



Natura Impact Statement (NIS)  
(also forms Appendix 4.3 of EIAR)

Haggardstown, Blackrock, Co. Louth

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## 1. INTRODUCTION

- 1.1 Corvus Consulting was commissioned to compile the Natura Impact Statement (NIS) for a site proposed for development at Haggardstown, Blackrock, Co. Louth.

### Remit & Scope

- 1.2 Article 6(3) of the Habitats Directive<sup>1</sup> establishes an obligation to put concern for potential effects on Natura 2000 sites at the forefront of decision making – assessment pursuant to Article 6(3) must be undertaken for all implicated plans and projects to determine the nature and significance of any impacts which may arise on the integrity of the Natura 2000 network of sites. To this end, a Natura Impact Statement (NIS) must be compiled for all implicated plans and projects.
- 1.3 While it is the responsibility of the competent national authorities to undertake the formal assessment, it is the responsibility of the project proponent to collate and provide all of the necessary information, in a Natura Impact Statement (NIS). It is the function of this report to provide the required information and thereby assist the competent authority in the completion of formal Appropriate Assessment.
- 1.4 The NIS represents the final stage in the iterative, pre-application design and assessment process.

### Summary Conclusions

- 1.5 The NIS in Section 4 demonstrates, on the basis of precautionary, objective scientific assessment, that the development proposals can be consented without causing significant adverse effects on the integrity of Dundalk Bay SAC or Dundalk Bay SPA.
- 1.6 Assessment has demonstrated that the required measures to avoid, mitigate and otherwise reduce the significance of adverse impacts on the integrity of the Natura 2000 sites are technically feasible and attach a high level of confidence in implementation and success. The proposed development will not interfere with any key relationships or elements within the environment which define and control the structure and function of any Natura 2000 sites and will not result in significant adverse impacts on the integrity of the Natura 2000 network or any associated/underlying designations.

### Personnel

- 1.7 Assessment has been conducted by Mr Gareth Grindle B.Sc. (Hons.) M.Sc. L.L.M. M.I.Env.Sc. M.C.I.E.E.M., who has compiled the NIS and is the primary author of this report.
- 1.8 Mr Grindle a Director of Corvus Environmental Consulting Ltd. He holds an Honours degree in Environmental Science (B.Sc. (Hons.), University of Stirling, 2000), a Master of Science in Environmental Change (M.Sc., King's College, London 2001) and a Master of Laws in Environmental Law (L.L.M., Queen's University, Belfast 2014). He has over 15 years' professional experience in the public, private and voluntary sectors and is a full member of both the Chartered Institute of Ecology & Environmental Management (M.C.I.E.E.M.) and the Institution of Environmental Sciences (M.I.Env.Sc.), organisations requiring peer-review for membership and a high standard of professional conduct.

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<sup>1</sup> Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

## Legislative Context

- 1.9 The principal national legislation providing for nature conservation and the protection of biodiversity and wildlife in Ireland is the Wildlife Act 1976, updated by the Wildlife (Amendment) Act 2000 and the European Union (Natural Habitats) Regulations 1997, updated and amended twice in 1998 and 2005, and subsequently revised and consolidated as the European Communities (Birds and Natural Habitats) Regulations 2011.
- 1.10 The early legislation provided a solid basis for species protection and pre-empted many requirements of later EU Directives, but habitat and site protection measures were relatively weak. Following the ratification of various international agreements, including the Bonn and Berne Conventions,<sup>2</sup> international, intergovernmental treaties concerned with the conservation of wildlife and habitats on a global scale, the European Community adopted Council Directive 79/409/EEC on the conservation of wild birds (*'the Wild Birds Directive'* now codified as 2009/147/EC) and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (*'the Habitats Directive'*), now transposed into Irish law, as is set out above. These Directives provide *inter alia* for the protection of species, habitats of species and for the establishment of a European network of protected areas known as Natura 2000.
- 1.11 The Wild Birds Directive details special measures to conserve wild birds, with an overall purpose of providing for the protection, management and control of all naturally occurring species and requires the identification of Special Protection Areas (SPA). The Habitats Directive covers habitats and non-avian species of fauna which are of nature conservation importance and in danger of disappearance, and for which the EC has particular responsibility in view of the proportion of their global range. The Habitats Directive requires the identification and protection of Special Areas of Conservation (SAC) for Annex I habitats and Annex II species and provides for the establishment and protection of the Natura 2000 network of designated sites (SPAs and SACs).
- 1.12 Article 3 of the Habitats Directive provides for the establishment of a coherent European ecological network of designated sites (*'Natura 2000'*) comprised of sites designated, or in the latter stages of designation, under both the EU Birds Directive and EU Habitats Directive:
- Special Areas of Conservation (SAC) – sites notified under the Habitats Directive, which have been adopted by the EC and formally designated by the member state
  - Special Protection Areas (SPA) – sites notified under the Wild Birds Directive, which have been adopted by the EC and formally designated by the member state
  - Sites of Community Importance (SCI) – sites notified under either directive, which have been adopted by the EC, but not yet formally designated by the member state
  - Candidate and Proposed sites – sites notified under either directive, which have been submitted to the EC, but not yet formally adopted
- 1.13 The Habitats Directive is transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations, 2011. Assessment is dealt with in Part 5. Article 6(3) of the Directive establishes the requirement for detailed prior, precautionary assessment of potential impacts on the integrity of the Natura 2000 network and further establishes that national authorities shall agree to the plan or project only once it has been demonstrated that the integrity of any Natura 2000 site concerned will not be compromised:

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<sup>2</sup> The Convention on the Conservation of Migratory Species of Wild Animals (adopted in 1979; also known as CMS or Bonn Convention); The Convention on the Conservation of European Wildlife and Natural Habitats (adopted in 1979; the Bern Convention)



#### Article 6

3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent 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.

1.14 Article 6(4) then sets out the procedure for permitting derogation from this strict protection in certain restricted circumstances and when specific conditions are met.

### Data & Information

1.15 The data and information compiled and presented herein were sourced directly from Corvus Consulting site surveys, planning drawings and technical reports prepared on behalf of Kingsbridge Consulting, including the final draft of the EIAR and the outline Construction Environmental Management Plan (CEMP),<sup>3</sup> and the following online public sources:

- National Parks & Wildlife Service (NPWS): [www.npws.ie](http://www.npws.ie)
- National Biodiversity Data Centre (NBDC): [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- European Commission (Environment): [www.ec.europa.eu/environment/nature/natura2000](http://www.ec.europa.eu/environment/nature/natura2000)

### Assessment Methodology

1.16 Assessment pursuant to Article 6(3) of the Habitats Directive Assessment has a narrow focus – it is protection-led, conducted with due regard to the precautionary principle and is concerned exclusively with maintaining the integrity of the Natura 2000 network of sites.

1.17 Assessment is completed in accordance with the European Commission and Department of the Environment, Heritage and Local Government guidelines:

- *'Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC'*.<sup>4</sup>
- *'Managing Natura 2000 Sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'*.<sup>5</sup>
- *'Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities'*<sup>6</sup>

1.18 The established assessment methodology, in line with legislative requirements, requires a staged approach where the results of each stage determines the requirement for and scope of the subsequent stage:

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<sup>3</sup> *'Strategic Housing Development, Blackrock, Dundalk, Co. Louth. Outline Construction Environmental Plan. Kingsbridge Consultancy Ltd.'* (Atkins, December 2018)

<sup>4</sup> Available from: [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura\\_2000\\_assess\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf)

<sup>5</sup> Available from: [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision\\_of\\_art6\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf)

<sup>6</sup> Available from: [https://www.npws.ie/sites/default/files/publications/pdf/NPWS\\_2009\\_AA\\_Guidance.pdf](https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf)

- Stage 1 - Screening for Appropriate Assessment: The process which identifies the potential impacts of the plan or project which are likely to arise on the identified Natura 2000 sites and determines whether or not these are likely to be significant, in view of the site's conservation objectives. The precautionary principle must be applied – where significant adverse effects are likely, uncertain or unknown at screening, progression to the second stage is required. Significance is assessed against key indicators such as habitat loss, habitat degradation or fragmentation, species disturbance, species displacement or fragmentation, overall water and ecological quality etc. Mitigation, or other measures designed or envisioned to avoid or reduce the significance of adverse effects, are not taken into account.
- Stage 2 - Appropriate Assessment (AA): The detailed, scientific assessment of the likely effects on the integrity of the Natura 2000 sites. Impacts are assessed alone and in combination with other plans or projects with respect to the structure and function of the Natura 2000 sites and their published conservation objectives. Where adverse impacts are expected an assessment of the measures envisioned to avoid and/or mitigate impacts is also conducted. The aim of the assessment is to provide sufficient information, evidence and data to the competent authority on which to base their formal AA. The Natura Impact Statement (NIS) is prepared for this purpose.

1.19 Conservation Objectives for Natura 2000 sites, which aim to maintain or restore site features to favourable conservation status, are published by the National Parks and Wildlife Service (NPWS).

1.20 The majority of plans and projects are either consented or abandoned following a Stage 1 or Stage 2 assessment. Stages 3 and 4 are concerned with the procedure for consenting despite a negative assessment, in certain restricted circumstances.

#### Recent CJEU Case Law – People Over Wind

1.21 In a recent (April 2018) decision in *People Over Wind and Peter Sweetman v Coillte Teoranta (C-323/17)*, a reference by the Irish High Court for a preliminary ruling on the interpretation of Article 6(3) of the Habitats Directive, the Court of Justice of the European Union (CJEU) ruled that it is not appropriate, at the screening stage, to take account of measures to avoid or reduce harmful effects on Natura 2000 sites. The case also addressed the degree to which integrated mitigation measures can/should be taken into account during screening.

1.22 The CECJ interpreted 'mitigation' to mean '*... measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned...*' and took the view that where mitigation measures were to be taken into account during screening for appropriate assessment this '*... presupposes that it is likely that the site is affected significantly and that, consequently, such an assessment should be carried out...*'. The CJEU observed that, per the Directive, '*... a full and precise analysis of the measures capable of avoiding or reducing any significant effects ... must be carried out not at the screening stage, but specifically at the stage of appropriate assessment*' noting that a full appropriate assessment would provide significantly more information on the adequacy of the proposed mitigation.

1.23 The CJEU ruled that Article 6(3) must be interpreted as meaning that it is not appropriate to take account of mitigation at the screening stage and that in considering the need for appropriate assessment the only requirements were that:

- the plan or project is not necessary for the management of the Natura 2000 site, and
- it must be likely to have a significant effect on the Natura 2000 site.

## 2. BACKGROUND INFORMATION

- 2.1 This section provides information on the site, the proposed development and associated construction and operational activities.

### The Site and Immediate Surroundings

- 2.2 This is a large (c. 18 ha) greenfield site situated to the south of Dundalk and the north of Blackrock, Co. Louth [Figures 1a & 1b]. The development area includes the main site [Figure 1a] and small areas of lands outside this boundary to the east, required for site drainage and discharge to Dundalk Bay.
- 2.3 The site presents as rural and is in agricultural use, but the wider setting is within a predominantly developed area, with low-density housing to the immediate north and south-east and Dundalk Golf Club to the immediate west. Moving further away, the site, along with the golf course and adjoining agricultural areas, are entirely enclosed to the north, south and west by the extensive urban areas of Dundalk and Blackrock and associated main roads and industrial/commercial areas [Figure 1b].
- 2.4 The site is dominated by large agricultural (arable) fields, in cereal production or winter cover crop at various times during the assessment period, with marginal and peripheral areas of rough, semi-improved grassland. External site boundaries are marked, for the most part, by hedgerows – variously, managed thorn hedges, non-native garden hedgerows and lines of mature trees or screen planting – with some defunct and patchy sections marking internal field divisions. The proposed route for the main site access runs to the east from the main site over a wet area of rough, marshy grassland and scrub to join with the R172 Blackrock Road on the western shore of Dundalk Bay.

### The Proposed Development

- 2.5 The site is proposed for comprehensive, sustainable housing development, to provide a total of 483 residential units of various types (apartments, duplexes, townhouses, terraced, semi-detached and detached houses), a crèche and includes access and egress points, pedestrian and cyclist facilities, car parking, storm water SuDS and attenuation as required, foul and potable water services and all associated ancillary works and infrastructure, open space provision and landscaping.
- 2.6 Specifically, the project involves the sustainable development of:
- 258 no. houses (41 no. five bedroom 3-storey units, 20 no. four bedroom 3-storey units, 80 no. four bedroom 2-storey units, 1 no. four bedroom 1-storey unit, and 116 no. three bedroom 2-storey units);
  - 213 no. apartments (64 no. one bedroom units and 149 no. two bedroom units);
  - 12 no. Duplex Units (6 no. two bedroom below duplexes and 6 no. three bedroom duplexes);
  - Crèche (677 sqm);
  - the access road and priority junction with right turning lane off the R172 (Dundalk to Blackrock Roadway);
  - car parking spaces (824 no.) (including underground car parking (64 no.) at Apartment Block A and Apartment Block B), and bicycle parking spaces (512 no.);
  - all associated landscaping and site development works;
  - storm water drainage system via. 4 no. catchment areas, with interception storage and treatment of runoff within the SuDS features, via. permeable paving, swales, filter drains, silt traps and oil separators, and 2 no. culverts to be located offsite along existing drainage channels;
  - foul sewerage pumping station with rising main to connect to the public gravity mains at stand-off manhole located at the N52 junction with the Crowne Plaza Hotel/Dundalk IT entrance; and,

- potable water supply (300 mm/200 mm diameter pipeline) extending from the existing 700 mm diameter pipeline extending along Bothar Maol before passing through the site and connecting into the existing mains located along the R172 at the northern end of Blackrock village (near the site entrance).

2.7 Full details of the project are set out in Ch. 2 of the EIAR.

### Natura 2000 Sites

2.8 This section provides the background information on the Natura 2000 sites which have been identified as requiring assessment, with the underlying reasoning.

2.9 The assessment of ecological impacts on Natura 2000 sites is conducted utilising a standard *source-receptor-pathway* model where, in order for an impact mechanism to be established, all three elements must be in place. The absence or removal of one of the elements is sufficient to conclude that the associated potential impact mechanism is inoperable or insignificant, not relevant to the assessment and can, therefore, be excluded.

### Screening of Natura 2000 Sites & Rationale

2.10 The site is not within any Natura 2000 site however it is on the western shore of Dundalk Bay, which holds SPA and SAC designations [Figures 2s & 2b] and is also designated as a Ramsar Site and a pNHA.



Figure 1b: Site Location in Wider Local Context



 Site Boundary

Figure 2a: Dundalk Bay Special Protection Area





 Dundalk Bay SPA/Ramsar  
 Site Boundary

Figure 2b: Dundalk Bay Special Area of Conservation



**Plate 2.1:** Dundalk Bay SAC & SPA – designated areas of coastal habitat to the immediate east of the R172 Blackrock Road [December 2018]



**Plate 2.2:** Dundalk Bay SAC & SPA – designated areas of coastal habitat to the immediate east of the R172 Blackrock Road, at spring high-tide [January 2019]

- 2.11 The bulk of the site is set back from the shore, on elevated ground, at least 250 m from the designated areas but the main site access joins with the R172 Blackrock Road which abuts the designated areas on the western shore Dundalk Bay [Plates 2.1 & 2.2].
- 2.12 The site does not contain any watercourses, stream channels, drainage ditches or other surface water features other than a small area of degraded wetland fringe habitat in the eastern periphery, close to the R172. Surface water across the site drains directly to ground, with any overland flow percolating to ground in more permeable areas, for example in the low-lying eastern portion of the site, and may flow in discrete permeable zones immediately beneath the subsurface, prior to discharge to Dundalk Bay. The Haggardstown River, the Marshes Upper River and an unnamed drainage ditch are the only watercourses identified within c.2km of the proposed development (EPA, 2018) but none are hydraulically connected to the site.
- 2.13 Based on the results of the desk-based review and site walkover survey provided in the hydrology section of the EIAR (Ch. 10 Water), there is no evidence of any current operational direct hydrological link between the site and Dundalk Bay. However, indirect links via shallow groundwater flow and diffuse discharge via groundwater and/or surface water discharge to Dundalk Bay are likely. It is considered, for the purposes of assessment, that the site drains naturally, via groundwater and surface flow, directly to Dundalk Bay.
- 2.14 The site includes a strip of land alongside the R172, to the north-east of the site, to accommodate the main discharge channel for the site drainage network. The proposed culvert links to an existing drainage channel which discharges to marginal, semi-natural coastal habitat to the immediate north-east of the R172 which are coherent with habitat areas within the SPA & SAC but outside the designated boundaries [Plate 2.3].
- 2.15 The site is therefore ecologically and hydrologically connected to the designated areas of Dundalk Bay, in so far as adverse impacts on the integrity of the Natura 2000 designations may arise. Pathways can be established for potential direct and indirect adverse impacts on Dundalk Bay SPA and Dundalk Bay SAC. No other Natura 2000 sites are implicated.



**Plate 2.3:** Drainage Discharge – the proposed culvert links to an existing drainage channel which discharges to semi-natural coastal habitat to the north-east of the R172 which is coherent with the SPA & SAC (rear of frame) but outside the designated boundaries [December 2018]

### Natura 2000 Sites – Detailed Information

2.16 Dundalk Bay, Co. Louth is a large open shallow sea bay with extensive saltmarshes and intertidal sand/mudflats, extending some 16 km from Castletown River on the Cooley Peninsula, in the north, to Annagassan/Salterstown in the south. The bay encompasses the mouths and estuaries of the Rivers Dee, Glyde, Fane, Castletown and Flurry.

#### **Dundalk Bay SPA**

2.17 Dundalk Bay was classified SPA in November 2003 and updated in September 2017 (site code IE0004026). It is one of the most important wintering waterfowl sites in Ireland, regularly supporting more than 20,000 waterbirds. Predominantly a marine site (97%), the designated area covers approximately 13,238 ha. Dundalk Bay was classified SPA for the following species:

- Red-Throated Loon *Gavia stellata* (A001)
- Common Loon *Gavia immer* (A003)
- Great Crested Grebe *Podiceps cristatus* (A005)
- Great cormorant *Phalacrocorax carbo* (A017)
- Greylag Goose *Anser anser* (A043)
- Light-bellied Brent Goose *Branta bernicla hrota* (A046)
- Shelduck *Tadorna tadorna* (A048)
- Eurasian Wigeon *Anas penelope* (A050)
- Teal *Anas crecca* (A052)
- Mallard *Anas platyrhynchos* (A053)
- Pintail *Anas acuta* (A054)
- Common Goldeneye *Bucephala clangula* (A067)
- Red-breasted Merganser *Mergus serrator* (A069)
- Oystercatcher *Haematopus ostralegus* (A130)
- Ringed Plover *Charadrius hiaticula* (A137)
- Golden Plover *Pluvialis apricaria* (A140)
- Grey Plover *Pluvialis squatarola* (A141)
- Lapwing *Vanellus vanellus* (A142)
- Knot *Calidris canutus* (A143)
- Dunlin *Calidris alpina* (A149)



- Ruff *Philomachus pugnax* (A151)
- Black-tailed Godwit *Limosa limosa* (A156)
- Bar-tailed Godwit *Limosa lapponica* (A157)
- Curlew *Numenius arquata* (A160)
- Redshank *Tringa totanus* (A162)
- Common Greenshank *Tringa nebularia* (A164)
- Ruddy Turnstone *Arenaria interpres* (A169)
- Black-headed Gull *Chroicocephalus ridibundus* (A179)
- Common Gull *Larus canus* (A182)
- Greenland White-Fronted goose *Anser albifrons flavirostris* (A395)
- Wetlands & Waterbirds (A999) – as the Wild Birds Directive pays particular attention to wetlands, which form part of this SPA, wetland habitats associated avian species are of special conservation interest.

