredited laboratory( BSM, 2021)

The laboratory analysis did not identify any asbestos containing materials (ACMs) in any of the samples tested.

All of the samples collected at the site were categorised as inert (as per Council Decision annex 2003/33/EC). There was no evidence of waste deposited on-site during Site investigation works (BSM, 2021).

If any potentially contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled *'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [12] using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* [13], which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos Containing Materials (ACMs) are found, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.* All asbestos will be taken to a suitably licensed or permitted facility.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify FCC and provide a Hazardous/Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal/treatment, in addition to information on the authorised waste collector(s).

# 5.0 SITE LOGISTICS

## 5.1 SITE SAFETY COMPLIANCE

The Contractor shall be responsible for overall management of the site for the duration of the proposed works and must progress their works with reasonable skill, care, diligence and to proactively manage the works in a manner most likely to ensure the safety and welfare of those carrying out construction works.

The Contractor shall comply with all relevant Statutory requirements such as the 2005 Safety Health and Welfare at Work Act, The Construction Regulations (SI 291 of 2013), the General Application Regulations (SI 299 of 2007), etc. (and any amendments thereof).

In addition, the Contractor shall comply with all the reasonable safety requirements of the Client, the Project Supervisor for the Design Process and the Project Supervisor for the Construction Stage.

## 5.2 SITE ESTABLISHMENT AND SECURITY

The first activity to be carried out at the site will be the establishment of site facilities and security. It is anticipated that site establishment works will take approximately four weeks. The site office and welfare facilities will be confirmed in advance of the commencement of site works and agreed with Fingal County Council. Figure 3.1 point shows the proposed locations of the site compounds.

All of the sub-contractors as well as the main contractor and project managers will occupy offices within the construction compounds. The site parking for all staff, contractors and visitors will also be located in this area.

Site access will be restricted by dedicated security personnel who will check all incoming and outgoing vehicles and workers.

## 5.3 CONSENTS AND LICENSES

All statutory consents and licences required to commence on-site construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. These will include, but are not limited to:

- Site notices;
- Construction commencement notices; and
- Licence to connect to existing utilities and mains sewers, where required;

## 5.4 SERVICES AND UTILITIES

Welfare facilities (canteens, toilets etc.) will be available within the construction compound and this will remain in place for the construction of the proposed development. The offices and site amenities will initially need to have their own power supply (generator), water deliveries and foul water collection until connections are made to the mains networks.

Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required.

The current electricity facilities on the site of the proposed development are supplied by the ESB through a ring network. All electrical works, including connection to the ESB network will be carried out by a suitably qualified contractor.

Water will be required for welfare facilities, dust suppression and general construction activities. There will also be foul waste water requirements associated portable sanitary facilities within the construction compound.

The welfare facilities (canteens, toilets etc.) will be available within the construction compound on site. The site office and welfare facilities will be situated on site at an agreed location within the site boundary with one of the potential locations being in Phase 5 as shown in figure 3.1.

The Main Contractor will require a water source for the duration of the construction works. A temporary connection for water supply from Irish Water will not be requested. Instead a combination of tankered water and bottled water will be used. Water will be required for Contractor welfare facilities and construction activities. A combination of tankered water and bottled water will be used in the early phase of construction. Temporary connections to the existing estate services in the existing estate road will be utilised by the Main Contractor to provide service and utilities subject to relevant applications and approvals.

While there is existing surface and foul water infrastructure within the site this is to be grubbed up and removed during site preparation works. Wastewater generated at the welfare facilities in the construction compound will be managed in the early phase by means of a temporary sealed storage tank, with all wastewater being tankered off-site to an appropriately licensed facility for disposal. Temporary connections to the existing wastewater services in the existing estate road will be utilised to provide service and utilities subject to relevant applications and approvals.

## 5.5 MATERIAL HANDLING AND STORAGE

Key materials which will be ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage.

Where possible it is proposed to source general construction materials from the Dublin area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in the compound area within the site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.

The majority of construction waste materials generated will be soil from excavation works. Material will be removed from site regularly to ensure there is minimal need for stockpiling.

