



**Ardersier Port Ltd.
Protected Species Survey**



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Ardersier Port Ltd.

Protected Species Survey

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1 INTRODUCTION

1.1 Remit

EnviroCentre Limited was commissioned by CWC Group to conduct a protected species survey of the proposed development of the port of Ardersier, Moray Firth, Inverness-shire, to inform an Ecological Impact Assessment (EclA).

The 'site' is defined as the area demarcated by the red line boundary as shown in Appendix A. The 'survey area' constitutes the area of the 'site' plus appropriate buffers for protected species and is detailed in Appendix B.

1.2 Aim and Objectives

The aim of the targeted surveys was to provide an ecological baseline to be referred to in terms of the proposed development. The main objectives of the surveys were as follows:

- Assess the trees and buildings within the survey area for their suitability to support roosting bats;
- Undertake eDNA sampling of one pond within the survey area to test for the presence of great crested newt (GCN);
- Search for evidence of otter, water vole and badger within the survey area;
- Make recommendations for any detailed further survey and/or species licensing requirements; and
- Outline appropriate mitigation and optional enhancement measures for: bats, GCN, otter, water vole and badger.

1.3 Legislation and Policy

European and national legislation and national and local policy relevant to this report includes:

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Nature Conservation (Scotland) Act 2004;
- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE);
- The Protection of Badgers Act 1992 (as amended by the WANE Act 2011);
- The British Standard for Biodiversity;
- The Scottish Biodiversity Strategy;
- Scottish Planning Policy (2014);
- The Inverness and Nairn Biodiversity Action Plan (BAP);
- Highland Biodiversity Action Plan (BAP); and
- Highland-Wide Local Development Plan (LDP).

A summary of protected species legislation is provided in Appendix C.

1.4 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre.

If this report is to be submitted for regulatory approval more than 12 months following the report date, it is recommended that it is referred to EnviroCentre for review to ensure that any relevant changes in data, best practice, guidance or legislation in the intervening period are integrated into an updated version of the report.

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1.5 Assessment Limitations

Faunal species are transient and can move between favoured habitats regularly throughout and between years. The survey provides a snapshot of field signs present on the site during May 2018.

There were no limitations to the field survey.

2 METHODS

All protected species survey work was undertaken by experienced and competent ecologists, who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The field work was undertaken on the 2nd May 2018 by Senior Ecologist Joanne Martindale ACIEEM and Principal Ecologist Mike Coleman MCIEEM. For the duration of the survey the weather conditions were overcast and dry with a light breeze, and an air temperature of 11°C. Site photographs are provided in Appendix D.

2.1 Protected Species Survey

The survey was undertaken according to CIEEM guidelines¹ and focussed on faunal species that are most likely to be found in the habitats which make up the wider landscape, or where suitable habitat was found on site. Species that were searched for and survey methods applied included but were not limited to:

- Bats;
- Great crested newt (*Triturus cristatus*);
- Otter (*Lutra lutra*);
- Water vole (*Arvicola amphibius*); and
- Badger (*Meles meles*).

2.1.1 Bat Potential Roost Feature (PRF) Assessment

A survey was undertaken in accordance with the criteria set out by the Bat Conservation Trust (BCT)² to assess and record any Potential Roost Features (PRFs) in buildings and trees that bats could utilise to roost. Suitable habitat connectivity to the wider landscape was also considered during this assessment, via a review of aerial imagery. PRFs are listed in Table 2-1 below.

Table 2-1: PRFs in Trees and Structures Frequently Used by Bats for Roosting

PRFs in trees frequently used as bat roosts	PRFs in structures frequently used as bat roosts
Hollows and cavities from woodpecker, rot and knot holes	Gaps in windowsills and window panes
Hazard beams and other vertical or horizontal cracks and splits in stems or branches	Underneath peeling paintwork or lifted rendering
Partially detached plated bark	Behind hanging tiles, weatherboarding, eaves, soffit boxes, fascia and lead flashing
Cankers, included bark and compression forks with potential cavities	Under tiles and slates
Partially detached ivy with stem diameters in excess of 50mm	Gaps in brickwork and stonework
Bat or bird boxes	Gaps in rendering behind gutters

¹ Chartered Institute of Ecology and Environmental Management. Undated. General advice on surveys and methods. Available online at: <http://www.cieem.net/general-survey-advice>

² Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. (London The Bat Conservation Trust, Ed.) (3rd ed.).