2.18 Table 2.1 (summarised from the Natura 2000 standard data form and conservation objectives) sets out the qualifying features and conservation objectives of Dundalk Bay SPA.<sup>7</sup>

**Table 2.1:** Dundalk Bay SPA Qualifying Features and Conservation Objectives

Qualifying Feature		Site Assessment				Population		
		Population <sup>8</sup>	Conservation <sup>9</sup>	Isolation <sup>10</sup>	Global <sup>11</sup>	Breed	Winter	Stage
A054	Pintail <i>Anas acuta</i>	B	A	C	A		117	
A052	Teal <i>Anas crecca</i>	C	A	C	C		488	
A050	Eurasian Wigeon <i>Anas penelope</i>	C	B	C	C		394	
A053	Mallard <i>Anas platyrhynchos</i>	C	A	C	C		763	
A395	Greenland White-Fronted goose <i>Anser albifrons flavirostris</i>	C	B	C	C		18	
A043	Greylag Goose <i>Anser anser</i>	B	B	C	A		435	
A169	Ruddy Turnstone <i>Arenaria interpres</i>	C	B	C	C		56	
A046	Light-bellied Brent Goose <i>Branta bernicla hrota</i>	C	A	C	B		337	
A067	Common Goldeneye <i>Bucephala clangula</i>	C	B	C	C		36	
A149	Dunlin <i>Calidris alpina</i>	B	A	C	A		11515	
A143	Knot <i>Calidris canutus</i>	A	A	C	A		9710	
A137	Ringed Plover	C	A	C	B		147	

<sup>7</sup> SPA Site Synopsis, Standard Natura 2000 Data Form and Conservation Objectives are provided at Annex A.

<sup>8</sup> Size and density of the population of the species present on the site in relation to the populations present within national territory: A (100% >= p > 15%), B (15% >= p > 2%), C (2% >= p > 0%), D (non-significant population).

<sup>9</sup> Degree of conservation of the features of the habitat which are important for the species concerned, including possibilities for restoration: A (excellent), B (good), C (average or reduced).

<sup>10</sup> Degree of isolation of the population present on the site in relation to the natural range of the species: A (isolated or almost isolated), B (not-isolated, but on margins of area of distribution), C (not-isolated within extended distribution range).

<sup>11</sup> Global assessment of the value of the site for conservation of the species: A (excellent), B (good), C (significant).

	<i>Charadrius hiaticula</i>							
A003	Common Loon <i>Gavia immer</i>	C	B	C	C		9	
A001	Red-Throated Loon <i>Gavia stellata</i>	C	B	C	C		9	
A130	Oystercatcher <i>Haematopus ostralegus</i>	B	A	C	A		8712	
A182	Common Gull <i>Larus canus</i>	C	A	C	B		555	
A179	Black-headed Gull <i>Chroicocephalus ridibundus</i>	C	A	C	B		6630	
A157	Bar-tailed Godwit <i>Limosa lapponica</i>	B	A	C	A		1950	
A156	Black-tailed Godwit <i>Limosa limosa</i>	B	A	C	A		1067	
A069	Red-breasted Merganser <i>Mergus serrator</i>	B	A	C	A		121	
A160	Curlew <i>Numenius arquata</i>	C	A	C	B		1234	
A017	Great cormorant <i>Phalacrocorax carbo</i>	C	A	C	C		97	
A151	Ruff <i>Philomachus pugnax</i>	C	B	C	B		4	
A140	Golden Plover <i>Pluvialis apricaria</i>	B	A	C	A		5967	
A141	Grey Plover <i>Pluvialis squatarola</i>	B	A	C	A		204	
A005	Great Crested Grebe <i>Podiceps cristatus</i>	B	A	C	A		302	
A048	Shelduck <i>Tadorna tadorna</i>	B	A	C	A		492	
A164	Common Greenshank <i>Tringa nebularia</i>	C	B	C	C		16	
A162	Redshank <i>Tringa totanus</i>	B	A	C	A		1489	
A142	Lapwing <i>Vanellus vanellus</i>	B	A	C	A		14850	
<b>Conservation Objectives<sup>12</sup></b>								
Overall Objective		Favourable Conservation Status.						
Pintail <i>Anas acuta</i>		To maintain the favourable conservation condition of Pintail in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).						
Teal <i>Anas crecca</i>		To maintain the favourable conservation condition of Teal in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).						
Eurasian Wigeon <i>Anas penelope</i>		n/a						
Mallard <i>Anas platyrhynchos</i>		To maintain the favourable conservation condition of Mallard in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).						

<sup>12</sup> The Standard Natura 2000 Data Form is accurate to the September 2017 update while the Conservation Objectives were published in 2011. As the SPA qualifying/feature species were revised in 2017, with several species added and two removed, there is some inconsistency between the two documents. Conservation objectives are not yet available for the newly added species but are assumed, for the purposes of assessment, to follow the same format as for other feature species.

Greenland White-Fronted goose <i>Anser albifrons flavirostris</i>	n/a
Greylag Goose <i>Anser anser</i>	To maintain the favourable conservation condition of Greylag Goose in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Ruddy Turnstone <i>Arenaria interpres</i>	n/a
Light-bellied Brent Goose <i>Branta bernicla hrota</i>	To maintain the favourable conservation condition of Light-bellied Brent Geese in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Common Goldeneye <i>Bucephala clangula</i>	n/a
Dunlin <i>Calidris alpina</i>	To maintain the favourable conservation condition of Dunlin in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Knot <i>Calidris canutus</i>	To maintain the favourable conservation condition of Knot in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Ringed Plover <i>Charadrius hiaticula</i>	To maintain the favourable conservation condition of Ringed Plover in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Common Loon <i>Gavia immer</i>	n/a
Red-Throated Loon <i>Gavia stellata</i>	n/a
Oystercatcher <i>Haematopus ostralegus</i>	To maintain the favourable conservation condition of Oystercatcher in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Common Gull <i>Larus canus</i>	To maintain the favourable conservation condition of Common Gull in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Black-headed Gull <i>Chroicocephalus ridibundus</i>	To maintain the favourable conservation condition of Black-headed Gull in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Bar-tailed Godwit <i>Limosa lapponica</i>	To maintain the favourable conservation condition of Bar-tailed Godwit in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Black-tailed Godwit <i>Limosa limosa</i>	To maintain the favourable conservation condition of Black-tailed Godwit in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Red-breasted Merganser <i>Mergus serrator</i>	To maintain the favourable conservation condition of Red-breasted Merganser in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Curlew <i>Numenius arquata</i>	To maintain the favourable conservation condition of Curlew in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Great cormorant <i>Phalacrocorax carbo</i>	n/a
Ruff <i>Philomachus pugnax</i>	n/a
Golden Plover <i>Pluvialis apricaria</i>	To maintain the favourable conservation condition of Golden Plover in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Grey Plover <i>Pluvialis squatarola</i>	To maintain the favourable conservation condition of Grey Plover in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Great Crested Grebe	To maintain the favourable conservation condition of Great Crested Grebe in Dundalk Bay SPA (as

<i>Podiceps cristatus</i>	defined by attributes and targets set out in the published conservation objectives).
Shelduck <i>Tadorna tadorna</i>	To maintain the favourable conservation condition of Shelduck in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Common Greenshank <i>Tringa nebularia</i>	n/a
Redshank <i>Tringa totanus</i>	To maintain the favourable conservation condition of Redshank in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Lapwing <i>Vanellus vanellus</i>	To maintain the favourable conservation condition of Lapwing in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
Wetlands & Waterbirds	To maintain the favourable conservation condition of the wetland habitat in Dundalk Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it (as defined by attributes and targets set out in the published conservation objectives).

### Dundalk Bay SAC

2.19 Dundalk Bay was classified SAC in September 2000 and updated in September 2017 (site code IE0000455). This is a site of significant conservation value because it supports good examples of a range of coastal habitats. Predominantly a marine site (92%), the designated area covers approximately 5,234 ha. Dundalk Bay SAC is selected for the following Annex I habitats:

- Estuaries (1130)
- Tidal Mudflats and Sandflats (1140)
- Perennial Vegetation of Stony Banks (1220)
- *Salicornia* Mud (1310)
- Atlantic Salt Meadows (1330)
- Mediterranean Salt Meadows (1410)

2.20 Table 2.2 (summarised from the Natura 2000 standard data form and conservation objectives) sets out the qualifying features and conservation objectives of Dundalk Bay SAC.<sup>13</sup>

**Table 2.2:** Dundalk Bay SAC Qualifying Features and Conservation Objectives

Qualifying Feature		Site Assessment				Global Assessment <sup>14</sup>
		Representativity <sup>15</sup>	Relative Surface <sup>16</sup>	Conservation Status <sup>17</sup>	Cover (ha)	
1130	Estuaries	B	B	B	2,799.0	B
1140	Tidal Mudflats and Sandflats	A	A	B	4,374.9	A

<sup>13</sup> SAC Site Synopsis, Standard Natura 2000 Data Form and Conservation Objectives are provided at Annex A.

<sup>14</sup> Global assessment of value of site for the conservation of the natural habitat type: A (excellent), B (good), C (significant).

<sup>15</sup> Degree of representativity of the natural habitat type: A (excellent), B (good), C (significant), D (non-significant).

<sup>16</sup> Area of the site covered by the natural habitat type in relation to the total area covered by that natural habitat type within the national territory: A (100% >= p >15%), B (15% >= p > 2%), C (2% >= p > 0%).

<sup>17</sup> Degree of conservation of the structure and functions of the natural habitat type concerned, including restoration possibilities: A (excellent), B (good), C (average or reduced).

1220	Perennial Vegetation of Stony Banks	A	C	B	52.4	A
1310	<i>Salicornia</i> Mud	B	C	B	35.0	B
1330	Atlantic Salt Meadows	A	C	B	380.0	A
1410	Mediterranean Salt Meadows	C	C	B	0.04	C
<b>Conservation Objectives</b>						
1130	Estuaries	To maintain the favourable conservation condition of Estuaries in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).				
1140	Tidal Mudflats and Sandflats	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide at Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).				
1220	Perennial Vegetation of Stony Banks	To maintain the favourable conservation condition of Perennial vegetation of stony banks in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).				
1310	<i>Salicornia</i> Mud	To restore the favourable conservation condition of <i>Salicornia</i> and other annuals colonizing mud and sand in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).				
1330	Atlantic Salt Meadows	To maintain the favourable conservation condition of Atlantic salt meadows in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).				
1410	Mediterranean Salt Meadows	To maintain the favourable conservation condition of Mediterranean salt meadows in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).				

### 3. SCREENING FOR APPROPRIATE ASSESSMENT

- 3.1 The project is not necessary for the management of Dundalk Bay SAC or Dundalk Bay SPA.
- 3.2 Given the proximity of the site to Dundalk Bay and the scale of the development proposals, significant effects on the Natura 2000 sites cannot be excluded at the screening stage.
- 3.3 Detailed consideration has been given, through iterative project design and assessment, to environmental control and management measures, now integrated into the development proposals, intended to avoid significant adverse impacts on the coastal and intertidal habitats within Dundalk Bay SAC and Dundalk Bay SPA. After *People Over Wind*, it is clear that screening must conclude that appropriate assessment is required.
- 3.4 However, it is instructive to examine the characteristics of the project and the potential mechanisms for adverse effects through the formal screening process [Tables 3.1 & 3.2].<sup>18</sup>
- 3.5 A general conservation objective encapsulating an overall aim of maintaining ‘*favourable conservation status*’ has been applied for the SPA and SAC, and for the feature species and habitats, for the purposes of initial analysis and screening.

**Table 3.1:** Screening Matrix – Dundalk Bay SPA

Brief description of the project or plan:
<p><i>Comprehensive, sustainable housing development, to provide a total of 485 residential units of various types (apartments, duplexes, townhouses, terraced, semi-detached and detached houses), a crèche (677 sqm) and includes access and egress points, pedestrian and cyclist facilities, car parking, stormwater SuDS and attenuation as required, foul and potable water services and all associated ancillary works and infrastructure, open space provision and landscaping.</i></p> <p><i>Full details of the project are set out in Ch. 2 of the EIAR.</i></p>
Brief Description of the Natura 2000 site:
<p style="text-align: center;"><u>Dundalk Bay SPA</u></p> <ul style="list-style-type: none"> <li>• Red-Throated Loon <i>Gavia stellata</i> (A001)</li> <li>• Common Loon <i>Gavia immer</i> (A003)</li> <li>• Great Crested Grebe <i>Podiceps cristatus</i> (A005)</li> <li>• Great cormorant <i>Phalacrocorax carbo</i> (A017)</li> <li>• Greylag Goose <i>Anser anser</i> (A043)</li> <li>• Light-bellied Brent Goose <i>Branta bernicla hrota</i> (A046)</li> <li>• Shelduck <i>Tadorna tadorna</i> (A048)</li> <li>• Eurasian Wigeon <i>Anas penelope</i> (A050)</li> <li>• Teal <i>Anas crecca</i> (A052)</li> <li>• Mallard <i>Anas platyrhynchos</i> (A053)</li> <li>• Pintail <i>Anas acuta</i> (A054)</li> <li>• Common Goldeneye <i>Bucephala clangula</i> (A067)</li> <li>• Red-breasted Merganser <i>Mergus serrator</i> (A069)</li> </ul>

<sup>18</sup> As provided within official EC guidance: ‘*Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC*’ (Annex 2; Figure 1).

- Oystercatcher *Haematopus ostralegus* (A130)
- Ringed Plover *Charadrius hiaticula* (A137)
- Golden Plover *Pluvialis apricaria* (A140)
- Grey Plover *Pluvialis squatarola* (A141)
- Lapwing *Vanellus vanellus* (A142)
- Knot *Calidris canutus* (A143)
- Dunlin *Calidris alpina* (A149)
- Ruff *Philomachus pugnax* (A151)
- Black-tailed Godwit *Limosa limosa* (A156)
- Bar-tailed Godwit *Limosa lapponica* (A157)
- Curlew *Numenius arquata* (A160)
- Redshank *Tringa totanus* (A162)
- Common Greenshank *Tringa nebularia* (A164)
- Ruddy Turnstone *Arenaria interpres* (A169)
- Black-headed Gull *Chroicocephalus ridibundus* (A179)
- Common Gull *Larus canus* (A182)
- Greenland White-Fronted goose *Anser albifrons flavirostris* (A395)
- Wetlands & Waterbirds (A999)

**Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.**

- *Ex-Situ* impacts on SPA feature and assemblage species – loss of supporting (non-designated) semi-natural habitat within the site.
- *Ex-Situ* impacts on SPA feature and assemblage species during the construction phase – disturbances due to construction works and activities at the site during the construction phase (noise, vibration, presence and visibility, artificial lighting).
- *Ex-Situ* impacts on SPA feature and assemblage species during the construction phase – risk of collisions between birds and tall machinery at the site during the construction phase.
- *Ex-Situ* impacts on SPA feature and assemblage species during the occupation phase – disturbances due to increased traffic on the R172 Blackrock Road, increased use of the site and, potentially, increased use of coastal areas (noise, presence and visibility, artificial lighting).
- Pollution of the SPA during the construction phase – contamination of the local receiving environment through the mobilisation of silt and sediments and transfer to the SPA through surface water drainage during earthworks and construction.
- Pollution of the SPA during the construction phase – contamination of the local receiving environment through uncontrolled disposals of fuels and construction materials etc. and transfer to the SPA through surface water drainage.
- Pollution of the SPA during the occupation phase – contamination of surface/storm runoff (silt, hydrocarbons etc.) and transfer to the SPA through drainage infrastructure.
- Pollution of the SPA during the occupation phase – disposal of foul sewage.
- Degradation of natural habitats within the SPA during the occupation phase – erosion etc. due to surface water disposal to Dundalk Bay from site drainage infrastructure.

**Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:**

size and scale:	This is a relatively large greenfield site which is for the most part physically separated from (although ecologically connected to) the SPA. In the context of the scale of existing development in the surrounding peri-urban landscape, development of this site does not, in itself, present potential for significant adverse effects on the SPA as a result of size and scale.
land-take:	The project does not require any land take from within the SPA. There are no works proposed within the boundaries of the SPA and no outfalls or other structures

	required on the foreshore within the SPA boundary.
distance from Natura 2000 site or key features of the site:	<p>This is a relatively large greenfield site which is close to but outside and physically separated from the SPA.</p> <p>All wintering populations are susceptible to increased disturbance from anthropogenic sources. Overwintering birds operate at marginal energetic levels where increased movements forced by disturbances, particularly repeated disturbances, can result in energy deficits and localised population displacements which can in turn compromise winter survival. Disturbances may occur during the construction phase (as detailed below).</p> <p>Habitat loss to the wintering SPA assemblage as a result of the development of the site (i.e. loss of habitat within the site) is unlikely to be a significant issue.</p>
resource requirements (water abstraction etc.):	No resources are required from within the SPA.
emissions (disposals to land, water or air):	<p>This is a substantial site which is close to, and drains into, Dundalk Bay. Lands are in agricultural use and no significant land contamination is present.</p> <p><u>Earthworks and construction activities will mobilise silts and sediments which present a risk of contamination to the SPA through surface water drainage.</u></p> <p><u>Construction activities will generate waste streams which present a risk of contamination (fuels and other hydrocarbons, cements and other construction materials etc.) to the SPA through surface water drainage.</u></p> <p><u>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SPA.</u></p> <p><u>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of degradation of natural habitats within the SPA through erosion etc.</u></p> <p><u>Occupation of the site will generate foul sewage for disposal.</u></p>
excavation requirements:	<p>No excavation is required within the SPA.</p> <p>Rock breaking or blasting may be required to install services, the wastewater pumping station and excavate underground car parks into the bedrock; potential impacts from disturbance are identified below.</p> <p>Potential for impacts on the SPA resulting from the mobilisation of silts and sediments during earthworks and construction within the site are identified above.</p>
transportation requirements:	All transportation requirements will be achieved using the existing public road network and will not result in significant effects on the SPA.
duration of construction: operation, de-commissioning etc.:	<p>The site will be built and occupied indefinitely with no plans for decommissioning.</p> <p>The temporal scale of the project is substantial but does not in itself present potential for significant adverse effects on the SPA.</p>
other:	n/a
<b>Describe any likely changes to the site arising as a result of:</b>	
reduction of habitat area:	No reduction in habitat area within the SPA and no significant reductions in non-designated supporting natural or semi-natural habitat will occur as a direct result of the development of the site.
disturbance to key species:	<p>All wintering populations are susceptible to increased disturbance from anthropogenic sources. Overwintering birds operate at marginal energetic levels where increased movements forced by disturbances, particularly repeated disturbances, can result in energy deficits and localised population displacements which can in turn compromise winter survival.</p> <p>The site is not within the SPA, but the main site access is to be taken from the Blackrock Road, which runs alongside the designated area. This busy road has been present for several decades and serves a significant level of traffic associated with local transit and housing in the area. It is not expected that traffic increases on the R172 will result in any appreciable increase in disturbance to feature species.</p>



	<p>Similarly, it is not expected that any increased use of the foreshore of Dundalk Bay for recreation etc., or any consequent increase in anthropogenic disturbance to SPA feature species, particularly during the winter, will occur.</p> <p><u>Noise and vibration from piling, rock-breaking/blasting, and other intensive construction activities can result in significant disturbances to avifauna, even over a distance of several hundred metres.</u> It is highly unlikely that piling will be required during the construction of the site. The existing ground conditions where the new units will be constructed are favourable, with rock prevalent in the area. The construction of the initial section of the new main access from the R172 will require some consideration due to the poor ground conditions but it is likely that the solution will be to provide a stiff sub-grade and pavement foundation layers rather than piling. Rock breaking or blasting may be required to install services, the wastewater pumping station and excavate underground carparks into the bedrock.</p> <p><u>Discrete elements of site development which must take place close to the shore, such as the creation of the main site access on the R172 Blackrock Road and the installation of the drainage outfall, may result in localised disturbances and must be considered individually.</u></p> <p>Otherwise, it is unlikely that construction operations within the main section of the site will result in increased anthropogenic disturbance to SPA feature species within the SPA.</p> <p>From an assessment of habitat suitability, preference and availability (as per the consideration presented in Ch. 4 of the EIAR and in the PEA at Appendix 4.1) it was considered very unlikely that the development site was regularly used by significant numbers of target species during the winter. The interior of the site provides very little, if any, suitable habitat for wintering birds. Arable fields overwintered with stubbles can provide useful foraging resources for some species but generally not the coastal and estuarine ducks, divers and waders which form the majority of the SPA feature list and rarely venture inland during the winter. Some species of waterfowl, such as gulls and geese, and including those listed as SPA feature species, do exploit terrestrial habitats such as open pasture and arable stubbles in coastal locations during the winter and may be present within the site from time to time. However, it is highly unlikely that any SPA target species are ever present in significant numbers within the site during the winter, or that it is relied upon for foraging, high-tide roosts or any other purpose.</p> <p>This was confirmed through walkover surveys of the site completed during the wintering season. No SPA target or assemblage species were noted within the site during site walkover surveys completed in February, October and December 2018 or in January and February 2019. Occasional individual birds were recorded in flight in the general area.</p> <p>The small area of rough, marshy habitat to the east of the site (main access road) is unsuitable for foraging or high-tide roosting due to scrub encroachment (habitat structure and the availability of cover and vantage for predators). Tall construction machinery, such as cranes, and tall buildings present some collision risk to commuting and migratory birds, particularly if those structures are within or close to habitual commuting and migrating routes. Habitual inland commuting and migratory routes are likely to follow river corridors to the north and south; the site is unlikely to be regularly overflown by commuting or migrating SPA species. Further, there are no particularly tall buildings proposed (the tallest being 3 and 4 storey apartments blocks) and it is very unlikely that any particularly tall cranes or will be required. Interactions between target species and tall machinery/buildings are very unlikely to occur.</p> <p>As noted, no significant numbers of target species were noted within or above the site during walkover surveys completed during the wintering season (EIAR Ch. 4 &amp;</p>
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	Appendix 4.1)
habitat or species fragmentation:	Habitat fragmentation within the SPA may occur as a result of pollution and/or erosion from uncontrolled surface water drainage during the construction and occupational phases (as detailed above).
reduction in species density:	Species fragmentation and reductions in density may occur as a result of disturbances (as detailed above).
changes in key indicators of conservation value (water quality etc.):	The key indicators of conservation value of the SPA that are at risk of significant adverse impact are the population numbers and coherence of SPA feature species, the integrity of marginal/inundation habitats (such as saltmarsh) within the SPA and overall ecological and water quality within Dundalk Bay. Deteriorations in water quality can adversely impact the foraging resource available to SPA feature species and other wildlife.
<b>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</b>	
interference with the key relationships that define the structure and function of the site:	Habitat fragmentation within the SPA may occur as a result of pollution and/or erosion from uncontrolled surface water drainage during the construction and occupational phases (as detailed above). Species fragmentation and reductions in density may occur as a result of disturbances (as detailed above). Pollution of the SPA may occur through the mobilisation of silts and sediments during the construction phase and contamination of surface water discharging to Dundalk Bay during the construction and occupation phases (as detailed above).
<b>Provide indicators of significance as a result of the identification of effects set out above in terms of:</b>	
loss:	No reduction in habitat area within the SPA and no overall loss or reduction in species numbers or density will occur as a direct result of the development of the site.
fragmentation:	Habitat fragmentation within the SPA may occur as a result of pollution and/or erosion from uncontrolled surface water drainage during the construction and occupational phases (as detailed above). Species fragmentation and reductions in density may occur as a result of disturbances (as detailed above).
disruption: disturbance:	All wintering populations are susceptible to increased disturbance from anthropogenic sources. Overwintering birds operate at marginal energetic levels where increased movements forced by disturbances, particularly repeated disturbances, can result in energy deficits and localised population displacements which can in turn compromise winter survival. Disturbances may occur during the construction phase (as detailed above).
change to key elements of the site (e.g. water quality etc.):	The key indicators of the conservation value of the SPA that are at risk of significant adverse impact are the population numbers and coherence of SPA feature species, the integrity of marginal/inundation habitats (such as saltmarsh) within the SPA and overall ecological and water quality within Dundalk Bay. Deteriorations in water quality can adversely impact the foraging resource available to SPA feature species and other wildlife.
<b>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts are not known.</b>	
<p>Earthworks and construction activities will mobilise silts and sediments which present a risk of contamination to the SPA through surface water drainage.</p> <p>Construction activities will generate waste streams which present a risk of contamination (fuels and other hydrocarbons, cements and other construction materials etc.) to the SPA through surface water drainage.</p> <p>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SPA.</p>	

Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of degradation of natural habitats within the SPA through erosion etc.

Occupation of the site will generate foul sewage for disposal.

Noise and vibration from piling, rock-breaking, blasting and other intensive construction activities can result in significant disturbances to avifauna, even over a distance of several hundred metres. It is highly unlikely that piling will be required during the construction of the site. The existing ground conditions where the new units will be constructed are favourable, with rock prevalent in the area. The construction of the initial section of the new main access from the R172 will require some consideration due to the poor ground conditions but it is likely that a solution providing a stiff sub-grade and pavement foundation layers rather than piling will be adopted. Rock breaking or blasting may be required to install services, the wastewater pumping station and excavate underground carparks into the bedrock.

Discrete elements of site development which must take place close to the shore, such as the creation of the main site access on the R172 Blackrock Road and the installation of the drainage outfall, may result in localised disturbances and must be considered individually.

**Table 3.2: Screening Matrix – Dundalk Bay SAC**

Brief description of the project or plan:
<p><i>Comprehensive, sustainable housing development, to provide a total of 485 residential units of various types (apartments, duplexes, townhouses, terraced, semi-detached and detached houses), a crèche (677 sqm) and includes access and egress points, pedestrian and cyclist facilities, car parking, stormwater SuDS and attenuation as required, foul and potable water services and all associated ancillary works and infrastructure, open space provision and landscaping.</i></p> <p><i>Full details of the project are set out in Ch. 2 of the EIAR.</i></p>
Brief Description of the Natura 2000 site:
<p style="text-align: center;"><u>Dundalk Bay SAC</u></p> <ul style="list-style-type: none"> <li>• Estuaries (1130)</li> <li>• Tidal Mudflats and Sandflats (1140)</li> <li>• Perennial Vegetation of Stony Banks (1220)</li> <li>• Salicornia Mud (1310)</li> <li>• Atlantic Salt Meadows (1330)</li> <li>• Mediterranean Salt Meadows (1410)</li> </ul>
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.
<ul style="list-style-type: none"> <li>• Pollution of the SAC during the construction phase – contamination of the local receiving environment through the mobilisation of silt and sediments and transfer to the SAC through surface water drainage during earthworks and construction.</li> <li>• Pollution of the SAC during the construction phase – contamination of the local receiving environment through uncontrolled disposals of fuels and construction materials etc. and transfer to the SAC through surface water drainage.</li> <li>• Pollution of the SAC during the occupation phase – contamination of surface/storm runoff (silt, hydrocarbons etc.) and transfer to the SAC through drainage infrastructure.</li> <li>• Pollution of the SAC during the occupation phase – disposal of foul sewage.</li> </ul>

	<ul style="list-style-type: none"> <li>Degradation of natural habitats within the SAC during the occupation phase – erosion etc. due to surface water disposal to Dundalk Bay from site drainage infrastructure.</li> </ul>
<b>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</b>	
size and scale:	This is a relatively large greenfield site which is for the most part physically separated from (although ecologically connected to) the SAC. In the context of the scale of existing development in the surrounding peri-urban landscape, development of this site does not, in itself, present potential for significant adverse effects on the SAC as a result of size and scale.
land-take:	The project does not require any land take from within the SAC. There are no works proposed within the boundaries of the SAC and no outfalls or other structures required on the foreshore within the SAC boundary.
distance from Natura 2000 site or key features of the site:	This is a relatively large greenfield site which is close to but outside and physically separated from the SAC. Hydrological linkages do exist which may result in adverse effects during the construction and occupation phases (as detailed below).
resource requirements (water abstraction etc.):	No resources are required from within the SAC.
emissions (disposals to land, water or air):	<p>This is a substantial site which is close to, and drains into, Dundalk Bay. Lands are in agricultural use and no significant land contamination is present.</p> <p><u>Earthworks and construction activities will mobilise silts and sediments which present a risk of contamination to the SAC through surface water drainage.</u></p> <p><u>Construction activities will generate waste streams which present a risk of contamination (fuels and other hydrocarbons, cements and other construction materials etc.) to the SAC through surface water drainage.</u></p> <p><u>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SAC.</u></p> <p><u>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of degradation of natural habitats within the SAC through erosion etc.</u></p> <p><u>Occupation of the site will generate foul sewage for disposal.</u></p>
excavation requirements:	No excavation is required within the SAC. Notwithstanding the potential for impacts on the SAC resulting from the mobilisation of silts and sediments (as identified above), earthworks and construction within the site are unlikely to result in significant effects on the SAC via other mechanisms.
transportation requirements:	All transportation requirements will be achieved using the existing public road network and will not result in significant effects on the SAC.
duration of construction: operation, de-commissioning etc.:	<p>The site will be built and occupied indefinitely with no plans for decommissioning.</p> <p>The temporal scale of the project is substantial but does not in itself present potential for significant adverse effects on the SAC.</p>
other:	n/a
<b>Describe any likely changes to the site arising as a result of:</b>	
reduction of habitat area:	No reduction in habitat area within the SAC and no significant reductions in non-designated supporting natural or semi-natural habitat will occur as a direct result of the development of the site.
disturbance to key species:	n/a – SAC designated for habitats only; SPA species considered separately (as above).
habitat or species fragmentation:	<p>Habitat fragmentation within the SAC may occur as a result of pollution and/or erosion from uncontrolled surface water drainage during the construction and occupational phases (as detailed above).</p> <p>SAC designated for habitats only; SPA species considered separately (as above).</p>
reduction in species density:	n/a – SAC designated for habitats only; SPA species considered separately (as above).
changes in key indicators of	The key indicators of conservation value of the SAC that are at risk of significant

conservation value (water quality etc.):	adverse impact are the integrity of feature and supporting marginal/inundation habitats (such as saltmarsh) within the SAC and overall ecological and water quality within Dundalk Bay. Deteriorations in water quality can adversely impact the foraging resource available to SPA feature species and other wildlife.
<b>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</b>	
interference with the key relationships that define the structure and function of the site:	Habitat fragmentation within the SAC may occur as a result of pollution and/or erosion from uncontrolled surface water drainage during the construction and occupational phases (as detailed above). Pollution of the SAC may occur through the mobilisation of silts and sediments during the construction phase and contamination of surface water discharging to Dundalk Bay during the construction and occupation phases (as detailed above). SAC designated for habitats only; SPA species considered separately (as above).
<b>Provide indicators of significance as a result of the identification of effects set out above in terms of:</b>	
loss:	No reduction in habitat area within the SAC will occur as a direct result of the development of the site.
fragmentation:	Habitat fragmentation within the SAC may occur as a result of pollution and/or erosion from uncontrolled surface water drainage during the construction and occupational phases (as detailed above).
disruption:	n/a – SAC designated for habitats only; SPA species considered separately (as above).
disturbance:	
change to key elements of the site (e.g. water quality etc.):	The key indicators of the conservation value of the SAC that are at risk of significant adverse impact are the integrity of feature and supporting marginal/inundation habitats (such as saltmarsh) within the SAC and overall ecological and water quality within Dundalk Bay. Deteriorations in water quality can adversely impact the foraging resource available to SPA feature species and other wildlife.
<b>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts are not known.</b>	
<p>Earthworks and construction activities will mobilise silts and sediments which present a risk of contamination to the SAC through surface water drainage.</p> <p>Construction activities will generate waste streams which present a risk of contamination (fuels and other hydrocarbons, cements and other construction materials etc.) to the SAC through surface water drainage.</p> <p>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SAC.</p> <p>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of degradation of natural habitats within the SAC through erosion etc.</p> <p>Occupation of the site will generate foul sewage for disposal.</p>	

### Screening Conclusions

- 3.6 The screening process has identified the key indicators of the conservation value of the SPA and SAC that are at risk and the mechanisms by which significant effects may occur. The main areas of concern are pollution of the SAC/SPA, degradation of SAC/SPA habitats and *ex-situ* impacts on SPA feature and assemblage species.
- 3.7 After *People Over Wind*, screening must conclude that Appropriate Assessment is required. The Natura Impact Statement (NIS) is provided in the following section – this collates all of the information necessary

to assist the competent authority in the completion of the formal Appropriate Assessment.

#### 4. NATURA IMPACT STATEMENT (NIS)

- 4.1 Appropriate Assessment is the second stage of the assessment process, where the overall effects on the integrity of the Natura 2000 sites are examined. This NIS is provided to assist the competent authority in the completion of the formal Appropriate Assessment.

##### Conservation Objectives & 'Favourable Conservation Status'

- 4.2 The purpose of designating and managing Natura 2000 sites is to maintain at, or restore to, '*favourable conservation status*' the habitats and species for which the sites are notified. The individual conservation objectives for habitats and species identified for each site therefore encapsulate an overall aim of maintaining or achieving favourable conservation status for each feature species or habitat and maintaining the integrity of the site as a whole. The Habitats Directive requires that appropriate assessment is conducted with regard to the established conservation objectives for each designated site.

- 4.3 The purpose of appropriate assessment is to determine whether a plan or project will adversely impact site integrity. The critical consideration is not the extent or degree of an impact, or whether an impact is direct or indirect, but whether the implications, either individually or in combination with other plans or projects, are likely to affect the site's ability to meet the conservation objectives and achieve or maintain favourable conservation status (EC, 2012).

- 4.4 Article 1(e) of the Habitats Directive defines '*conservation status*' and '*favourable conservation status*', in the context of habitats as follows:

*(e) conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.*

*The conservation status a natural habitat will be taken as 'favourable' when:*

- *its natural range and areas it covers within that range are stable or increasing, and*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
- *the conservation status of its typical species is favourable as defined in (i);*

- 4.5 Article 1(i) of the Habitats Directive defines '*conservation status*' and '*favourable conservation status*', in the context of species as follows:

*(i) conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;*

*The conservation status will be taken as 'favourable' when:*

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

- 4.6 Site level conservation objectives are a set of specified objectives that must be met to ensure that the site contributes to maintaining or achieving favourable conservation status of the site feature(s) at the national and biogeographic level. Conservation objectives for Dundalk Bay SAC and Dundalk Bay are set out above [Tables 2.1 & 2.2] and below [Table 4.1] and are reproduced in full [at Annex A].

## Impact Assessment & Mitigation

- 4.7 Impacts are assessed alone and in combination with other plans or projects with respect to the structure and function of the Natura 2000 sites and their conservation objectives. Where adverse impacts are expected an assessment of the measures envisioned to avoid, mitigate or otherwise reduce their significance is carried out, both in terms of their effectiveness and in terms of any further effects that may attach to the measures themselves.
- 4.8 For the purposes of assessment, consideration of SPA feature and assemblage species is assumed to encapsulate consideration of the Ramsar and pNHA species and assemblages; and consideration of SAC habitats is assumed to encapsulate consideration of pNHA and Ramsar/SPA supporting habitats.

### Analysis of Significance – Mechanisms for Impacts on the Integrity of the Natura 2000 Sites

- 4.9 The main areas of concern are pollution of the SAC/SPA, degradation of SAC/SPA habitats and *ex-situ* impacts on SPA feature and assemblage species:
- Pollution of the SAC/SPA – earthworks and construction activities will mobilise silts and sediments which present a risk of contamination to the SAC and SPA through surface water drainage.
  - Pollution of the SAC/SPA – construction activities will generate waste streams which present a risk of contamination (fuels and other hydrocarbons, cements and other construction materials etc.) to the SAC and SPA through surface water drainage.
  - Pollution of the SAC/SPA – occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SAC and SPA.
  - Pollution of the SAC/SPA – occupation of the site will generate foul sewage for disposal.
  - Degradation of natural habitats within the SAC/SPA – occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of degradation of natural habitats within the SAC and SPA through erosion etc.
  - Ex-Situ impacts on SPA feature and assemblage species – noise and vibration from piling, rock-breaking, blasting and other intensive construction activities can result in significant disturbances to avifauna, even over a distance of several hundred metres. It is unlikely that piling will be required but rock breaking or blasting may be required to install services, the wastewater pumping station and excavate underground carparks into the bedrock.
  - Ex-Situ impacts on SPA feature and assemblage species – discrete elements of site development which must take place close to the shore, such as the creation of the main site access on the R172 Blackrock Road and the installation of the drainage outfall, may result in localised disturbances and must be considered individually.
- 4.10 A full and detailed consideration of the potential impacts on the water environment, including the transitional waters of Dundalk Bay, is set out in the EIAR (Ch. 10). A full consideration of potential *ex-situ* impacts on SPA feature species is set out in the EIAR (Ch. 4).
- 4.11 Three broad approaches are adopted to the mitigation of impacts on Dundalk Bay SAC and Dundalk Bay SPA:
- Pollution Control in the Construction Phase
  - Pollution Control in the Operational Phase
  - Prevention of Disturbance to SPA Species in the Construction Phase.