### 5.6 VISITOR MANAGEMENT

Visitors will only be allowed to enter the main site compound via the designated pedestrian access gate. A dedicated, secured footpath to the site office is established at the gate for registration and obtaining PPE prior to entering the site. A log will be maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the compound and/or construction site unless being accompanied by an inducted member of the site team.

Visitors will then be taken by an inducted member of the construction team to the required area of the site.

### 5.7 SITE WORKING HOURS

Site development and building works will only be carried out between the hours of 0800 to 1900 Mondays to Fridays inclusive and between 0800 and 1300 hours on Saturdays There will be no construction works carried out on Sundays or public holidays. Deviation from these times will only take place when written approval is granted by FCC in exceptional circumstances.

### 5.8 EMPLOYMENT AND MANAGEMENT WORKFORCE

It is estimated that there will initially be 80-100 staff on site on a typical day, however during peak construction periods this is expected to fluctuate up to 200-250 staff and contractors on site per day.

It is anticipated that the key project managers and main contractor representatives will maintain a presence on site for the whole duration of the project and the labour workforce will be determined by the specialist contractors required on site.

All employees working on the site will be required to have a SafePass Card (or similar approved Construction Health & Safety card), manual handling training, CIF COVID 19 training and the necessary certificates to operate machinery as required. The details of training required, records maintained, and induction procedures will be outlined in the Main Contractor's Health and Safety Plan(s).

## 6.0 CONSTRUCTION TRAFFIC AND SITE ACCESS

### 6.1 TRAFFIC MANAGEMENT

Traffic will be managed in accordance with the principles outlined below and shall comply at all times with the requirements of:

- Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional requirements detailed in Design Manual for Urban Roads & Streets (DMURS)

Construction traffic operation would be limited to 0800 to 1900 from Monday to Friday and 0800 to 1300 on Saturday for the off-road construction. These times may vary to facilitate specific site requirements and/or construction activities associated with the site.

A Construction Manager will be appointed to liaise directly with the various sections of Fingal County Council. The Construction Traffic Management Plan will take into account construction vehicle routing and timing to mitigate any issues with vehicles on the public road network.

Excavated material will be reused as part of the site development works where possible to minimise truck movements to and from the site (e.g. use as non-structural fill under green areas).

All parking areas for operatives and visitors will be clearly marked.

Internal routes for construction traffic will be clearly marked and temporary lighting provided as necessary.

Speed limits imposed will be strictly adhered to during the construction of the works.

Separated pedestrian traffic routes within the site will be clearly marked, have appropriate lighting and be guarded. All vehicle crossing points will have appropriate signage to alert pedestrians of possible interaction. All site operatives will be given a specific site induction, giving information on the pedestrian access routes.

Wheel wash facilities will be provided from the start of the project to the completion of the project. The wheel wash will be stationed before site egress. The cleaning of vehicles will be carried out by the gateman onsite. This will be used for all heavy goods vehicles leaving the site daily. A road sweeper will also be utilised as required on Moyne Road at the vehicular access / egress point.

This Construction Traffic Management Plan will be revised by the Construction contractor will include, inter alia, any conditions of planning, a detailed construction programme for the works, hours of operation, details of a truck wheel wash at the site entrance, and details of entrance signage, and construction lighting.

## 6.2 SITE ACCESS AND EGRESS ARRANGEMENTS

It is proposed that the accesses and haul roads for vehicles will utilising the existing north-south haul road from Mayne Road via a road bridge over the River Mayne (see Figure 7.1 below). The existing dedicated access road for all construction vehicles is present which links the proposed development site Growth Area 2 ('GA2') site (and the adjacent development sites GA1 and GA3) directly to Moyne Road. A junction is formed with Moyne Road which includes appropriate construction signage. The access road is for construction traffic only and has no traffic impact on the existing residences in the Baldoyle Stapolin LAP lands.

All construction traffic will use the haulage route to the north. Construction traffic will not be permitted to use Red Arches Road, Red Arches Park or Grange Road/Longfield Road unless permission is obtained from Fingal County Council.


***Figure 6.1*** *Site Location and Context; indicative site boundary in red (Source: Google Maps)*

During the execution of the construction works, only site operatives and authorised visitors will be permitted to enter the works areas with appropriate PPE safety gear via the existing Moyne Road access point. Only authorised vehicles will be permitted on site. The Main Contractor Site Manager is responsible for managing access for site operatives, authorised visitors and vehicles.