The suitability of roosting, commuting and foraging habitats on site were classified as outlined within Table 2-2 below. Habitats suitable for commuting and foraging bats both within the site and a 50m buffer survey area were also categorised.

Table 2-2: Suitability Classification of Roosting Features and Commuting and Foraging Habitats for Bats

Suitability	Roosting Features	Commuting and Foraging Habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and/or surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis; or A tree of sufficient size and age to contain PRFs but with none seen from the ground; or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a fragmented hedgerow or un-vegetated stream, but isolated. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or a patch of scrub.
Negligible	A structure or a tree with negligible features likely to be used by roosting bats.	Negligible habitat features on site likely to be used by foraging or commuting bats.

2.1.2 Great Crested Newt eDNA Survey

One pond within the survey area was surveyed using Environmental DNA (eDNA) analysis techniques following the ADAS (RSK ADAS Ltd) protocol^{3,4}. eDNA analysis is a method for species monitoring in water bodies. Sources of GCN eDNA in water include secreted faeces, mucous, shed skin and carcasses. Scottish Natural Heritage (SNH) has approved this method for the determination of the presence of GCN following Defra funded research into its application.

³ ADAS (n.d.). *eDNA Survey Protocol*. Wolverhampton: ADAS UK Limited.

⁴ Biggs J, W. P. Ewald N Valentini A Gaboriaud C Griffiths RA Foster J Wilkinson J Arnett A, & Dunn F (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA.

A specific protocol was followed using a kit provided by SureScreen Scientific⁵, which included the use of a sampling kit to collect 20 30ml water samples from around the perimeter of the pond and to decant them into a sampling bag. Once the 20 samples were collected, the sampling bag was shaken for 10 seconds. Using the clear plastic pipette provided, 15 ml of water was taken from the bag and transferred into a conical tube containing preserving fluid.

The eDNA sampling was undertaken on 2nd May 2018 and the sample was sent for analysis to SureScreen Scientific. Verified results were returned on 14th May 2018.

2.1.3 Otter

The otter survey was conducted along the banks of the pond and the burn along the southern site boundary, plus a 250m buffer upstream and downstream. The survey followed best practice guidelines^{6,7} and aimed to identify suitable otter habitat and field signs, including:

- Spraints (otter faeces/droppings used as territorial signposts. Often located in prominent positions and can be placed on deliberate piles of soil or sand). Three categories are used for describing otter spraint: Dried fragmented (Df); Dried intact (Di); and Not fully dry (Nd);
- Footprints;
- Feeding remains (can often be a useful indication of otter presence);
- Paths/slides (otter can often leave a distinctive path from and into the watercourse);
- Holts (underground shelter) are generally found:
 - Within trees roots at the edge of the bank of a river;
 - Within hollowed out trees;
 - In naturally formed holes in the river banks that can be easily extended;
 - Or preferably in ready-made holes created by other large mammals such as badger setts, rabbit burrows or outlet pipes; and
- Couches/lay-ups (couches or lay-ups are places for lying up above ground are usually located near a watercourse, between rocks or boulders, under dense vegetation).

In order to assess their importance, the status of otter resting sites was assigned from Low to High according to Table 2-4, below⁸.

Table 2-3: Guidance for Assigning Status of Otter Resting Sites

Resting Site Status	Definition
Low	Feature with limited evidence of otter activity – low number of spraints, not all age classes present. Insufficient seclusion to be a breeding site or key resting site, unlikely to have links to the key otter requirements. Most likely to provide a temporary 'stop off' for otters when moving through their territory. Loss/disturbance of such a feature is unlikely to be significant in terms of the individual or population.
Moderate	Feature containing sprainting with a range of age classes, but not in significant quantities. Availability may be limited by season, tides or flow. Unlikely to be suitable as a breeding/natal site but will be a key resting site and may be linked to other important features within the territory. The impact arising from a loss or disturbance of such a feature will be determined by the availability of more suitable or well used sites within the otter's territory.