4.12 These broad approaches to mitigation are implemented through:

- Construction Environmental Management Plan (CEMP)
- Construction Programme
- Sustainable Urban Drainage (SUDS) System
- Silt Traps & Hydrocarbon Interceptors
- Foul Disposal
- Site-Specific Environmental Management Plan (EMP)

**Construction Environmental Management Plan (CEMP)**

4.13 A Construction Environmental Management Plan (CEMP), based on the schedule of commitments presented in the EIAR (including this NIS), will be prepared for the construction phase. An Outline CEMP<sup>19</sup> has been prepared for submission with the planning application.

4.14 The CEMP collates and sets out the environmental control measures required to minimise, and control adverse environmental impacts associated with the development. It is intended that the CEMP will be a live document, which will capture all construction-phase environmental mitigation measures included within the EIAR and any other measures which become apparent through the EIA consultation process and/or are prescribed through planning conditions etc. The CEMP will include enabling decommissioning works. The outline document provides a framework for the contractor to develop further as the project moves into the construction phase.

4.15 The specific measures required for the protection of Dundalk Bay SPA & SAC, as set out in the EIAR (Ch. 4 & Ch. 10), are as follows:

- All construction and operations are to be carefully planned and implemented with a series of environmental management and control procedures. The CEMP details the general pollution prevention principles and measures which are to be implemented, water and sediment management measures to prevent pollution during the construction phase and measures to ensure the potential for pollution fuel, oil, chemicals and other construction materials is minimised.
- The Contractor shall engage a suitably experienced ecologist, the Project Ecologist, who will be a full member of a relevant professional institute such as the Chartered Institute of Ecology and Environmental Management (CIEEM), have relevant experience in the management of ecological constraints during construction, and hold or have held a protected species licence(s). The Project Ecologist shall be appointed sufficiently in advance of construction to arrange for any mitigation requirements to be incorporated into the CEMP and any site-specific method statements.
- In advance of commencement of the construction phase, the disused existing onsite well, securely located within a pump house in the north-western portion of the site will be fully decommissioned by an experienced borehole specialist in accordance with relevant guidelines, *‘Good practice for decommissioning redundant boreholes and wells’* (UK Environment Agency, 2012). This will ensure that redundant well is made both safe and structurally stable and will be suitably backfilled or sealed to prevent groundwater pollution and flow of water between different aquifer units.
- The construction management of the site will take account of the recommendations of the Construction Industry Research and Information Association (CIRIA) guides *‘Control of Water Pollution from Construction Sites’* and *‘Groundwater control - design and practice’* to minimise as far as possible the risk of pollution.
- All of the mitigation measures (for the protection of soils and geology) listed in Chapter 9 will be implemented onsite during the construction phase.

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<sup>19</sup> *‘Strategic Housing Development, Blackrock, Dundalk, Co. Louth. Outline Construction Environmental Plan. Kingsbridge Consultancy Ltd.’* (Atkins, December 2018)

- The Contractor shall take all necessary precautions to prevent pollution or silting from construction activities. The following management, control and mitigation measures will be implemented:
  - Any groundwater temporarily dewatered during the construction of the attenuation basin, wastewater pumping station and any deep building foundations in localised areas in the eastern portion of the site will be treated via the installation of a temporary in-situ water treatment system;
  - This system should be designed and sized to ensure that all pumped groundwater water is treated prior to discharge to a selected onsite location (via a temporary soakaway).
  - The Contractor will be required to provide a site-specific dewatering plan, clearly setting out proposed excavation methodology, estimated dewatering rates, details of the proposed treatment system, and discharge location.
  - Surface water attenuation measures are to be designed which will not be overwhelmed by one-off adverse precipitation events.
  - Where practical, cut-off V drains will be utilised to divert water entering site and reduce the amount of water to be managed on-site. Attention will be given to the maintenance and protection of all drains and temporary channels to minimise scour and the mobilisation of suspended solids (e.g. lining with hessian or clean stone, check dams, silt fencing etc.).
  - Mud will be controlled at entry and exits to the site using wheel washes and/or road sweepers, and tools and plant will be washed out and cleaned in designated areas. Wheel washings will be contained and treated prior to discharge.
  - Runoff will be directed to and intercepted by temporary settlement lagoons. The size of the settlement lagoon will be determined from predicted flow rates and retention times based on sediment particle size and density.
  - Neither groundwater nor surface water runoff from the working areas will be permitted to discharge directly to the environment. Runoff generated within the site during construction will be filtered and treated to remove hydrocarbons and sediment. Total Suspended Solids (TSS), pH/EC and colour will be monitored daily and outlets from sedimentation ponds will incorporate a turbidity monitor with alarm at a high level.
  - Subject to consent, water that is unpolluted, aside from its silt content, may be pumped out over adjacent vegetated ground, where appropriate, with consideration given to groundwater level and saturation, wildlife importance and proximity to drainage channels.
  - In the event of surface water failing to meet the required standards water will be recirculated to the inlet of the sediment pond to provide further time for settlement. A penstock will be provided on the outlet from the sediment pond to control discharge from the site.
  - The performance of the surface water drainage network will be maintained and monitored throughout the construction of the proposed development, noting that the proposed storm system will include permanent hydrocarbon separators.
  - Where the Contractor utilises pumping to drain works areas, a back-up pump and generator must be provided on site for use in the event of the primary pump failing.
  - Procedures are to be put in place to ensure the identification, remediation and correct reporting of any silt or other pollution incidents that may occur.
- During localised construction works around the northern and eastern drainage channels (to facilitate the installation of the proposed 2no. outfalls/headwalls), any minor volumes of stripped soils should be stockpiled a minimum distance of 10m from each channel and should be appropriately covered. A temporary stormwater management system should be implemented by the Contractor.
- Areas should be designated where stockpiles will be established in order to facilitate the efficient transfers of material within the site. Stockpiles will be stabilised as soon as possible (e.g. sealed, closed over, seeded or covered using geotextile mats), and bunded by earth or silt fences at the toe to intercept silt-laden runoff during rainfall events.

- Appropriate working practices to avoid the repetitive handling of excavated substrates, minimise vehicle movements, limit the size, number and frequency of stockpiles, reduce the compaction and erosion of soils etc. and control the generation of dust. The implementation of a construction traffic management plan and controls on the locations of plant and materials will minimise the compaction and erosion of soil. Excavation is to be restricted during high winds and heavy rainfall to minimise dust generation and contaminated surface runoff.
- Excavated materials are to be inspected for signs of possible contamination, such as staining or strong odours. Should any be noticed, substrates are to be segregated and samples analysed for contaminants to determine an appropriate means of disposal to licensed/permitted facilities appropriate for the waste classification.
- In order to prevent any potential surface water/groundwater impacts via. release of hydrocarbon/chemical contaminants the following standard measures will be implemented:
  - The Contractor will ensure all site personnel are trained in the handling of materials, the sensitive nature of the receiving environment, the drainage system and the consequences of accidental spillages.
  - Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents, oils, and paints, will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice;
  - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the proposed development for disposal or recycling;
  - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the proposed development and properly disposed of;
  - All site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area.
  - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the site. This will minimise the risk of groundwater becoming contaminated through site activity.
  - All oil stored on site for construction vehicles will be kept in a locked and bunded area;
  - Generators, pumps and similar plant will be placed on drip-trays to prevent contamination;
  - All site vehicles used will be refuelled in bunded areas;
  - All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. Relevant Material Safety Data Sheets along with oil absorbent materials will be kept on site in close proximity to any fuel storage tanks or bowsers during proposed site development works; and,
  - All fuel/oil deliveries to on-site oil storage tanks will be supervised, and records will be kept of delivery dates and volumes.
  - Fixed plant shall be self-bunded; mobile plant shall be in good working order, kept clean, fitted with drip trays where appropriate and subject to regular inspection. Drip trays will be covered, emptied regularly as required and disposed of off-site having regard for Northern Ireland waste management legislation.
  - Spill kits and oil absorbent material shall be carried with mobile plant and located at vulnerable locations around the site to reduce the risk of spillages entering the sub-surface or groundwater environment; booms shall be held on-site for works near drains or dewatering points.
  - Procedures are to be put in place to ensure the identification, remediation and correct reporting of any fuel, oil, chemical or other pollution incidents that may occur.
- In order to prevent any potential surface water/groundwater impacts via. release of cementitious materials the following measures will be implemented:
  - No mixing of concrete will be carried out on site. The measures detailed below will be employed where poured concrete is being used in the construction process;

- The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on site and therefore these aspects will not pose a risk to the waterbodies present, namely any temporarily exposed groundwater, or local drainage channels, wetlands or Dundalk Bay;
- Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed;
- Any spillages will be cleaned up and disposed of correctly;
- Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening;
- Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete; and,
- Surplus concrete will be returned to batch plant after completion of a pour.
- The Contractor will dispose of all alkaline wastewaters and contaminated stormwater off-site having regard for waste management legislation.
- The Contractor will implement procurement procedures to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance.
- The Contractor will vet the source of aggregate, fill material and topsoil imported to the site in order to ensure that it is of a reputable origin and that it is “clean” (i.e. it will not contaminate the environment).
- All material to be disposed of off-site to a facility licensed having regard for Northern Ireland waste management legislation. Where material is to be stockpiled on site prior to disposal, the Contractor will control all run-off to prevent contamination of surrounding watercourses.
- The CEMP will include an Emergency Response Plan (ERP) based on the Contractor’s Risk Assessment, to be reviewed and approved by the Project Ecologist. The ERP will include (but not limited to):
  - training of relevant staff, including cover staff, in the implementation of the ERP and the use of spill kits;
  - procedures to be undertaken in the event of the release of any sediment into a watercourse, or any spillage of chemicals, fuel, oil or other hazardous materials or wastes;
  - procedures to be undertaken in the event of any non-compliance incidents with any permit or licence, or other such risks that could lead to a pollution incident, including flood risks;
  - the number, specification and location of all spill kits which shall be carried/kept on the site;
  - information on clean-up and reporting procedures; etc.

4.16 While it is expected that the site drainage system will be installed and commissioned early in the site construction programme, and will therefore be operational for much of the construction phase, there will be a period of the construction phase during which the site drainage system will not be operational. The Construction Environmental Management Plan (CEMP) is required to cover this period and to deal with other issues during the construction phase.

#### **Construction Programme**

4.17 The CEMP will include a section setting out the construction programme and will include all the environmental control measures required to avoid disturbance to SPA species, as set out in the EIAR (Ch. 10) and below. The CEMP also sets out general measures to manage noise and vibration from construction activities that may be employed at the site.

4.18 All rock breaking, blasting and other high-intensity construction activities as may be required within the site are to be programmed to take place outside the wintering season for SPA feature species (i.e. to take place between May and September) to ensure that disturbance to wintering species is avoided.

4.19 All discrete elements of site construction close to the shore of Dundalk Bay (establishment of the main

site access and installation of infrastructure for site drainage and discharge) are to be programmed to take place outside the wintering season for SPA feature species (i.e. to take place between May and September) to ensure that disturbance to wintering species is avoided.

#### **Sustainable Urban Drainage Systems (SUDS)**

- 4.20 The storm/surface drainage system for the occupation phase has been designed from Sustainable Urban Drainage Systems (SUDS) principles and incorporated into the development proposals. The specific aspects of the drainage design required for the protection of Dundalk Bay SPA & SAC, as set out in the EIA (Chs. 4 & 10), are as follows:
- 4.21 The SUDS scheme has been designed, through iterative project design and assessment, with the habitat features and conservation objectives of the SPA and SAC in mind. Storm and surface water arising from the site will ultimately discharge to the SPA/SAC; the SUDS system has been designed to collect and attenuate storm/surface water arising from the site and conduct the allowable greenfield runoff to the discharge points alongside the R172, on the edge of Dundalk Bay and to the degraded wetland alongside the main site entrance. No outfalls are proposed within the designated area and maximum discharges are limited to pre-development greenfield runoff rates, further reduced, retarded and diffused through additional measures designed into the system.
- 4.22 The system includes four separate networks, an infiltration basin, a box culvert at the outlet and a several other features designed to reduce the velocity of the discharge flow in the receiving channel and therefore prevent any erosion or degradation of semi-natural habitat areas within Dundalk Bay. The design of the discharge, into an existing open channel from a box culvert, is such that there will be no structures or development on the foreshore and no direct discharge to any area within the SAC/SPA boundaries.
- 4.23 Two of the four networks serve that part of the development site where the new residential units will be constructed. Networks 1 & 2, which serve 96% of the new development, collect surface water to the stormwater infiltration basin, from where it can be retained prior to discharge (or diverted in an emergency, as detailed further below). Network 3 is the gravity pipeline which conveys the allowable greenfield runoff to the discharge channel along the R172. Network 4 is a separate drainage network that serves the main site access roadway; the topography of this area of the site is such that the runoff will discharge to the degraded wetland alongside the main site entrance. The north-eastern section of the site, which contains 20 no. units includes a stormwater infiltration basin. Site investigations have confirmed capacity in the sub-soil for surface water runoff infiltration in this area – this will have the effect of reducing the volume of surface water runoff from the developed site. Network 3 also conducts runoff from this area to the box culvert outfall.
- 4.24 The overall capacity of the stormwater infiltration basin is c. 3,690 m<sup>3</sup> (required storage for a maximum 1 in 100-year storm event is c. 2,979 m<sup>3</sup>). The volume of surface water runoff held within the infiltration basin will vary in response to preceding precipitation; the provision of a penstock valve on the outlet allows discharge flow to the box culvert and receiving channel to be controlled and limited.
- 4.25 The section of the box culvert (1.0 m wide x 0.75 m high), which conducts the discharge flow to the existing receiving channel, will be laid at a flat gradient and will be partially submerged, to provide a depth of water within the base. This will ensure that the velocity of water flow from the outlet will be less than 0.5 ms<sup>-1</sup>. Discharge velocity will be further reduced by stone riprap at the outlet, which will also diffuse the flow into the receiving channel.

- 4.26 The ultimate transfer of storm/surface water arising from the site will occur via infiltration, at a rate of flow less than  $0.5 \text{ ms}^{-1}$ , to semi-natural habitats within Dundalk Bay, on the shore side of the R172, but well outside the SAC and SPA boundaries. There will therefore be no outfall or any appreciable flow of water directly to natural habitats within Dundalk Bay SPA/SAC, and no potential for any habitat loss or fragmentation through degradation or erosion.

#### **Silt Traps & Hydrocarbon Interceptors**

- 4.27 The SUDS design includes silt removal traps and Class 1 hydrocarbon separators within each of the four networks. This is the primary mechanism for preventing contaminated surface water runoff entering Dundalk Bay during the occupation phase.
- 4.28 For Networks 1 & 2, the silt traps and hydrocarbon separators are to be installed prior to discharge to the stormwater infiltration basin. For Network 3, a separate silt trap and interceptor is provided to treat runoff from the north-eastern section of the site. Similarly, for Network 4, a separate silt trap and hydrocarbon separator will be installed on the line before discharge to the wetland area.
- 4.29 The traps and separators have been designed specifically to the capacity/flow for each network with a minimum retention time of 6 minutes to allow immiscible hydrocarbon pollutants to accumulate on the surface and suspended solids to sink to the bottom of the unit.
- 4.30 The most likely sources of contamination of the surface and storm runoff are general grit and silt arising from gardens and hard surfaces, hydrocarbons from vehicle exhausts and fuels or oil spills and leaks, vehicle tyre wear, burning plastics, wastewater from washing cars, pesticides etc. used for gardening and materials used in home maintenance. While the risks to the designated sites from these forms of contamination is significant, the likely volumes are expected to be low and to remain within the design capacity of the traps and interceptors, maintained and cleaned in line with the manufacturer's recommendations.
- 4.31 All storm/surface water will therefore be treated prior to discharge. As the Network 1 & 2 traps and separators are to be installed in line before the infiltration basin, 96% of surface/stormwater arising from the development will also be subject to the contingency arrangements detailed below for failure and overloading. These arrangements will ensure that any contamination within surface water that may arise on the site will be removed and prevented from discharging to Dundalk Bay SPA/SAC. All surface and storm waters discharging to ground or more directly to Dundalk Bay will be clean and clear.
- 4.32 For the occupation phase, the SUDS drainage system includes several measures for maintenance and management and contingency for emergencies and failure.
- 4.33 The overall capacity of the stormwater infiltration basin is c.  $3,690 \text{ m}^3$  where the required storage for a maximum 1 in 100-year storm event is c.  $2,979 \text{ m}^3$ , leaving  $711 \text{ m}^3$  spare capacity.
- 4.34 The Drainage Assessment sets out a detailed schedule for inspection and maintenance/cleaning of the silt traps and hydrocarbon separators through the construction phase, the initial occupation phase and thereafter, with the longer-term schedule to be defined following the first 6 months of site experience. All silt traps and hydrocarbon separators will be located in areas where they will be easily accessible for maintenance and cleaning. All will be fitted with an alarm system that will activate when the level of hydrocarbon pollutants reach a pre-determined level where maintenance and cleaning will then be required.

- 4.35 While the risk of contamination from expected/design volumes of contamination will be removed by the traps and interceptors, functioning normally and maintained and cleaned in line with the manufacturer's recommendations, larger scale incidents such as a property fire will generate larger volumes of contaminated water which will enter the drainage system. As the traps and separators are unlikely, in such cases, to remove all the contaminants it is proposed that a pipeline is installed, connecting the infiltration basin to the nearby foul sewerage pumping station, and fitted with a penstock valve. This would allow larger volumes of contaminated surface water runoff to be held in the infiltration basin (which is designed with considerable additional capacity) while a decision to be made on how to satisfactorily deal with the incident and the option to divert to the public foul sewerage network for treatment in the municipal plant before discharge. A second penstock valve would also be fitted on the outlet pipeline (Network 3) to close the discharge to Dundalk Bay while contaminated flows are diverted. These procedures will ensure that in emergency situations larger volumes of contaminated water can be prevented from discharging to Dundalk Bay SAP/SAC.

#### **Foul Disposal**

- 4.36 Mains infrastructure for foul sewage disposal has been designed in accordance with Irish Water Code of Practice.
- 4.37 All wastewater streams will be collected within a gravity network and will be transferred to public mains via an on-site foul sewerage pumping station with rising main from where it will connect to the public gravity mains at a stand-off manhole located at the N52 junction with the Crowne Plaza Hotel/Dundalk IT entrance, and to the municipal Dundalk Wastewater Treatment Plant (WWTP). The proposed onsite wastewater pumping station which will be a closed system, located along the eastern boundary of the site, with capacity for minimum 12-hour emergency storage.
- 4.38 Irish Water has confirmed that the existing foul network has sufficient capacity to meet the combined wastewater discharge volumes expected from the proposed development, once operational.