The Main Contractor Site Manager will be responsible for managing the delivery of materials and equipment to minimise disruptions to other road users and residents. Deliveries of materials and equipment will be limited to off peak times.

Vehicles will be directed to the delivery points for holding/off-loading/storage. These deliveries will be controlled by a dedicated person on site allocated to overseeing all deliveries and controlling the entrance.

Certain trades will require parking on site for vehicles due to transportation of specialist equipment/plant requirements. A specially designated parking area located beside the site compound and storage area will be allocated for this. Parking of Heavy Goods Vehicles, if required, will be within the site and in designated areas which will be clearly marked out. Heavy Goods Vehicles will generally only be carrying out deliveries to site.

## 6.3 HEAVY GOODS VEHICLE (HGV) ACCESS ROUTE AND TRAFFIC QUEUEING

Material deliveries and collections from site will be planned, scheduled and staggered to avoid any unnecessary build-up of construction works related traffic.

Heavy Goods Vehicle (HGV) access routes on the wider road network will be restricted to specified routes and incorporated into training and induction for drivers. The access

routes will lead to the existing construction access point on Moyne Road. A potential access route for Heavy Goods Vehicles, subject to the approval of Fingal County Council, is shown below. This route endeavours to avoid residential areas as much as possible. Note that trucks cannot negotiate the rail bridge at Moyne Road.

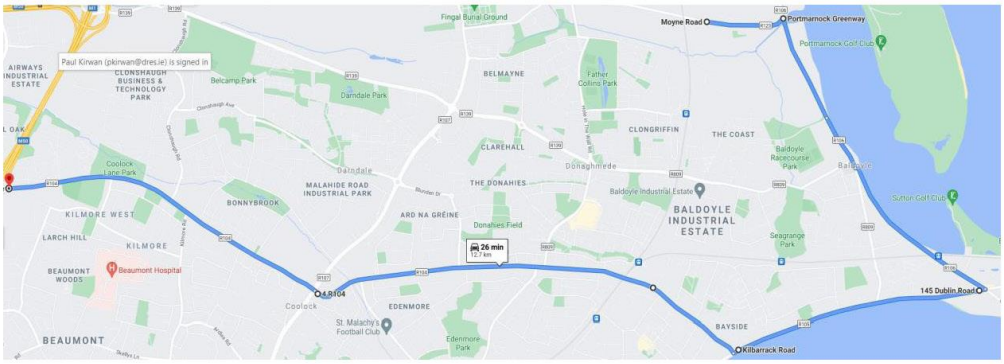


***Figure 6.2*** *Access route for Heavy Goods Vehicles*

## 6.4 LANE / ROAD CLOSURES

Road closures are not anticipated, however if they are required for the delivery of large items of plant or materials then such temporary road closures will be planned and approved by the Local Authority and other relevant authorities.

Two-way traffic will be maintained throughout the project. Advanced warning signs will be placed at sufficient distances to taper off the entry and exit points. Pedestrian marshals will be used as and when required.

# 7.0 SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS

The appointed main contractor will be required to prepare a Construction Health & Safety Plan which will be put in place prior to commencement of the works. At a minimum, this plan will include:

- Construction Health & Safety training requirements;
- Covid 19 guidelines;
- Induction procedures;
- Emergency protocols; and
- Details of welfare facilities.

## 7.1 CONSTRUCTION LIGHTING

Construction work will generally be confined to daylight hours and lightning will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required (works on roadways and power floating floors as examples). Where possible and without jeopardising site safety lights will be pointed down at a 45-degree angle and away from sensitive receptors. The site compound will have external lights for safety and security. These lights will be pointed down at a 45-degree angle and away from sensitive receptors where possible.

## 7.2 AIR QUALITY

This section describes the site policy with regard to dust management and the specific mitigation measures which will be put in place during construction works. The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the measures set out below have been formulated by drawing on best practice guidance from Ireland, the UK and the US, such as:

- Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004) [1];
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) [2];
- The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996) [3]; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) [4].