⁵ <https://www.surescreenscientifics.com/>. Accessed on: 30/04/2018

⁶ Chanin, P. (2003). Monitoring the Otter *Lutra Lutra*. Conserving Natura 2000 Rivers, Monitoring Series (No. 10). Peterborough: EN, CCW, EA, SEPA, SNH & SNIFFER. Available from: <http://www.snh.gov.uk/docs/B359156.pdf>

⁷ SNH Otter survey guidance. Available from: <http://www.snh.gov.uk/about-scotlands-nature/wildlife-and-you/otters/assessing/>

⁸ Bassett, S., & Wynn, J. (2010). Otters in Scotland: How Vulnerable Are They to Disturbance? *CIEEM In Practice*, (70), 19–22. Retrieved from file:///M:/Library/ By%20author/CIEEM/In-Practice-IP70 Dec 2010.pdf

High	Feature has a high level of otter activity, including an abundance of sprainting of all age classes, large spraint mounds, well used grooming hollows, paths and slides. Affords a high degree of cover and is linked to key features such as fresh water and abundance of prey. May be suitable as a breeding area (spraints may be absent from natal holts). The site is usually available at all times of year and at high and low tide/flow. The loss/ disturbance of such as feature will often be considered significant in terms of the individual or population.
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2.1.4 Water Vole

The water vole survey was conducted in the same survey area as the otter survey according to best practice guidelines⁹. An initial habitat assessment was undertaken to determine whether or not the watercourse or waterbody feature supports the habitat preference of the water vole, specifically:

1. Dry areas above water level for nesting, either in burrows or above ground woven nests;
2. Herbaceous vegetation to provide food and cover. Water voles generally favour areas with herbaceous vegetation on the banks and in the channel; and
3. Water, as a means of escape from predators. Water voles tend to confine their activity to within 3m of the edge of the bank along a watercourse.

In addition, the presence of water vole field evidence was noted if present and includes:

- Faeces: 8-12 mm long, 4-5 mm wide; cylindrical and blunt ended pellets; colour variable with food type. Most droppings left in latrines near the nest, at range boundaries and at water entry points;
- Latrine sites: concentrations of faeces, often with fresh droppings on top of old ones;
- Runways: often 5-9 cm broad and multi-branched; usually within 2m of water's edge and often forming tunnels through vegetation; leading to water's edge or burrows;
- Burrows: 4-8 cm diameter, wider than high; eroded entrances then contract down to typical size; entrances located at water's edge; however some entrances can be up to 3m from the water; no spoil heaps;
- Nests: size and shape of a rugby ball, often in base of rushes, sedges or reeds;
- Feeding stations: located along runways, or at platforms along water's edge; usually a pile of cut/chewed vegetation in sections approximately 10cm long; vegetation ends show marks of two large incisors. Piles of chopped grass, sedge or rush stems, rush pith and leaves;
- Lawns: short, grazed vegetation around land entrances, often used during nursing periods;
- Footprints: difficult to tell from rat; adult hind foot 26-34 mm (heel to claw); stride 120mm (smaller than rat); occur at water's edge and lead into vegetation; and
- Sound: characteristic 'plop' when a vole enters the water.

2.1.5 Badger

A survey for badger was undertaken within the site plus a 50m buffer survey area, where accessible, with reference to the methodology described by Scottish Badgers¹⁰ and aimed to identify the following field evidence:

- Setts (any structure or place, which displays signs indicating current use by badger/located within an active badger territory as defined by the standard guidance);

⁹ Dean, M., Strachan, R. Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. Mammal Society, London.

¹⁰ Scottish Badgers (2007) Level 1 Badger Awareness Manual, SNH Scotland's Wildlife Badgers and Development.

- Badger paths (network of paths generally linking setts to foraging habitat);
- Foot prints;
- Badger guard hair;
- Snuffling (badgers use their snout to turn over vegetation or soft soil to forage for bulbs and invertebrates);
- Scratching posts (marks on tree trunks/ fallen trees where badgers have left claw marks);
- Breach points (gaps in fences or crossing points over roads);
- Dung pit (single faeces deposit placed in a small excavation); and
- Latrines (collection of faecal deposits often used by badger clans to mark home range boundaries).