#### **Site-Specific Environmental Management Plan (EMP)**

- 4.39 The following mitigation measures, which should form part of a site-specific Environmental Management Plan (EMP) during the operational phase, are proposed:
- All plant and equipment utilised onsite during maintenance works should be checked and in good working condition. Any equipment not meeting the required standard will not be permitted for use within the site;
  - Any minor volumes of fuel, oil or chemicals required during routine maintenance works will be brought to and from the site by the maintenance contractor. While temporarily onsite all chemicals will be kept in secure and bunded areas, with relevant Material Safety Data Sheets available onsite. Any fuel/oil tanks temporarily stored on site will be located in a suitably bunded area and all tanks will be double skinned, with oil/chemical absorbent materials held onsite in close proximity to the tanks;
  - In the unlikely event of a fuel/oil or chemical spill/leak during routine maintenance works, emergency spill response measures will be implemented with the aim of limiting the volume spilled and recovering as much of the lost product as possible;
  - A detailed Site Management Plan should be put in place for the operational phase of the development. This plan should clearly outline standard operating procedures for each of the following:
    - Maintenance of newly installed stormwater drainage system including all newly installed gullies, silt trap and Class 1 petrol/oil separators, attenuation basin, emergency penstock valves, and outfalls. Routine inspections of all silt traps and silt trap and Class 1 petrol/oil separators will minimise the potential risk of equipment failure;

- Maintenance of newly installed foul drainage system including the newly commissioned wastewater pumping station, rising main, pump (and back-up pump), and emergency storage tank;
  - Emergency response in the unlikely event of a major fuel/oil spill onsite;
  - Emergency response in the unlikely event of a major fire at any of the newly constructed properties;
  - Action response in the unlikely event of a deterioration in stormwater quality discharging from the site; and,
  - Waste management.
- The management plan should include all health and safety and environmental management procedures associated with the above tasks and should also identify when routine equipment maintenance and checks will be carried out (as per the relevant manufacturer's requirements and industry standards).
  - A nominated person (site maintenance manager) should be responsible for ensuring that all required equipment maintenance, checks and repairs are carried out as and when required and will keep an up to date maintenance record for the site. Contact details of an alternative site maintenance contact should be included within the management plan.
  - The roles, responsibilities, and contact details for all site maintenance operators and emergency services should be contained within the management plan, along with reporting and notification procedures for management, regulators and stakeholders.
  - The site maintenance manager will be responsible for ensuring that, in the unlikely event of either a SuDs failure (e.g. overloading of silt trap and Class 1 petrol/oil separator) or a major onsite contamination incident (e.g. fire water run-off following major property fire) all emergency penstock valves will be immediately closed, resulting in all stormwater from the site being either diverted, or held within the onsite attenuation basin, as per the engineering design.
  - All contaminated water should be disposed of to a suitably licenced offsite waste facility, in accordance with all relevant waste management legislation. This will ensure that there is no risk of any contaminated stormwater impacting Dundalk Bay SAC/ SPA. Procedures and checks would have to be put in place to ensure that the valves are returned to their normal states once the contaminated volume of stormwater is removed from the basin and storm drainage network.

## Cumulative & In-Combination Effects

4.40 Cumulative effects are either interactive effects between aspects of the project/development or the combination of impacts with those arising from other projects/developments which act on the same ecological receptors.

### Cumulative Effects – Project

4.41 Aspects of ground conditions and hydrogeology could interact with site drainage and surface water management proposals for the construction or occupation phases to create a surface water environment whereby permitted discharges (volume, rate, quality) to the local environment were exceeded.

4.42 These issues are addressed in the SUDS design and CEMP, as detailed above. Control and emergency response procedures are specified to ensure that the potential for such interactions is minimised and that sufficient contingency is in place. On the basis of the information provided with respect to sustainable urban drainage, foul disposal, silt interception, hydrocarbon interception and construction phase pollution prevention, it can be ascertained that cumulative pathways are not operational and that cumulative effects are not likely to arise as a result of aspects of the project operating interactively in this manner.

4.43 As the potential for disturbance to SPA feature species is limited to discrete aspects of construction methodology, which can be controlled and programmed to avoid significant disturbance, it can be



ascertained that cumulative pathways are not operational and that cumulative *ex-situ* effects on wintering birds are not likely to arise.

#### Cumulative Effects – Other Projects/Developments

- 4.44 The cumulative assessment has included the approved and still implementable planning applications identified within the EIAR:
- Planning permission has been granted for 125 housing units 200m south of the site to Shannon Homes under planning reference number 16/151. This development is currently under construction.
  - There is a planning application submitted for 16 housing units for Michael White immediately north of Bothar Maol under planning reference number 18/157.
  - There is currently planning permission to convert outbuildings into a domestic dwelling immediately east of the site and outline planning permission granted for two domestic houses north of Bothar Maol under planning reference number 11/462 and 12/213.
- 4.45 Cumulative effects are only likely to occur during the construction phase via the water environment where one or more other active development projects might affect the same watercourses, drainage channels or receiving waters. As is set out in the EIAR (Ch. 10), based on the nature of the proposed developments identified above and taking account of the proposed phasing and nature of this residential development, no significant cumulative impacts on the water environment (i.e. surface water or groundwater) are anticipated during the construction or operational phases. No potential cumulative flood risks have been identified.
- 4.46 Conservation objectives and management guidance published for the Natura 2000 sites identify a range of on-going activities which are considered to represent sources of existing impacts on Natura 2000 sites specifically and/or environmental degradation generally. Such activities have an influence on conservation and must therefore be considered cumulatively, as background or on-going diffuse sources of impact, with effects attached to the development proposals.
- 4.47 All relevant development projects in the environs of the site, which have been approved but are not yet built or operational, have been reviewed as part of the assessments presented in the EIAR. The relevant sectional assessments (ecology, hydrology, land/soils/geology etc.) found that no significant cumulation of impact is anticipated during the construction or operation phases.
- 4.48 For built and operational development, condition assessment and monitoring of the Natura 2000 sites and Water Framework Directive (WFD) classifications for watercourses and waterbodies provides a quantitative method for assessing changes in background levels of ecological and hydrological quality with time. As per the detailed consideration set out in the hydrology section of the EIA, there is no data available regarding surface water quality in the vicinity of the site due to the lack of surface water features. The two local named watercourses – the Haggardstown River and the Marshes Upper River – have not been assigned a water quality status in accordance with the WFD for the period 2010 to 2015. Inner Dundalk Bay, a transitional waterbody, is reported to have ‘Moderate’ status for the 2010 to 2015 monitoring period (EPA, 2018). The overall objective of the WFD is to restore good ecological status for Inner Dundalk Bay by 2021.
- 4.49 As is detailed within the hydrology section of the EIAR, and summarised above, the site does not contain any surface water features and seems to be isolated, in terms of surface water flow, from the surrounding urbanised catchments. The Haggardstown River, the Marshes Upper River and an unnamed drainage ditch are the only watercourses within 2 km, and none are hydraulically connected to the site.

Development of the site will result in the collection of surface water from the site into discrete discharges to the fringes of Dundalk Bay, a change from the current diffuse discharge regime; however, the environmental management and mitigation measures set out in the EIAR and assessed herein, will ensure that changes will remain localised to the immediate environs of the site and will result in insignificant (*de-minimis*) ecological and hydrological effects on Dundalk Bay. No measurable effects, in terms of the integrity of the Natura 2000 sites, will occur as a result of the project. The hydrological regime within the site will remain self-contained and isolated, with controlled discharges of attenuated and treated waters to semi-natural areas outside the SPA/SAC.

- 4.50 It is considered therefore, following assessment, that there is no additive effect for significant cumulative or in-combination impacts on the Natura 2000 network as a result of the proposed development when considered in conjunction with other plans and projects and/or in the context of the background ecological and hydrological condition of Dundalk Bay and overall trends.

#### Conclusions – Cumulative Impact Assessment

- 4.51 It is concluded, following assessment, that significant cumulative impacts on the Natura 2000 network are unlikely to occur as a result of the project.

#### **NIS Assessment**

- 4.52 The development proposals are subject to appropriate assessment for their likely impact on the integrity of Dundalk Bay SPA and Dundalk Bay SAC (and underlying designations). The results of the NIS Assessment are presented a *NIS Report*<sup>20</sup> [Table 4.1] and a *Design & Mitigation Measures* table<sup>21</sup> [Table 4.2].

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<sup>20</sup> Adapted for use from official EC guidance: ‘Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC’ (Annex 2; Figure 4).

<sup>21</sup> Adapted for use from official EC guidance: ‘Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC’ (Annex 2; Figure 3).

**Table 4.1:** NIS Report – Dundalk Bay SPA & Dundalk Bay SAC (and associated/underlying pNHA & Ramsar designations)

Assessment of the Effects of the Project or Plan on the Integrity of Dundalk Bay SPA & SAC			
<p>Elements of the project or plan (alone or in combination) likely to give rise to significant effects on the site:  (from screening assessment).</p>	<p>The main areas of concern are pollution of the SAC/SPA, degradation of SAC/SPA habitats and ex-situ impacts on SPA feature and assemblage species:</p> <ul style="list-style-type: none"> <li>• Pollution of the SAC/SPA – earthworks and construction activities will mobilise silts and sediments which present a risk of contamination to the SAC and SPA through surface water drainage.</li> <li>• Pollution of the SAC/SPA – construction activities will generate waste streams which present a risk of contamination (fuels and other hydrocarbons, cements and other construction materials etc.) to the SAC and SPA through surface water drainage.</li> <li>• Pollution of the SAC/SPA – occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SAC and SPA.</li> <li>• Pollution of the SAC/SPA – occupation of the site will generate foul sewage for disposal.</li> <li>• Degradation of natural habitats within the SAC/SPA – occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of degradation of natural habitats within the SAC and SPA through erosion etc.</li> <li>• Ex-Situ impacts on SPA feature and assemblage species – noise and vibration from piling, rock-breaking, blasting and other intensive construction activities can result in significant disturbances to avifauna, even over a distance of several hundred metres. It is unlikely that piling will be required but rock breaking or blasting may be required to install services, the wastewater pumping station and excavate underground car parks into the bedrock.</li> <li>• Ex-Situ impacts on SPA feature and assemblage species – discrete elements of site development which must take place close to the shore, such as the creation of the main site access on the R172 Blackrock Road and the installation of the drainage outfall, may result in localised disturbances and must be considered individually.</li> </ul>		
<p>Conservation Objectives:</p>	<p>Dundalk Bay SPA</p>	<p>Overall Objective – Favourable Conservation Status.</p>	
	A054	<p>Pintail <i>Anas acuta</i></p>	<p>To maintain the favourable conservation condition of Pintail in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>
	A052	<p>Teal <i>Anas crecca</i></p>	<p>To maintain the favourable conservation condition of Teal in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>
	A053	<p>Mallard <i>Anas platyrhynchos</i></p>	<p>To maintain the favourable conservation condition of Mallard in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>
	A043	<p>Greylag Goose <i>Anser anser</i></p>	<p>To maintain the favourable conservation condition of Greylag Goose in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>
	A046	<p>Light-bellied Brent Goose <i>Branta bernicla hrota</i></p>	<p>To maintain the favourable conservation condition of Light-bellied Brent Goose in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>
	A149	<p>Dunlin <i>Calidris alpina</i></p>	<p>To maintain the favourable conservation condition of Dunlin in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>
	A143	<p>Knot</p>	<p>To maintain the favourable conservation condition of Knot in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).</p>

		<i>Calidris canutus</i>	out in the published conservation objectives).
A137	Ringed Plover <i>Charadrius hiaticula</i>		To maintain the favourable conservation condition of Ringed Plover in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A130	Oystercatcher <i>Haematopus ostralegus</i>		To maintain the favourable conservation condition of Oystercatcher in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A182	Common Gull <i>Larus canus</i>		To maintain the favourable conservation condition of Common Gull in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A179	Black-headed Gull <i>Chroicocephalus ridibundus</i>		To maintain the favourable conservation condition of Black-headed Gull in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A157	Bar-tailed Godwit <i>Limosa lapponica</i>		To maintain the favourable conservation condition of Bar-tailed Godwit in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A156	Black-tailed Godwit <i>Limosa limosa</i>		To maintain the favourable conservation condition of Black-tailed Godwit in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A069	Red-breasted Merganser <i>Mergus serrator</i>		To maintain the favourable conservation condition of Red-breasted Merganser in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A160	Curlew <i>Numenius arquata</i>		To maintain the favourable conservation condition of Curlew in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A140	Golden Plover <i>Pluvialis apricaria</i>		To maintain the favourable conservation condition of Golden Plover in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A141	Grey Plover <i>Pluvialis squatarola</i>		To maintain the favourable conservation condition of Grey Plover in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A005	Great Crested Grebe <i>Podiceps cristatus</i>		To maintain the favourable conservation condition of Great Crested Grebe in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A048	Shelduck <i>Tadorna tadorna</i>		To maintain the favourable conservation condition of Shelduck in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A162	Redshank <i>Tringa totanus</i>		To maintain the favourable conservation condition of Redshank in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A142	Lapwing <i>Vanellus vanellus</i>		To maintain the favourable conservation condition of Lapwing in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A050	Eurasian Wigeon <i>Anas penelope</i>		n/a – assumed – to maintain the favourable conservation condition of Eurasian Wigeon in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A395	Greenland White-Fronted goose <i>Anser albifrons flavirostris</i>		n/a – assumed – to maintain the favourable conservation condition of Greenland White-Fronted goose in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A169	Ruddy Turnstone <i>Arenaria interpres</i>		n/a – assumed – to maintain the favourable conservation condition of Ruddy Turnstone in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A067	Common Goldeneye <i>Bucephala clangula</i>		n/a – assumed – to maintain the favourable conservation condition of Common Goldeneye in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A003	Common Loon <i>Gavia immer</i>		n/a – assumed – to maintain the favourable conservation condition of Common Loon in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A001	Red-Throated Loon <i>Gavia stellata</i>		n/a – assumed – to maintain the favourable conservation condition of Red-Throated Loon in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
A017	Great cormorant <i>Phalacrocorax carbo</i>		n/a – assumed – to maintain the favourable conservation condition of Great cormorant in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).

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	A151	Ruff <i>Philomachus pugnax</i>	n/a – assumed – to maintain the favourable conservation condition of Ruff in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
	A164	Common Greenshank <i>Tringa nebularia</i>	n/a – assumed – to maintain the favourable conservation condition of Common Greenshank in Dundalk Bay SPA (as defined by attributes and targets set out in the published conservation objectives).
	Wetlands & Waterbirds		To maintain the favourable conservation condition of the wetland habitat in Dundalk Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it (as defined by attributes and targets set out in the published conservation objectives).
	Dundalk Bay SAC		Overall Objective – Favourable Conservation Status.
	1130	Estuaries	To maintain the favourable conservation condition of Estuaries in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).
	1140	Tidal Mudflats and Sandflats	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide at Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).
	1220	Perennial Vegetation of Stony Banks	To maintain the favourable conservation condition of Perennial vegetation of stony banks in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).
	1310	Salicornia Mud	To restore the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).
	1330	Atlantic Salt Meadows	To maintain the favourable conservation condition of Atlantic salt meadows in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).
	1410	Mediterranean Salt Meadows	To maintain the favourable conservation condition of Mediterranean salt meadows in Dundalk Bay SAC (as defined by attributes and targets set out in the published conservation objectives).
How the project or plan will affect key species and key habitats:  (acknowledge uncertainties and any gaps in information).	<p>Earthworks and construction activities will mobilise silts and sediments and will generate waste streams (fuels and other hydrocarbons, cements and other construction materials etc.) which present a risk of contamination to the SAC and SPA through surface water drainage.</p> <p>Occupation of the site will generate surface and stormwater runoff which is to be disposed of to Dundalk Bay via drainage infrastructure – this presents a risk of contamination (silts, hydrocarbons etc.) to the SAC and SPA and risks degradation of natural habitats within the SAC and SPA through erosion etc. Foul sewage will also be generated, for disposal to mains infrastructure.</p> <p>Noise and vibration from piling and other intensive construction activities can result in significant disturbances to avifauna, even over a distance of several hundred metres. Although it is highly unlikely that piling will be required, some uncertainty remains. Discrete elements of site development which must take place close to the shore, such as the creation of the main site access on the R172 Blackrock Road and the installation of the drainage outfall, may result in localised disturbances.</p>		
How the integrity of the site is likely to be affected by the project or plan:  (acknowledge uncertainties and any gaps in information).	<p><i>'Integrity'</i> of a site refers to the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.</p> <p>The extent to which the mechanisms identified might give rise to adverse impacts on the SPA/SAC (and Ramsar/pNHA) which may or may not be significant in terms of site integrity would depend entirely on the magnitude of a single pollution event or the frequency and duration of diffuse pollution or discrete minor pollution events.</p>		

<p>Mitigation measures to be introduced to avoid or reduce the adverse effects on the integrity of the site:</p> <p>(acknowledge uncertainties and any gaps in information).</p>	<p>Three broad approaches are adopted to the mitigation of impacts on Dundalk Bay SAC and Dundalk Bay SPA:</p> <ul style="list-style-type: none"> <li>• Pollution Control in the Construction Phase</li> <li>• Pollution Control in the Operational Phase</li> <li>• Prevention of Disturbance to SPA Species in the Construction Phase.</li> </ul> <p>These broad approaches to mitigation are implemented through the following (set out in detail above):</p> <ul style="list-style-type: none"> <li>• Construction Environmental Management Plan (CEMP)</li> <li>• Construction Programme</li> <li>• Sustainable Urban Drainage (SUDS) System</li> <li>• Silt Traps &amp; Hydrocarbon Interceptors</li> <li>• Foul Disposal &amp; Site-Specific Environmental Management Plan (EMP)</li> </ul>
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**Table 4.2:** Design & Mitigation Measures - Dundalk Bay SPA & Dundalk Bay SAC (and associated/underlying pNHA & Ramsar designations)

Proposed Measure	How measure will avoid adverse effects on site integrity.	How measure will reduce adverse effects on site integrity.	Implementation – how and by whom (provide evidence).	Implementation – timescale relative to the project or plan.	Degree of confidence in likely success (provide evidence).	Monitoring & contingency for mitigation failure.
<u>Construction Environmental Management Plan (CEMP)</u>	CEMP addresses construction-phase issues including mobilised silts and sediments and other waste streams which present a risk of contamination to the SAC and SPA. The CEMP sets out pollution prevention and water/sediment management measures etc. as detailed above.	n/a	<p>Implementation by the Developer.</p> <p>To be finalised following completion of the primary EIA and consenting processes.</p> <p>To be agreed with the Council/NPWS prior to works commencing.</p> <p>To be secured by way of a planning condition.</p>	<p>The CEMP is a live document. It details all construction-phase environmental mitigation measures from the EIAR, NIS and the EIA and consenting processes.</p> <p>To be implemented throughout the construction phase.</p>	<p>HIGH.</p> <p>Standard requirement for site development and environmental protection.</p>	<p>SUDS System</p> <p>CEMP includes all measures for monitoring, contingency and mitigation failure.</p>
<u>Construction Environmental Management Plan</u>	n/a	CEMP sets out measures to manage noise and vibration from piling or	Implementation by the Developer.	The CEMP is a live document. It details all construction-phase	HIGH. Standard requirement for	CEMP includes all measures for monitoring, contingency and

Proposed Measure	How measure will avoid adverse effects on site integrity.	How measure will reduce adverse effects on site integrity.	Implementation – how and by whom (provide evidence).	Implementation – timescale relative to the project or plan.	Degree of confidence in likely success (provide evidence).	Monitoring & contingency for mitigation failure.
<u>(CEMP)</u>		other intensive construction activities and measures to avoid disturbances to SPA feature species as a result of discrete elements of site development which must take place close to the shore.	To be finalised following completion of the primary EIA and consenting processes.  To be agreed with the Council/NPWS prior to works commencing.  To be secured by way of a planning condition.	environmental mitigation measures from the EIAR, NIS and the EIA and consenting processes.  To be implemented throughout the construction phase.	site development and environmental protection.	mitigation failure.
<u>Construction Programme</u>	The CEMP will include a section setting out the construction programme and will include all the environmental control measures required to avoid disturbance to SPA species.	The CEMP also sets out general measures to manage noise and vibration from construction activities that may be employed at the site	Implementation by the Developer.  To be finalised following completion of the primary EIA and consenting processes.  To be agreed with the Council/NPWS prior to works commencing.  To be secured by way of a planning condition.	The CEMP is a live document. It details all construction-phase environmental mitigation measures from the EIAR, NIS and the EIA and consenting processes.  To be implemented throughout the construction phase.	HIGH.  Standard requirement for site development and environmental protection.	CEMP includes all measures for monitoring, contingency and mitigation failure.
<u>Sustainable Urban Drainage Systems (SUDS)</u>	SUDS, with attenuation and controlled discharges, will restrict surface and stormwater discharges to Dundalk Bay to less than pre-development rates and volumes.	n/a	Implementation by the Developer.  Design is fully detailed within the development proposals for which planning permission is sought.	To be implemented at an early stage during the construction phase and operated and maintained throughout the occupation of the development.	HIGH.  Standard civil engineering process.	Arrangements for monitoring and maintenance, and contingency for failure, overloading and emergencies are fully detailed and designed into the system.