### 7.2.1 Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will also be implemented to ensure impacts are minimised:

- Complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- Equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive; and
- Pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional.

Dust deposition levels will be monitored on a regular basis in order to assess the impact that site activities may have on the local ambient air quality. The following procedure will be implemented:

- The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2) days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities.
- The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures.
- After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in $mg/m^2/day$ in accordance with the relevant standards.

- Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager.

A limit value of 350 mg/m$^2$/day will be used in comparison with recorded values.

### 7.2.2 Dust Control Measures

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures should be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities should be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.

***Site Routes***

Site access routes (particularly unpaved areas) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25% to 80% [5].

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles or delivery vehicles within the vicinity of the site;
- Access gates to the site shall be located at least 10m from sensitive receptors where possible;
- Bowsers will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering is to reduce dust emissions by 50% [6]. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced areas shall be restricted to essential site traffic only.

***Excavation***

Excavation works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust;
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

The movement of truck containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

***Stockpiling***

The location and moisture content of rubble stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;
- Regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust;
- Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.

***Site Traffic on Public Roads***

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:

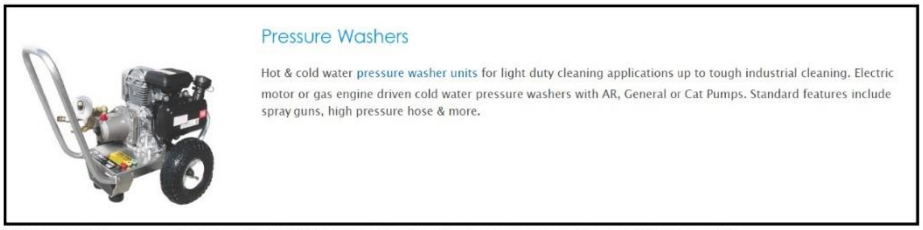


***Figure 7.1*** Example of Proposed wheel cleaning equipment example

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust;
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate, and an example of the washing equipment can be seen in Figure 7.1;
- The site entrance will be located so that vehicles cannot bypass these devices. Perimeter silt fences or bunds may assist in achieving this requirement; and
- Road sweepers will be employed to clean the site access route as required.

***General***

- The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory management of dust by the construction contractor.

## 7.3 ECOLOGY

The key strategies to be undertaken to minimise impact on the local flora and fauna during site clearing and construction are as follows.

- The noise management mitigation measures contained in Section 8.4 will ensure that construction noise wont impact on ecology.
- The surface water management and mitigation measures contained in Section 8.6 including the provision of the surface water management plan will ensure that silt run-off and potential flooding risks are minimised which will protect any ecological receptors associated with the site.
- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will need be followed (i.e. do not remove trees or shrubs during the nesting season (1 March to 31 August, inclusive)). Snipe will be protected on site with the presence on ecologist during initial site clearance.
- Pre-construction inspections will be carried out for bats and terrestrial mammals of conservation importance. Appropriate derogation licences will be acquired and conditions implemented if roosting bats or resting/breeding places of terrestrial mammals are noted on site or impacted by the proposed development.
- Boundary vegetation, treelines and hedgerows may serve as commuting corridors for bats (and other wildlife) and will remain unlit during the construction phase.
- The use of appropriate water-based dust suppression systems will greatly reduce the amount of dust and windborne particulates as a result of the construction process. The main Contractor will be responsible for the coordination, implementation and ongoing monitoring of the Dust Management Plan mitigation measures outlined in Section 8.2 and in the Dust Management Plan (Appendix 9.3) shall be implemented.
- Construction lighting will be designed so as to be sensitive to the potential presence of nocturnal wildlife within and external to the site. Construction lighting will adhere to the following guidance:
    - Bats & Lighting: Guidance Notes for Planners, engineers, architects and developers (Bat Conservation Trust, 2010);
    - Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011);
    - Bats and Lighting in the UK – Bats and the Built Environment Series (Bat Conservation Trust UK, January 2008).

## 7.4 NOISE AND VIBRATION

Noise impacts arising from earthworks and construction activities have the potential to cause annoyance or nuisance to local residents and businesses in the area.

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (if required), excavators, lifting equipment, dumper trucks, compressors and generators.