Setts were categorised as follows¹¹:

- Main sett: Numerous entrances, large spoil heaps, active and with well-used paths. One per social group.
- Annex setts: Numerous entrances and well used paths leading to the main sett nearby. Not always in use.
- Subsidiary setts: Variable number of entrances not connected to other setts by obvious path. Not always used.
- Outlier setts: 1 or 2 entrances, no defined paths. Used sporadically.

Suitable foraging habitat was categorised with reference to standard guidance¹²:

- Primary foraging habitat (short grazed or mown grassland and broadleaved woodlands); and
- Secondary foraging habitat (arable land, rough grassland, scrub and mixed woodland).

¹¹ M Clark (1988) Badgers. Whittet Books, London.

¹² Best Practice Guidance – Model Badger Protection Plan document available at:
http://www.highland.gov.uk/download/downloads/id/2635/badger_best_practice_guidance_badger_protection_plans_september_2006.pdf

3 RESULTS

3.1 Bats

Within the development area, there are no trees which contain Potential Roost Features (PRFs) for bats. Bat boxes have been erected on a number of trees within the site boundary at NH 81161 57468 (see Appendix E).

There are several buildings within the site which include: concrete units, metal storage buildings, portakabins and wooden sheds forming part of the disused Fabrication Yard (see Photos 1-4). These buildings are derelict, many with significant water damage and evidence of vandalism. The buildings do not contain any of the PRFs outlined in Table 2-1 above and are assessed as offering *negligible* suitability for roosting bats.

The habitats within the site offer limited opportunities for foraging and commuting bats due to the large areas of open, non-vegetated bare ground within the disused Fabrication Yard. Some habitat suitable for commuting bats is present along the edge of the coniferous woodland to the south of the site and the tree lines along the southern site boundary, as many species use such features to aid navigation. These areas are also relatively well connected to woodland habitats in the wider landscape. The standing and running water present within the site are habitats for invertebrate species, which may provide foraging opportunities for bat species such as Daubenton's bat (*Myotis daubentonii*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

Due to the limited habitat suitability, the site is categorised as offering *low* potential for commuting and foraging bats.

3.2 Great Crested Newt

GCN DNA was not detected in the sample of the pond (see Photo 5) water sent for eDNA analysis (see Appendix F) therefore the species is not deemed to be present in the pond.

3.3 Otter

No otter resting sites were identified during the survey.

Three otter spraints, two *not fully dry* and one *dry intact*, were recorded at NH 79952 57827 and NH 79909 57839 (see Appendix E) on grassy tussocks on the north eastern bank of the pond within the site boundary (see Photos 6 and 7). Evidence of otter foraging on the northern bank of the pond was noted in the form of amphibian remains (see Photo 8) at NH 79963 57804 and NH 79909 57839.

The majority of the areas within the site do not offer habitat for resting or foraging otter due to the presence of non-vegetated bare ground of the disused Fabrication Yard, however otter will commute across open areas for resting and foraging opportunities within their territory if they feel secure to do so. Some habitats within the site do offer opportunities for resting otter. In the north surrounding the pond, sandy soils are present and rabbit burrows were noted which otter could exploit for resting sites. The wooded areas along the burn (see Photo 9) along the southern site boundary, offer sheltered resting spaces in the form of exposed tree roots creating cavities, the presence of scattered gorse (*Ulex europaeus*) and broom (*Cytisus scoparius*) and overhanging banks which otter may also use to commute along to foraging areas. As noted above, the pond within the site offers suitable habitat for foraging otter due to the presence of amphibian species such as frog

and toad. The presence of fish is also likely in the pond which would also offer a food resource to otter. Small mammal populations may also be present in the woodland and grassland habitats adjacent to the burn along the southern site boundary, which otter may forage for. The burn connects to a wider network of ditches in the vicinity of the site, which offer opportunities for otter to commute between suitable habitats within the surrounding area. As this is a gated site, the level of disturbance from pedestrians and dog walkers is relatively low.

3.4 Water Vole

No water vole burrows or other evidence of water vole were identified during the survey.