Proposed Measure	How measure will avoid adverse effects on site integrity.	How measure will reduce adverse effects on site integrity.	Implementation – how and by whom (provide evidence).	Implementation – timescale relative to the project or plan.	Degree of confidence in likely success (provide evidence).	Monitoring & contingency for mitigation failure.
<u>Silt Traps &amp; Hydrocarbon Interceptors</u>	n/a	The SUDS design includes silt removal traps and Class 1 hydrocarbon separators – the primary mechanism for removing contaminants from surface/stormwater runoff.	Implementation by the Developer.  Design is fully detailed within the development proposals for which planning permission is sought.	To be implemented at an early stage during the construction phase and operated and maintained throughout the occupation of the development.	HIGH.  Standard civil engineering process.	Arrangements for monitoring and maintenance, and contingency for failure, overloading and emergencies are fully detailed and designed into the system.
<u>Foul Disposal</u>	The foul drainage system has been designed in accordance with Irish Water Code of Practice IW-CDS-5030-03 (Revision 1 – December 2017). All wastewater streams will be collected and transferred to public mains via an on-site pumping station from where it will discharge to the municipal treatment plant for treatment.	n/a	All on-site installations will be constructed by the developer where the section of the foul sewer rising main to be constructed outside the site boundary shall be undertaken by an approved Irish Water contractor.  Design is fully detailed within the development proposals for which planning permission is sought.	To be implemented during the initial construction stage where the system shall be operated and maintained by the developer until the entire system is vested to Irish Water	HIGH.  Standard civil engineering process.	The system shall be constructed to the required standards and incorporate the necessary safety measures. When the completed system is vested to Irish Water it shall be maintained and monitored by the Local Authority on behalf of the public body.
<u>Site-Specific Environmental Management Plan (EMP)</u>	EMP addresses operational-phase issues including maintenance, emergency procedures and waste streams which present a risk of contamination to the SAC and SPA. The EMP sets	n/a	Implementation by the Developer.  To be finalised prior to handover of the completed development.  To be agreed with the Council/NPWS.	The EMP details all operational-phase environmental mitigation measures from the EIAR, NIS and the EIA and consenting processes.  To be implemented throughout the	HIGH.  Standard requirement for site development and environmental protection.	SUDS System  EMP includes all measures for monitoring, contingency and failure.



Proposed Measure	How measure will avoid adverse effects on site integrity.	How measure will reduce adverse effects on site integrity.	Implementation – how and by whom (provide evidence).	Implementation – timescale relative to the project or plan.	Degree of confidence in likely success (provide evidence).	Monitoring & contingency for mitigation failure.
	out pollution prevention and water/sediment management measures etc. as detailed above.		To be secured by way of a planning condition.	occupation of the development.		



## NIS Conclusions

- 4.53 The assessment has demonstrated that the required measures to avoid, mitigate and otherwise reduce the significance of adverse impacts on the integrity of the Natura 2000 sites are technically feasible and attach and a high level of confidence in implementation and success.
- 4.54 Significant adverse impacts on the integrity of the Natura 2000 sites of Dundalk Bay, in so far as they attach to the development proposals, can be excluded on the basis of precautionary, objective scientific assessment at the second stage (appropriate assessment). The proposed development will not interfere with any key relationships or elements within the environment which define and control the structure and function of any Natura 2000 sites and will not result in significant adverse impacts on the integrity of the Natura 2000 network or any associated/underlying designations.
- 4.55 The development proposals can, subject to appropriate planning conditions, be consented without causing significant adverse effects on the integrity of Dundalk Bay SAC or Dundalk Bay SPA to arise.



## **ANNEX A: NATURA 2000 DOCUMENTATION**

A1: Dundalk Bay SAC Standard Natura 2000 Data Form (September 2017)

A2: Dundalk Bay SPA Standard Natura 2000 Data Form (September 2017)

A3: Dundalk Bay SAC Conservation Objectives - Dundalk Bay SAC 000455 Dundalk Bay SPA 004026 (July 2011)





# NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),  
Proposed Sites for Community Importance (pSCI),  
Sites of Community Importance (SCI) and  
for Special Areas of Conservation (SAC)

SITE IE0000455  
SITENAME Dundalk Bay SAC

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- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS](#)
- [6. SITE MANAGEMENT](#)
- [7. MAP OF THE SITE](#)

## 1. SITE IDENTIFICATION

<b>1.1 Type</b> B	<b>1.2 Site code</b> IE0000455	<a href="#">Back to top</a>
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### 1.3 Site name

Dundalk Bay SAC

<b>1.4 First Compilation date</b> 2000-09	<b>1.5 Update date</b> 2017-09
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### 1.6 Respondent:

**Name/Organisation:** National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht  
**Address:** 7 Ely Place, Dublin 2, Ireland  
**Email:** datadelivery@ahg.gov.ie

<b>Date site proposed as SCI:</b>	2002-01
<b>Date site confirmed as SCI:</b>	No data
<b>Date site designated as SAC:</b>	No data
<b>National legal reference of SAC designation:</b>	No data

## 2. SITE LOCATION

2.1 Site-centre location [decimal degrees]:

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**Longitude**  
-6.338446145

**Latitude**  
53.95856651

**2.2 Area [ha]:**  
5234.045183

**2.3 Marine area [%]**  
92.641

**2.4 Sitelength [km]:**  
0.0

### 2.5 Administrative region code and name

**NUTS level 2 code**      **Region Name**

IEZZ	Extra-Regio
IE01	Border, Midland and Western

### 2.6 Biogeographical Region(s)

Atlantic ( %)

## 3. ECOLOGICAL INFORMATION

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### 3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A B C D	A B C		
						Representativity	Relative Surface	Conservation	Global
1130			2798.9715		M	B	B	B	B
1140			4374.8559		M	A	A	B	A
1220			52.36		M	A	C	B	A
1310			35.0037		M	B	C	B	B
1330			379.9836		M	A	C	B	A
1410			0.0447		M	C	C	B	C

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.





B	A162	<a href="#">totanus</a>			w	1455	1455	i		G	B	A	C	A
B	A142	<a href="#">Vanellus vanellus</a>			w	4822	4822	i		G	B	A	C	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

### 3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C R V P	IV	V	A	B	C	D
B		<a href="#">Ardea cinerea</a>			38	38							X	
P		<a href="#">Crambe maritima</a>						P			X			
B		<a href="#">Cygnus olor</a>			48	48							X	

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see [reference portal](#))
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories:** **IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

## 4. SITE DESCRIPTION

### 4.1 General site character

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Habitat class	% Cover
N09	1.0
N10	1.0
N05	1.0
N02	91.0
N03	2.0

N15	1.0
N07	1.0
N04	1.0
N14	1.0
<b>Total Habitat Cover</b>	<b>100</b>

### Other Site Characteristics

The site is a large bay-like estuarine complex, extending c.15 km from north to south and on average between 2-3 km in width. It contains the estuaries of a number of moderately sized rivers, principally the Castletown, the Flurry, the Fane and the Glyde/Dee. These rivers drain fairly intensive agricultural catchments, and the Castletown flows through Dundalk town and serves the port. The site has a marked tidal range. The estuaries of the Castletown and Flurry rivers are well sheltered and have extensive salt marshes. Post-glacial raised beaches are a feature of the shoreline. Some agricultural fields which adjoin the bay are included in the site for ornithological interests.

### 4.2 Quality and importance

Estuaries and particularly intertidal sand and mud flats are well represented at this site. The site contains the largest expanse of intertidal flats on the east coast. The bay is fringed in places by salt marshes, with good examples of *Salicornia* sand flats, Atlantic salt meadows and, to a lesser extent, Mediterranean salt meadows. The quality of estuarine habitats is generally good. The site has excellent examples of perennial vegetation of stony banks with the Red Data Book plant *Crambe maritima*. The site is of high importance for wintering waterfowl, with internationally important populations of *Branta bernicla hrota*, *Calidris canutus* and *Limosa lapponica*. It also supports nationally important populations of a further 16 species including *Pluvialis apricaria*. The overall site is also of international importance as it regularly has in excess of 20,000 wintering waterfowl.

### 4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i o b]
M	J03.02		b
M	H05.01		b
L	H05		b
H	E03.03		i
M	H02.06		b
M	K04.01		i
H	I01		b
M	J02.12.01		b
H	F02.03.01		b
M	J02.04		b
M	J02.01.03		b
H	E03.01		i
L	G02		b
L	H04.02		b
M	K01.01		b
M	H01.06		i
M	J02.01.02		b
M	G01		b
M	K02		i
M	G05.02		b
H	H01		b
M	J02.04.01		b

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i o b]
M	M02.04		b
L	G02.09		i

M	F05		b
L	G01.01.01		b
M	J03.01		b

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

#### 4.5 Documentation

Bowman, J.J., Clabby, K.J., Lucey, J., Mc Garrigle, M.L. and Toner, P.H. (1996). Water Quality in Ireland 1991-1994. Environmental Protection Agency, Wexford. Colhoun, K. (1998). I-WeBS Report 1996-97. BirdWatch Ireland, Dublin. Curtis, T.G.F. and Sheehy Skeffington, M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and the Environment, Proceedings of the Royal Irish Academy 98B: 87-104. Fahy, E. (1972). A preliminary report on areas of scientific interest in County Louth. An Foras Forbartha, Dublin. Hunt, J., Derwin, J., Coveney, J. & Newton, S. (2000). Republic of Ireland. Pp. 365-416 in M.F. Heath & M.I. Evans, eds. Important Bird Areas in Europe: Priority sites for conservation 1: Northern Europe. Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 8). Merne, O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett, R.F.A. and Jones, T.A. (eds) Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge. Moore, D. & Wilson, F. (1999). National Shingle Beach Survey of Ireland 1999. Unpublished report to National Parks & Wildlife Service, Dublin. Praeger, R.L. (1934). The Botanist in Ireland. Hodges, Figgis & Co, Dublin. Sheppard, R. (1993). Ireland's Wetland Wealth. IWC, Dublin. White, J. (1981). Notes on Irish vegetation: No. 1 The vegetation of shingle in Co. Louth. Bulletin of the Irish Biogeographical Society 5: 1-4.

## 5. SITE PROTECTION STATUS (optional)

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### 5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
IE05	19.0				

### 5.2 Relation of the described site with other sites:

designated at national or regional level:

Type code	Site name	Type	Cover [%]
IE05	Ballymascanlan Estuary Wildfowl Sanctuary	+	2.0
IE05	Lurgan Green Wildfowl Sanctuary	*	17.0

designated at international level:

Type	Site name	Type	Cover [%]
Other	Dundalk Bay	*	90.0

## 6. SITE MANAGEMENT

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### 6.2 Management Plan(s):

An actual management plan does exist:

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No, but in preparation

No

## 7. MAP OF THE SITES

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INSPIRE ID:

Map delivered as PDF in electronic format (optional)

Yes  No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).



# NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),  
Proposed Sites for Community Importance (pSCI),  
Sites of Community Importance (SCI) and  
for Special Areas of Conservation (SAC)

SITE IE0004026  
SITENAME Dundalk Bay SPA

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- [2. SITE LOCATION](#)
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## 1. SITE IDENTIFICATION

<b>1.1 Type</b> A	<b>1.2 Site code</b> IE0004026	<a href="#">Back to top</a>
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### 1.3 Site name

Dundalk Bay SPA

<b>1.4 First Compilation date</b> 2003-11	<b>1.5 Update date</b> 2017-09
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### 1.6 Respondent:

**Name/Organisation:** National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht  
**Address:** 7 Ely Place, Dublin 2, Ireland  
**Email:** datadelivery@ahg.gov.ie

### 1.7 Site indication and designation / classification dates

<b>Date site classified as SPA:</b>	1994-03
<b>National legal reference of SPA designation</b>	No data

## 2. SITE LOCATION

### 2.1 Site-centre location [decimal degrees]:

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Longitude

Latitude



B	A143	<a href="#">canutus</a>			w	9710	9710	i		G	A	A	C	A
B	A147	<a href="#">Calidris ferruginea</a>			c	16	16	i		G	C	B	C	B
B	A137	<a href="#">Charadrius hiaticula</a>			w	147	147	i		G	C	A	C	B
B	A003	<a href="#">Gavia immer</a>			w	9	9	i		G	C	B	C	C
B	A001	<a href="#">Gavia stellata</a>			w	9	9	i		G	C	B	C	C
B	A130	<a href="#">Haematopus ostralegus</a>			w	8712	8712	i		G	B	A	C	A
B	A182	<a href="#">Larus canus</a>			w	555	555	i		G	C	A	C	B
B	A179	<a href="#">Larus ridibundus</a>			w	6630	6630	i		G	C	A	C	B
B	A157	<a href="#">Limosa lapponica</a>			w	1950	1950	i		G	B	A	C	A
B	A156	<a href="#">Limosa limosa</a>			w	1067	1067	i		G	B	A	C	A
B	A069	<a href="#">Mergus serrator</a>			w	121	121	i		G	B	A	C	A
B	A160	<a href="#">Numenius arquata</a>			w	1234	1234	i		G	C	A	C	B
B	A017	<a href="#">Phalacrocorax carbo</a>			w	97	97	i		G	C	A	C	C
B	A151	<a href="#">Philomachus pugnax</a>			w	4	4	i		G	C	B	C	B
B	A151	<a href="#">Philomachus pugnax</a>			c	9	9	i		G	C	B	C	B
B	A140	<a href="#">Pluvialis apricaria</a>			w	5967	5967	i		G	B	A	C	A
B	A141	<a href="#">Pluvialis squatarola</a>			w	204	204	i		G	B	A	C	A
B	A005	<a href="#">Podiceps cristatus</a>			w	302	302	i		G	B	A	C	A
B	A048	<a href="#">Tadorna tadorna</a>			w	492	492	i		G	B	A	C	A
B	A161	<a href="#">Tringa erythropus</a>			c	3	3	i		G	C	B	C	C
B	A164	<a href="#">Tringa nebularia</a>			w	16	16	i		G	C	B	C	C
B	A162	<a href="#">Tringa totanus</a>			w	1489	1489	i		G	B	A	C	A
B	A142	<a href="#">Vanellus vanellus</a>			w	14850	14850	i		G	B	A	C	A

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are



deficient (DD) or in addition to population size information

- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

### 3.3 Other important species of flora and fauna (optional)

Species					Population in the site			Motivation						
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C R V P	IV	V	A	B	C	D
B		<a href="#">Ardea cinerea</a>			28	28							X	
P		<a href="#">Crambe maritima</a>									X			
B		<a href="#">Cygnus olor</a>			61	61							X	

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see [reference portal](#))
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories:** IV, V: Annex Species (Habitats Directive), A: National Red List data; B: Endemics; C: International Conventions; D: other reasons

## 4. SITE DESCRIPTION

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### 4.1 General site character

Habitat class	% Cover
N03	1.0
N05	1.0
N01	40.0
N02	58.0
<b>Total Habitat Cover</b>	<b>100</b>

### Other Site Characteristics

The site is a large bay-like estuarine complex, extending c.15 km from north to south and on average of 4-5 km in width. It contains the estuaries of a number of moderately sized rivers, principally the Castletown, the Flurry, the Fane and the Glyde/Dee. These rivers drain fairly intensive agricultural catchments, and the Castletown flows through Dundalk town and serves the port. The site contains the largest expanse of intertidal flats on the east coast and has a very marked tidal range. The sediments are predominantly sands though fine muds or muddy sands occur in the sheltered areas at Dundalk and Ballymascanlan. Salt marshes are well represented, especially in the more sheltered areas such as the estuaries of the Castletown and Flurry rivers. *Spartina* is frequent in parts. Post-glacial raised beaches are a feature of the shoreline.

### 4.2 Quality and importance

Estuaries and particularly intertidal sand and mud flats are very well represented at this site and support the

largest concentration of wintering waterfowl on the east coast (regularly in excess of 20,000 wintering waterfowl). The bay has internationally important populations of *Branta bernicila hrota*, *Calidris canutus*, *Limosa limosa* and *Limosa lapponica*. It is the top site in the country for *Calidris canutus*, with over 38% of the national total. A further 13 species have populations of national importance, with particular notable numbers for *Haematopus ostralegus* (12.4% of national total), *Calidris alpina* (8.4% of national total) and *Vanellus vanellus* (7.4% of national total). Dundalk Bay is an important roost site for *Anser anser* and small numbers of *Anser albifrons flavirostris*. Shallow bay waters support divers, grebes and diving duck, with nationally important populations of *Podiceps cristatus* and *Mergus serrator*. This bay is a regular site for passage waders such as *Philomachus pugnax*, *Calidris ferruginea* and *Tringa erythropus*. It is also an important site for wintering gulls, especially *Larus ridibundus* and *Larus canus*. The site provides both feeding and roosting areas for the waterfowl species and habitat quality for most of the estuarine habitats is very good. Wintering bird populations have been well monitored in recent years.