The noise limits to be applied for the duration of the infrastructure works are those specified in the B Category of BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

- Night (23:00-07:00) = 55dB $L_{Aeq,1hr}$
- Evening (19:00-23:00) = 65dB $L_{Aeq,1hr}$
- Day (07:00-19:00) = 70dB $L_{Aeq,1hr}$

The total construction noise ($L_{Aeq,1hr}$) which should not be exceeded during daytime is therefore 70dB.

General Noise Mitigation

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (if required), excavators, lifting equipment, dumper trucks, compressors and generators.

The noise limits to be applied for the duration of the infrastructure works are those specified in the B Category of BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

- Night (23:00-07:00) = 55dB $L_{Aeq,1hr}$
- Evening (19:00-23:00) = 65dB $L_{Aeq,1hr}$
- Day (07:00-19:00) = 70dB $L_{Aeq,1hr}$

The total construction noise ($L_{Aeq,1hr}$) which should not be exceeded during daytime is therefore 70dB.

Following the same approach, BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Vibration recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15mm/s at 4Hz increasing to 20mm/s at 15Hz and 50mm/s at 40Hz and above.

The standard also notes that below 12.5 mm/s PPV the risk of damage tends to zero. The recommended construction vibration criteria;

- Less than 15Hz - 15mm/s
- 15 to 40 Hz - 20mm/s
- 40 Hz and above - 50mm/s

Any noise complaints related to activities at the site will be logged and investigated and, where required, measures taken to ameliorate the source of the noise complaint.

A designated noise liaison should be appointed to site during construction works. Any complaints should be logged and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity, e.g. excavation close to a property, etc., the site contact should inform the nearest noise sensitive locations of the time and expected duration of the works.

All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. In general, the contractor shall implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

- In accordance with "Best Practicable Means", plant and activities to be employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Where required, improved sound reduction methods are used e.g. enclosures.
- Site equipment is located away from noise sensitive areas, as much as physically possible.
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery.
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out.
- A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site.

External noise and vibration monitoring will be undertaken at locations on the site boundary closest to sensitive locations. It is considered that it will be appropriate to amend the monitoring program as the works progress. Accordingly, monitors may be added, removed or relocated as necessary.

The noise monitoring terminals should provide the following at minimum:

- Logging at hourly intervals; and
- Daily CIC automated calibrations.

Vibration monitoring terminals should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with BS ISO 4866: 2010: *Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.*

The mounting of the transducer to the vibrating structure, by way of resin fixings only, will need to comply with BS EN ISO 5348: 1998: *Mechanical vibration and shock – Mechanical mounting of accelerometers*. In summary, the following ideal mounting conditions apply:

- The transducer and its mountings should be as rigid as possible;
- The mounting surfaces should be as clean and flat as possible;
- Simple symmetric mountings are best, and;
- The mass of the mounting should be small in comparison to that of the structure under test.

## 7.5 WASTE MANAGEMENT

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment. A site-specific Construction and Demolition Waste Management Plan has been prepared by AWN Consulting. and will be employed to ensure sustainable and effective waste management throughout the construction and excavation phases of the project.

Adherence to the C&D WMP prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the *Waste Management Acts 1996 – 2011* as amended [7], associated Regulations [7], the *Litter Pollution Act of 1997*-2009 as amended [8] and the *Eastern-Midlands Region Waste Management Plan 2015 – 2021* [9], and that it will achieve optimum levels of waste reduction, re-use and recycling.

Typical waste materials that will be generated from the construction works will include:

- Soil and stones;
- Concrete, bricks, tiles and ceramics;
- Wood, glass and plastics;
- Metals;
- Gypsum-based construction material;
- Paper and cardboard;
- Mixed C&D waste;
- Chemicals (solvents, paints, adhesives, detergents etc.) ; and

The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management.

### 1.1.1 Waste Minimisation

Waste minimisation measures proposed are summarised as follows (and are described in more detail in the C&D WMP):

- Materials will be ordered on an 'as needed' basis to prevent over supply;
- Materials will be correctly stored and handled to minimise the generation of damaged materials;
- Materials will be ordered in appropriate sequence to minimise materials stored on site;
- A waste tracking log will be established;
- Sub-contractors will be responsible for similarly managing their wastes; and
- All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

### 1.1.2 Waste Storage

The main waste storage area will be located in the site compound. A dedicated and secure area containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development see figure 3.1.

Waste materials generated will be segregated on at the site compound, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Dublin Region that provide this service.

The site construction manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

### 1.1.3 Pest Management

A pest control operator will be appointed as required to manage pest onsite during the construction phase of the project.

Organic and food wastes generated by staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

#### 7.5.1.1 Responsibility

It will be the responsibility of the construction manager to ensure that a written record of all quantities and natures of wastes removed from the site are maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager or his/her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licensed or permitted waste facility in compliance with the relevant Regulations as outlined in the C&D WMP.

The contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will assist the project manager in implementing the measures under the C&D WMP and in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

Prior to commencement of the excavation and construction activity and removal of any waste off-site, details of the proposed destination of each waste stream will be provided to FCC, along with waste collection permit numbers.

## 7.6 PREVENTION OF ACCIDENTAL RELEASES

### 7.6.1 Prevention of Concrete Run-off

Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.

A suitable risk assessment for wet concreting will be completed prior to works being carried out, which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at an appropriate facility off-site.

### 7.6.2 Fuel and Chemical Handling

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and prevent any resulting to surface water systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

### 7.6.3 Other Chemical Storage

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately bunded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from any surface water drains (minumum 20 m buffer zone).

Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

## 7.7 SURFACE WATER MANAGEMENT

During construction the contamination of surface waters, and run-off from excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions.

The Construction Surface Water Management Plan prepared by AWN (Appendix 7.X) aims to set out the proposed procedures and operations to be utilised on the proposed construction site to protect water quality. The mitigation and control measures outlined in the SWMP will be employed on site during the construction phase. All mitigation measures outlined within the SWMP will be implemented during the construction phase, as well as any additional measures required pursuant to planning conditions which may be imposed.

The main areas of water related concerns covered by the SWMP document are:

- Pre-Construction, Construction Phase drainage controls;
- Management of Earthworks and Materials Storage;
- Surface water runoff protection (sit fences, silt traps, diversion channels);
- Prevention of Accidental Releases (concrete, fuel, and chemical handling); and
- Surface Water Treatment and Discharge, and
- Foul Water And Onsite Sanitation.

The SWMP is live document and will be modified over time as detailed contractor methods of work are developed. If the development is permitted an updated version of

this document will be issued to all parties involved in the construction process when appropriate changes are deemed necessary.

There shall not be discharge of ***untreated***, silty, or contaminated water from the works to any watercourse or stormwater network. Should any discharge of ***untreated*** construction water be required during the construction phase, the discharge will be to foul sewer following agreement with Fingal County Council / Irish Water.

There is no significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry.

The discharge of ***treated*** construction water from rainfall into excavated areas, or from any localised dewatering may be required during construction. This ***treated*** construction water will be discharged to the existing 1500 diameter concrete stormwater main, that traverses underneath the north fringe sewer and discharges to the Mayne River.

## 8.0 SUMMARY

This Outline CEMP sets out the overall management strategy for excavation and construction works for the proposed development. The Outline CEMP aims to ensure the management of excavation and construction activity is carried out in a planned, structured and considerate manner which minimises the impacts of the works on the local environment, residents and commercial activities in the vicinity of the site. Due to the nature of construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required.

The project team are committed to ensuring that the construction activities to be carried out are pro-actively managed so as to minimise potential impacts.

## 9.0 REFERENCES


1. Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004).
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4. Design Manual for Roads and Bridges & Design Manual for Urban Roads & Streets (2019)
5. US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)* (1986).
6. The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996).
7. Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014).
8. UK Office of Deputy Prime Minister, *Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance* (2002).
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10. *Waste Management Acts 1996 – 2011* Litter Pollution Act 1997 (No. 12 of 1997) as amended
11. *Eastern-Midlands Region Waste Management Plan 2015 – 2021* (2015)
12. Construction Industry Research and Information Association (CIRIA) *Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532)*.
13. CIRIA, *Environmental Good Practice on Site* (3rd edition) (C692).