### 4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i o b]
H	D01.02		o
M	G01.02		i
M	E02		o
M	D03.02		i
M	J02.12		i
M	E03		i
M	F02.03		i
H	I01		i
H	E01		o
L	A04		i
M	E01.03		o
M	A08		o
M	G01.01		i
M	J02.11		i

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i o b]
M	G01.01		i
M	D03.02		i
L	A04		i
M	F02.03		i
M	E01.03		o
H	D01.02		o

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

### 4.5 Documentation

Colhoun, K. (2001). I-WeBS Report 1998-99. BirdWatch Ireland, Dublin. Curtis, T.G.F. and Sheehy Skeffington, M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. *Biology and Environment, Proceedings of the Royal Irish Academy* 98B: 87-104. Fahy, E. (1972) A preliminary Report on Areas of Scientific Interest in County Louth. An Foras Forbartha, Dublin. Hunt, J., Derwin, J., Coveney, J. and Newton, S. (2000). Republic of Ireland. Pp. 365-416 in Heath, M.F. and Evans, M.I. (eds). *Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe*. Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 8). Irish Wetland Birds Survey (I-WeBS) Database, 1994/95-2000/01. BirdWatch Ireland, Dublin. McGarrigle M.L., Bowman J.J., Clabby K.J., Lucey J., Cunningham P., MacCarthaigh M., Keegan M., Cantrell B., Lehane M., Clenaghan C. and Toner P.F. (2002). *Water Quality in Ireland 1998-2000*. Environmental Protection Agency, Wexford. Merne, O.J. (1989). *Important bird areas in the Republic of Ireland*. In: Grimmett, R.F.A. and Jones, T.A. (eds). *Important Bird Areas in Europe*. ICBP Technical Publication No. 9. Cambridge. Moore, D. and Wilson, F. (1999). *National Shingle Beach Survey of Ireland 1999*. Unpublished report to National Parks and Wildlife Service, Dublin. Praeger, R.L. (1934). *The Botanist in Ireland*. Hodges, Figgis and Co. Dublin. Sheppard, R. (1993). *Ireland's Wetland Wealth*. IWC, Dublin. White, J. (1981). *Notes on Irish vegetation: No. 1 The vegetation of shingle in Co. Louth*. *Bulletin of the Irish Biogeographical Society* 5: 1-4.

## 5. SITE PROTECTION STATUS (optional)

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### 5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
IE05	9.0				

### 5.2 Relation of the described site with other sites:

designated at national or regional level:

Type code	Site name	Type	Cover [%]
IE05	Ballymascanlon Estuary Wildfowl Sanctuary	+	1.0
IE05	Lurgangreen Wildfowl Sanctuary	+	8.0

designated at international level:

Type	Site name	Type	Cover [%]
Other	Dundalk Bay	+	44.0

## 6. SITE MANAGEMENT

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### 6.2 Management Plan(s):

An actual management plan does exist:

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No, but in preparation
<input checked="" type="checkbox"/>	No

## 7. MAP OF THE SITES

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INSPIRE ID:

IE.NPWS.PS.NATURA2000.SPA.IE0004026

Map delivered as PDF in electronic format (optional)

Yes  No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

--

# National Parks and Wildlife Service

## Conservation Objectives

Dundalk Bay SAC 000455

Dundalk Bay SPA 004026



*An Roinn  
Ealaíon, Oidhreachta agus Gaeltachta*  
*Department of  
Arts, Heritage and the Gaeltacht*

## Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

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

The favourable conservation status of a species is achieved when:

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

### Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

\* indicates a priority habitat under the Habitats Directive

### 000455 Dundalk Bay SAC

QI	Description
1130	Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide
1220	Perennial vegetation of stony banks
1310	<i>Salicornia</i> and other annuals colonizing mud and sand
1330	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )
1410	Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )

### 004026 Dundalk Bay SPA

QI	Description	
A005	Great Crested Grebe <i>Podiceps cristatus</i>	wintering
A043	Greylag Goose <i>Anser anser</i>	wintering
A046	Light-bellied Brent Goose <i>Branta bernicla hrota</i>	wintering
A048	Shelduck <i>Tadorna tadorna</i>	wintering
A052	Teal <i>Anas crecca</i>	wintering
A053	Mallard <i>Anas platyrhynchos</i>	wintering
A054	Pintail <i>Anas acuta</i>	wintering
A065	Common Scoter <i>Melanitta nigra</i>	wintering
A069	Red-breasted Merganser <i>Mergus serrator</i>	wintering
A130	Oystercatcher <i>Haematopus ostralegus</i>	wintering
A137	Ringed Plover <i>Charadrius hiaticula</i>	wintering
A140	Golden Plover <i>Pluvialis apricaria</i>	wintering
A141	Grey Plover <i>Pluvialis squatarola</i>	wintering
A142	Lapwing <i>Vanellus vanellus</i>	wintering
A143	Knot <i>Calidris canutus</i>	wintering
A149	Dunlin <i>Calidris alpina</i>	wintering
A156	Black-tailed Godwit <i>Limosa limosa</i>	wintering
A157	Bar-tailed Godwit <i>Limosa lapponica</i>	wintering
A160	Curlew <i>Numenius arquata</i>	wintering
A162	Redshank <i>Tringa totanus</i>	wintering
A179	Black-headed Gull <i>Chroicocephalus ridibundus</i>	wintering
A182	Common Gull <i>Larus canus</i>	wintering
A184	Herring Gull <i>Larus argentatus</i>	wintering
A999	Wetlands & Waterbirds	

## Supporting documents, relevant reports & publications (listed by date)

*Supporting documents, NPWS reports and publications are available for download from: [www.npws.ie/Publications](http://www.npws.ie/Publications)*

- 
- Title:** Dundalk Bay SPA (004026): Conservation objectives supporting document [Version 1]  
**Year:** 2011  
**Author:** NPWS  
**Series:** Unpublished Report to NPWS
- 
- Title:** Dundalk Bay SAC (000455): Conservation objectives supporting document - marine habitats [Version 1]  
**Year:** 2011  
**Author:** NPWS  
**Series:** Unpublished Report to NPWS
- 
- Title:** Dundalk Bay SAC (000455): Conservation objectives supporting document - coastal habitats [Version 1]  
**Year:** 2011  
**Author:** NPWS  
**Series:** Unpublished Report to NPWS
- 
- Title:** A subtidal soft sediment survey of Dundalk Bay  
**Year:** 2009  
**Author:** Aquatic Services Unit  
**Series:** Unpublished Report to NPWS
- 
- Title:** Saltmarsh Monitoring Report 2007-2008  
**Year:** 2009  
**Author:** McCorry, M.; Ryle, T.  
**Series:** Unpublished Report to NPWS
- 
- Title:** A survey of mudflats and sandflats in Ireland. An intertidal soft sediment survey of Dundalk Bay  
**Year:** 2008  
**Author:** Aquatic Services Unit  
**Series:** Unpublished Report to NPWS
- 
- Title:** A survey of mudflats and sandflats [Dundalk Bay]  
**Year:** 2007  
**Author:** Aquatic Services Unit  
**Series:** Unpublished Report to NPWS
- 
- Title:** Saltmarsh Monitoring Report 2006  
**Year:** 2007  
**Author:** McCorry, M.  
**Series:** Unpublished Report to NPWS
- 
- Title:** National Shingle Beach Survey of Ireland 1999  
**Year:** 1999  
**Author:** Moore, D.; Wilson, F.  
**Series:** Unpublished Report to NPWS
-

## Spatial data sources

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<b>Year:</b>	2010
<b>Title:</b>	EPA transitional waterbody data
<b>GIS operations:</b>	Clipped to SAC boundary
<b>Used for:</b>	1130

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<b>Year:</b>	Interpolated 2011
<b>Title:</b>	Mudflat and sandflat surveys 2007, 2008; subtidal soft sediment survey 2009
<b>GIS operations:</b>	Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data
<b>Used for:</b>	Marine community types, 1140

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<b>Year:</b>	2005
<b>Title:</b>	OSi Discovery series vector data
<b>GIS operations:</b>	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; Saltmarsh and Sand Dune CO datasets erased out
<b>Used for:</b>	Marine community types base data

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<b>Year:</b>	Revision 2010
<b>Title:</b>	Saltmarsh Monitoring Project 2007-2008. Version 1
<b>GIS operations:</b>	QIs selected; clipped to SAC boundary
<b>Used for:</b>	1310, 1330, 1410

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<b>Year:</b>	2005
<b>Title:</b>	OSi Discovery series vector data
<b>GIS operations:</b>	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; saltmarsh data for site combined to HWM and LWM polygon feature class; resulting polygon feature class unioned with SPA boundary; resulting polygon feature class clipped to SPA boundary; bird use zone attributes assigned to each polygon
<b>Used for:</b>	Bird use zones (map 6)

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**1130 Estuaries**

**To maintain the favourable conservation condition of Estuaries in Dundalk Bay SAC, which is defined by the following list of attributes and targets:**

<b>Attribute</b>	<b>Measure</b>	<b>Target</b>	<b>Notes</b>
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 2	Habitat area was estimated at 2799ha using OSI data and the defined Transitional Water Body area under the Water Framework Directive. See marine habitats supporting document for further information
Community distribution	Hectares	The Subtidal fine sand community complex should be conserved in a natural condition. See map 4	Habitat structure was elucidated from intertidal core and dig sampling undertaken in 2007 and 2008 combined with data obtained from subtidal grab samples obtained in 2009. See marine habitats supporting document for further information

**1140 Mudflats and sandflats not covered by seawater at low tide**

To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide at Dundalk Bay SAC, which is defined by the following list of attributes and targets:

<b>Attribute</b>	<b>Measure</b>	<b>Target</b>	<b>Notes</b>
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated at 4375ha using OSI data. See marine habitats supporting document for further information
Community distribution	Hectares	The Muddy fine sand community and Intertidal fine sand community complex should be conserved in a natural condition. See map 4	Habitat structure was elucidated from intertidal core and dig sampling undertaken in 2007 and 2008 combined with data obtained from subtidal grab samples obtained in 2009. See marine habitats supporting document for further information

1220 Perennial vegetation of stony banks

To maintain the favourable conservation condition of Perennial vegetation of stony banks in Dundalk Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable, subject to natural processes, including erosion and succession	Exact current area unknown, but shingle is known to occur almost continuously from Salterstown to Lurgan White House in the south bay and from Jenkinstown to east of Giles Quay in the north bay. Shingle is estimated to cover 12ha. Probably less than 25% of this would be vegetated. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes	See coastal habitats supporting document for further details
Physical structure: Functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from the national shingle beach survey conducted in 1999 (Moore and Wilson, 1999). See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of habitat zonations including transitional zones, subject to natural processes including erosion and succession. See map 5	Based on data from Moore and Wilson (1999). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain the presence of species-poor communities with characteristic species: <i>Honckenya peploides</i> , <i>Beta vulgaris</i> ssp. <i>maritima</i> , <i>Crithmum maritimum</i> , <i>Tripleurospermum maritimum</i> , <i>Glaucium flavum</i> and <i>Silene uniflora</i>	Based on data from Moore and Wilson (1999). See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Moore and Wilson (1999). See coastal habitats supporting document for further details

**1310 Salicornia and other annuals colonizing mud and sand**

To restore the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Dundalk Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site surveyed: 35.00ha. See map 5	Based on data from the Saltmarsh Monitoring Project (McCorry and Ryle, 2009). One sub-site (Dundalk Bay) was mapped, giving a total estimated area of 35ha for <i>Salicornia</i> mudflat, which is one of the largest areas of this habitat in the country. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details.
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 5 for known distribution	See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession. See map 5	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from McCorry and Ryle (2009)
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	Based on data from McCorry and Ryle (2009)
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with characteristic species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009)	See coastal habitats supporting document for further details
Vegetation structure: negative indicator species - <i>Spartina anglica</i>	Hectares	No significant expansion of <i>Spartina</i> . No new sites for this species and an annual spread of less than 1% where it is already known to occur	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details

**1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)**

To maintain the favourable conservation condition of Atlantic salt meadows in Dundalk Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For the sub-site (357.57ha) and potential areas (22.42ha) mapped: 379.98ha. See map 5	Based on data from the Saltmarsh Monitoring Project (McCorry and Ryle, 2009). One sub-site (Dundalk Bay) was mapped and additional areas of potential saltmarsh were identified from an examination of aerial photographs, giving a total estimated area for Atlantic salt meadow of 379.98ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further information
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 5 for known distribution	See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession. See map 5	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from McCorry and Ryle (2009)
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	Based on data from McCorry and Ryle (2009)
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with characteristic species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009)	See coastal habitats supporting document for further details
Vegetation structure: negative indicator species- <i>Spartina anglica</i>	Hectares	No significant expansion of <i>Spartina</i> . No new sites for this species and an annual spread of less than 1% where it is already known to occur	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details

**1410 Mediterranean salt meadows (*Juncetalia maritimi*)**

To maintain the favourable conservation condition of Mediterranean salt meadows in Dundalk Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: 0.045ha. See map 5	Based on data from the Saltmarsh Monitoring Project (McCorry and Ryle, 2009). One sub-site (Dundalk Bay) was mapped, giving a total estimated area of 0.045ha for Mediterranean salt meadow. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 5 for known distribution	See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession. See map 5	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from McCorry and Ryle (2009)
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	Based on data from McCorry and Ryle (2009)
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with characteristic species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009)	See coastal habitats supporting document for further details
Vegetation structure: negative indicator species- <i>Spartina anglica</i>	Hectares	No significant expansion of <i>Spartina</i> . No new sites for this species and an annual spread of less than 1% where it is already known to occur	Based on data from McCorry and Ryle (2009). See coastal habitats supporting document for further details

**A005 Great Crested Grebe *Podiceps cristatus***

To maintain the favourable conservation condition of Great Crested Grebe in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A043 Greylag Goose *Anser anser***

To maintain the favourable conservation condition of Greylag Goose in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in section 5 of the SPA conservation objectives supporting document



**A046 Light-bellied Brent Goose *Branta bernicla hrota***

To maintain the favourable conservation condition of Light-bellied Brent Geese in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A048 Shelduck *Tadorna tadorna***

To maintain the favourable conservation condition of Shelduck in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A052 Teal *Anas crecca***

To maintain the favourable conservation condition of Teal in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A053 Mallard *Anas platyrhynchos***

To maintain the favourable conservation condition of Mallard in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A054 Pintail *Anas acuta***

To maintain the favourable conservation condition of Pintail in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A065 Common Scoter *Melanitta nigra***

To maintain the favourable conservation condition of Common Scoter in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment using (Generalised Additive Modelling (GAM)) could not be undertaken for this species due to an incomplete dataset. A measure of population change was calculated using the 'generic threshold' method. See Section 4 of the SPA conservation objectives supporting document for more details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A069 Red-breasted Merganser *Mergus serrator***

To maintain the favourable conservation condition of Red-breasted Merganser in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A130 Oystercatcher *Haematopus ostralegus***

To maintain the favourable conservation condition of Oystercatcher in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document



**A137 Ringed Plover *Charadrius hiaticula***

To maintain the favourable conservation condition of Ringed Plover in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A140 Golden Plover *Pluvialis apricaria***

To maintain the favourable conservation condition of Golden Plover in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A141 Grey Plover *Pluvialis squatarola***

To maintain the favourable conservation condition of Grey Plover in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A142 Lapwing *Vanellus vanellus***

To maintain the favourable conservation condition of Lapwing in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A143 Knot *Calidris canutus***

To maintain the favourable conservation condition of Knot in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A149 Dunlin *Calidris alpina***

To maintain the favourable conservation condition of Dunlin in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A156 Black-tailed Godwit *Limosa limosa***

To maintain the favourable conservation condition of Black-tailed Godwit in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A157 Bar-tailed Godwit *Limosa lapponica***

To maintain the favourable conservation condition of Bar-tailed Godwit in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document



**A160 Curlew *Numenius arquata***

To maintain the favourable conservation condition of Curlew in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A162 Redshank *Tringa totanus***

To maintain the favourable conservation condition of Redshank in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment (Generalised Additive Modelling (GAM)) was undertaken using waterbird count data collected through the Irish Wetland Bird Survey and other surveys. See the the SPA conservation objectives supporting document for further details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A179 Black-headed Gull *Chroicocephalus ridibundus***

To maintain the favourable conservation condition of Black-headed Gull in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment using (Generalised Additive Modelling (GAM)) could not be undertaken for this species due to an incomplete dataset. A measure of population change was calculated using the 'generic threshold' method. See Section 4 for more details of the SPA conservation objectives supporting document
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A182 Common Gull *Larus canus***

To maintain the favourable conservation condition of Common Gull in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment using (Generalised Additive Modelling (GAM)) could not be undertaken for this species due to an incomplete dataset. A measure of population change was calculated using the 'generic threshold' method. See Section 4 of the SPA conservation objectives supporting document for more details
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A184 Herring Gull *Larus argentatus***

To maintain the favourable conservation condition of Herring Gull in Dundalk Bay SPA, which is defined by the following list of attributes and targets:

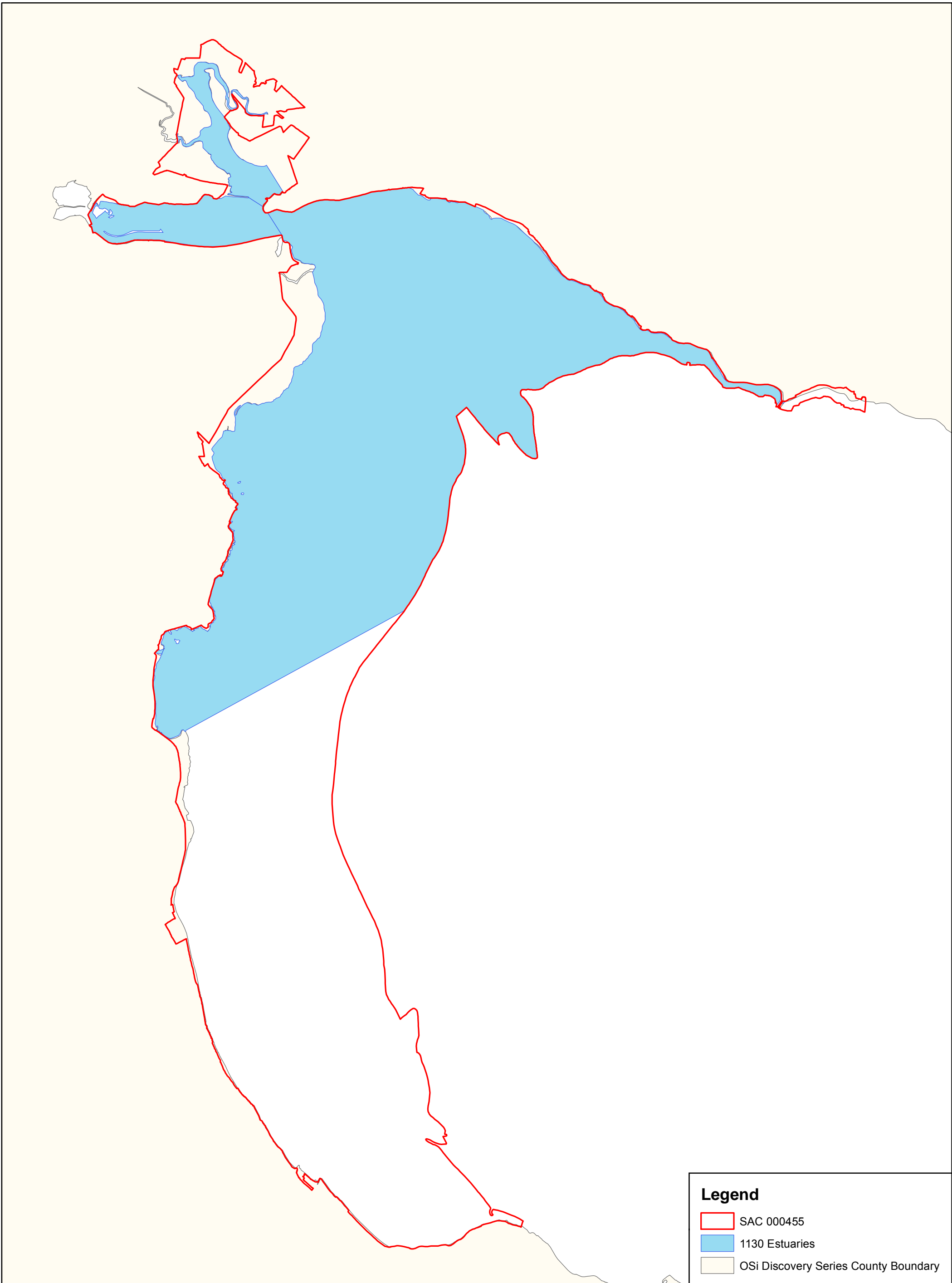
Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trend assessment using (Generalised Additive Modelling (GAM)) could not be undertaken for this species due to an incomplete dataset. A measure of population change was calculated using the 'generic threshold' method. See Section 4 for more details of the SPA conservation objectives supporting document
Distribution	Number and range of areas used by waterbirds	No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	As determined by regular low tide and other waterbird surveys. Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in Section 5 of the SPA conservation objectives supporting document

**A999 Wetlands & Waterbirds**

**To maintain the favourable conservation condition of the wetland habitat in Dundalk Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:**

<b>Attribute</b>	<b>Measure</b>	<b>Target</b>	<b>Notes</b>
Habitat area	Hectares	The permanent area occupied by the wetland habitat is stable and not significantly less than the areas of 8136, 4374 and 649 hectares respectively for subtidal, intertidal, and supratidal habitats, other than that occurring from natural patterns of variation. See map 6	As defined by SPA boundary to MLWM; MLWM to MHW; and MHW to SPA boundary (the latter value is minus the area of Lurgangreen Fields)

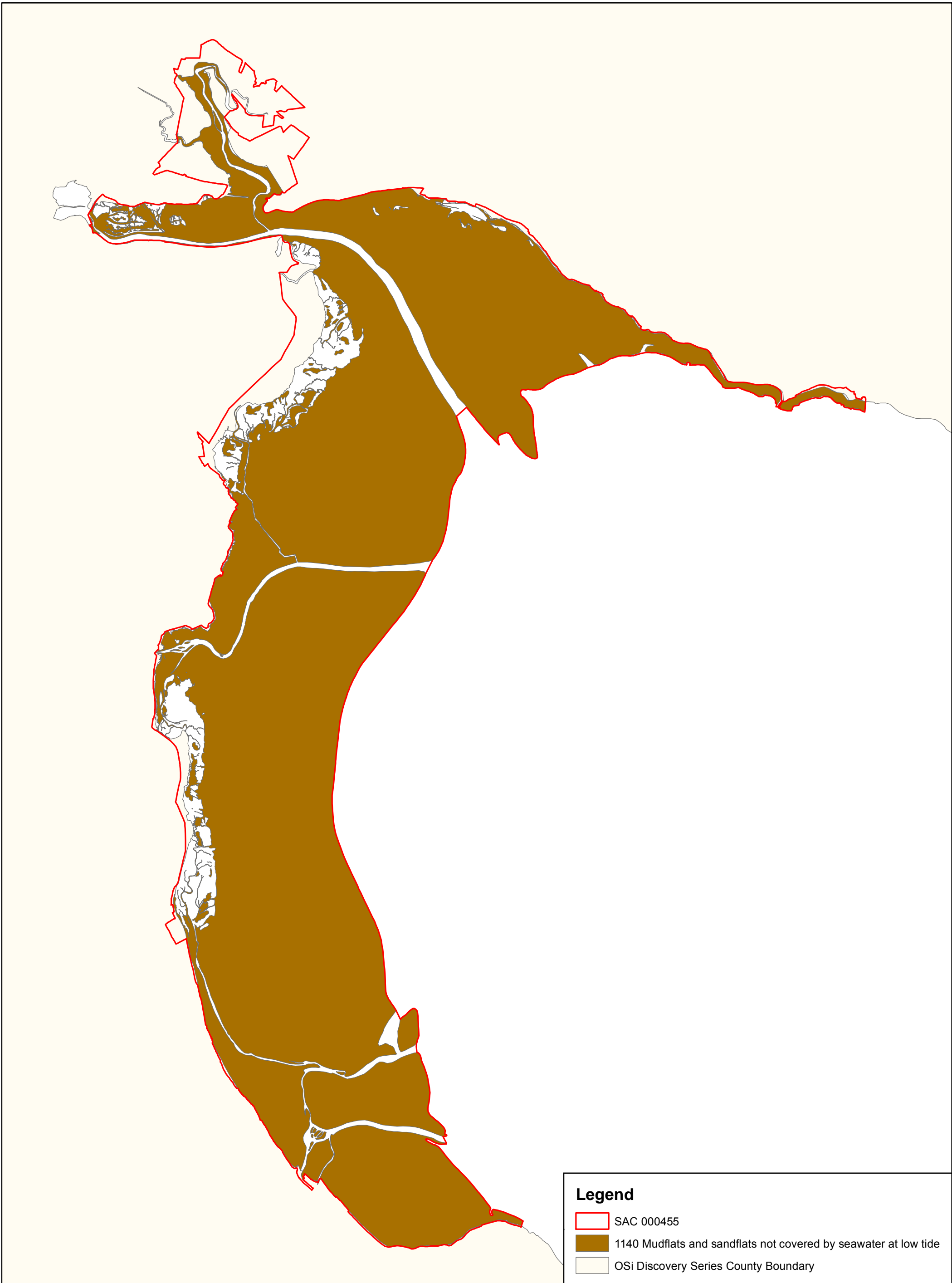




**Legend**

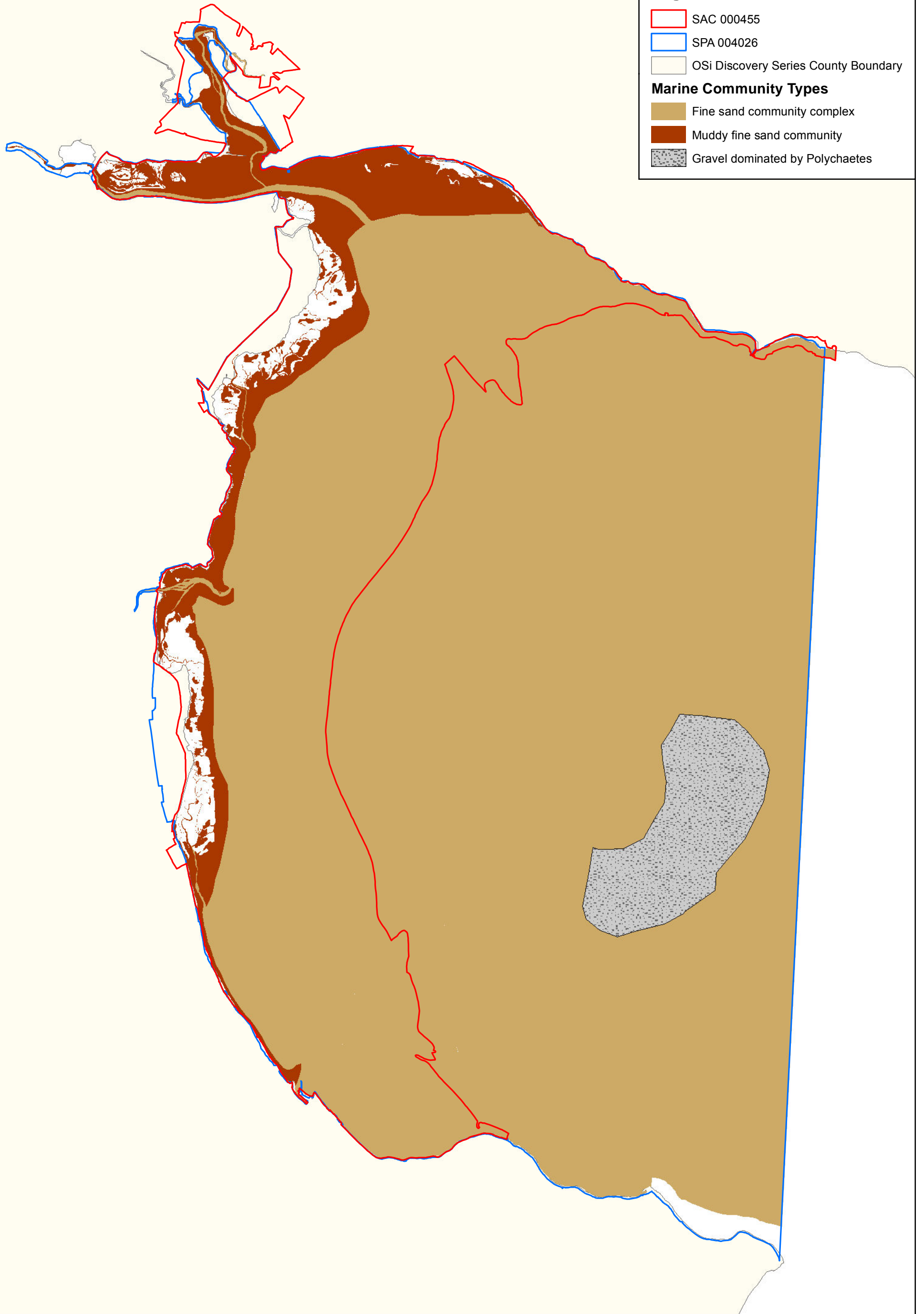
- SAC 000455
- 1130 Estuaries
- OSi Discovery Series County Boundary





**Legend**

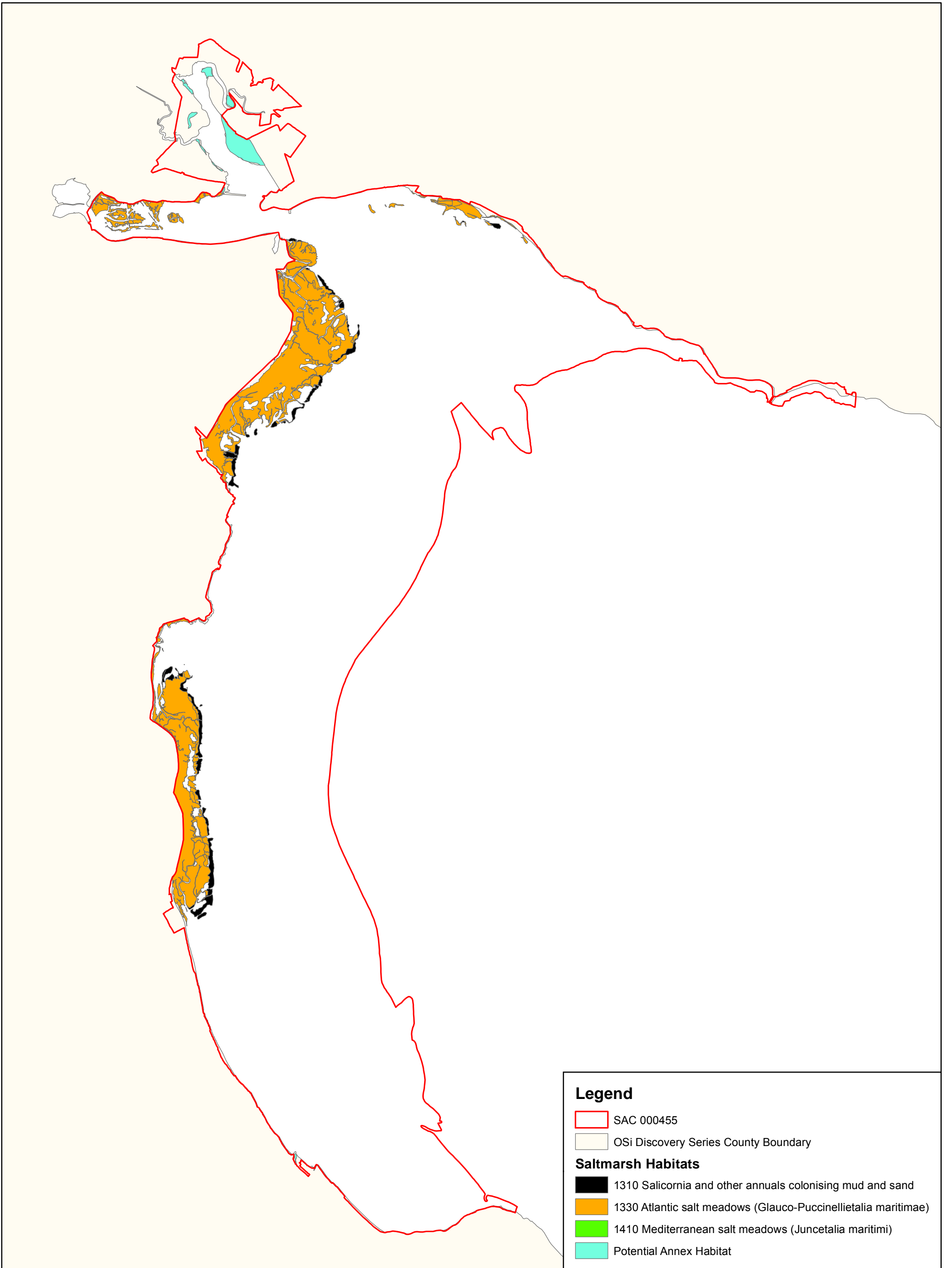
- SAC 000455
- 1140 Mudflats and sandflats not covered by seawater at low tide
- OSi Discovery Series County Boundary



**Legend**

- SAC 000455
  - SPA 004026
  - OSi Discovery Series County Boundary
- Marine Community Types**
- Fine sand community complex
  - Muddy fine sand community
  - Gravel dominated by Polychaetes



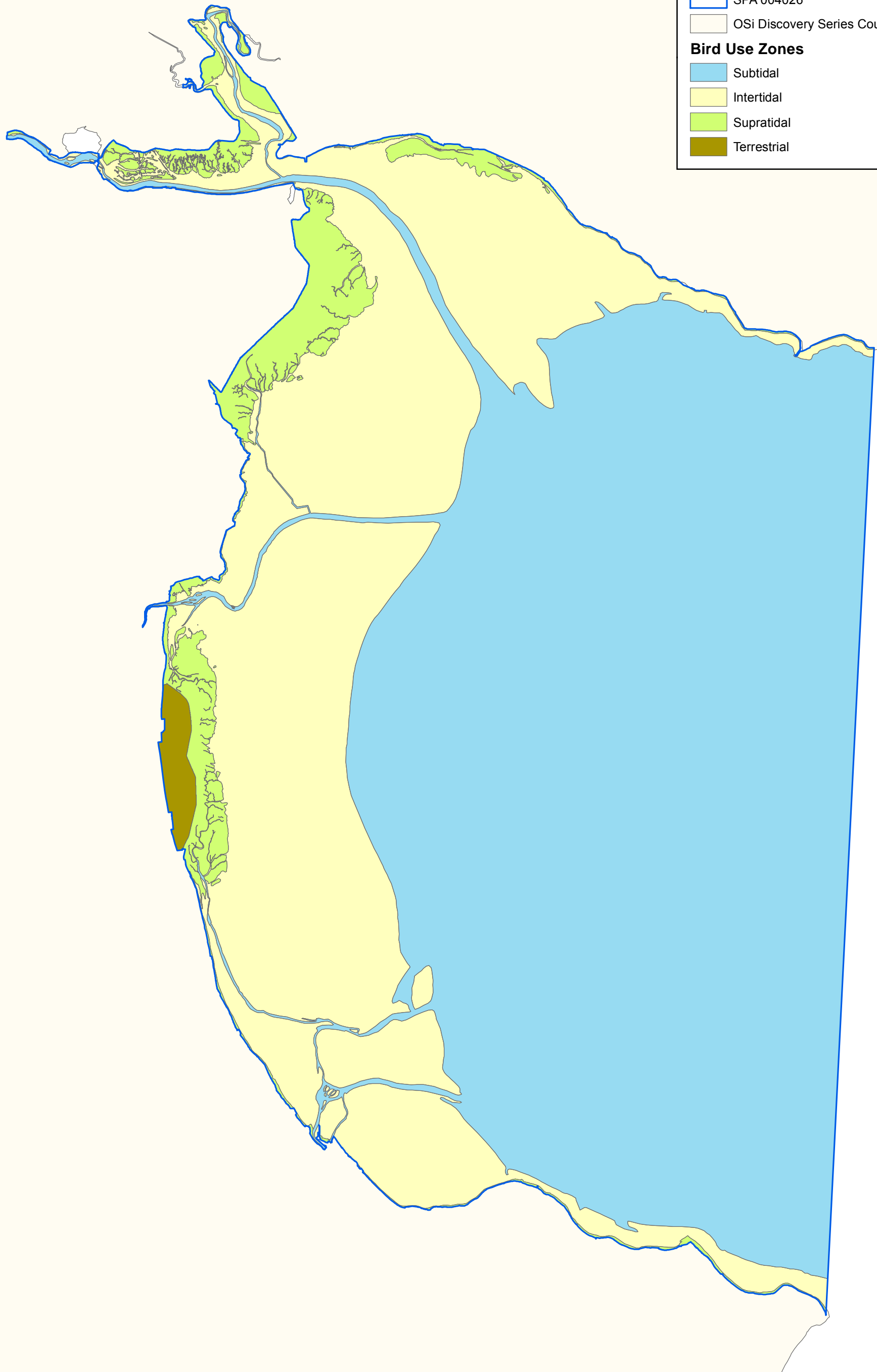


**Legend**

- SAC 000455
- OSi Discovery Series County Boundary

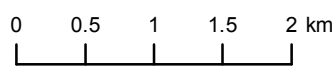
**Saltmarsh Habitats**

- 1310 Salicornia and other annuals colonising mud and sand
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritima*)
- 1410 Mediterranean salt meadows (*Juncetalia maritimi*)
- Potential Annex Habitat



**Legend**

- SPA 004026
- OSi Discovery Series County Boundary
- Bird Use Zones**
- Subtidal
- Intertidal
- Supratidal
- Terrestrial





***An Roinn***  
***Ealaíon, Oidhreacht agus Gaeltachta***  

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***Department of***  
***Arts, Heritage and the Gaeltacht***

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