The majority of the areas within the site do not offer habitat for water vole burrow creation or foraging due to the presence of non-vegetated bare ground of the disused Fabrication Yard. Some habitats within the site offer sub-optimal habitat for water vole, including the burn adjacent to the coniferous woodland along the southern site boundary, which has earth banks suitable for burrowing, and herbaceous vegetation offering food and cover (see Photo 9). However, the flow was low at the time of survey despite recent rainfall and the channel did not appear to offer a means of escape for water vole from predators such as American mink (*Neovison vison*) and fox (*Vulpes vulpes*), which reduces its suitability. Sandy soils suitable for burrowing are also present around the pond within the site, and rush species including *Juncus* sp. are present, which could offer a food resource for water vole as well as offering shelter from predators. As mentioned above this is a gated site, therefore the level of disturbance from pedestrians and dog walkers is relatively low.

Therefore due to the lack of field signs recorded and sub-optimal habitat suitability, it is considered unlikely that water vole are present on the site.

3.5 Badger

No badger setts or field signs of badger were identified during the survey.

The majority of the areas within the site do not offer habitat for badger sett creation or foraging opportunities due to the presence of the bare ground of the disused Fabrication Yard. Some sub-optimal habitat which offers sett creation opportunities is present along the banks of the pond within the site. Sub-optimal habitat is also present adjacent to the coniferous woodland in the south of the site, however the ground is relatively flat and appeared to be poorly drained, reducing its suitability for burrowing. The wooded area and adjacent grassland provides sheltered commuting habitat and secondary foraging habitat (see Photo 10), which is well connected to the wider woodland areas out with the site to the south.

Therefore due to the lack of field signs recorded and sub-optimal habitat suitability, it is considered unlikely that badger are present on the site.

4 FURTHER SURVEY

Ecological data is generally considered valid for a period of 12 months. Providing that ground works commence before May 2018, no further survey work in relation to these species is considered necessary. If the site boundary changes further survey work may be required.

4.1 Bats

If there are any plans for the trees supporting bat boxes to be removed or subjected to arboricultural works, an inspection of the bat boxes by a bat licenced ecologist prior to development activities, will be required to determine if roosting bats are present.

4.2 Great Crested Newt, Otter, Water Vole and Badger

No further survey is required for GCN, otter, water vole or badger.

5 LICENSING

If a bat roost is identified within a bat box on the trees within the site boundary then a disturbance/ exclusion licence from SNH will be required to permit works. Suitable mitigation measures would need to be agreed with SNH as part of the licensing process.

There is currently no requirement for licensing for other protected species.

6 MITIGATION AND OPTIONAL ENHANCEMENT

6.1 Mitigation

- An Environmental/Ecological Clerk of Works (ECoW) team would be appointed to monitor compliance, produce auditable records and provide onsite advice;
- Immediately prior to the commencement of ground works (including any vegetation clearance) the site management team would be provided with training in the form of a Tool Box talk on otter by the ECoW before works begin on site. This Toolbox Talk would then be transposed into standard site inductions for all others working on the construction project;
- Due to the presence of otter on the site, a pre-construction check would be undertaken for this species prior to the commencement of ground works on site (including any vegetation clearance);
- The burn, pond and coniferous woodland habitats within and adjacent to the site boundary would be maintained and not obstructed by fencing or vehicles to allow otter to use these habitats;
- To prevent pollution, habitat damage and to maintain passage of otter, the pond and burn banksides would be treated as sensitive areas with a 10m exclusion zone;
- Woodland and trees to be retained on site would be adequately protected from construction activities to prevent damage to canopy or root structures and works in their vicinity would be undertaken in accordance with Tree Protection to British Standard BS5837:2012;
- No works adjacent to the burn or pond would be undertaken between the hours of sunset to sunrise to reduce disturbance to commuting otter and bats;
- Temporary lighting used during construction works should be fitted with shades to prevent light spillage outside of the working area. The temporary lighting would not illuminate the burn, pond or surrounding woodland as this can affect the foraging and commuting success for bats and other protected species;
- Any excavations created during the works would not be left open for mammals to become trapped. Appropriate covers would be fitted at the end of every working day. At the very least, a shallow sloping edge or some form of ramp should be placed in the excavations to allow any animals to climb out;
- If an otter, badger or water vole is observed during any of the works they must cease immediately and the ECoW must be contacted;
- No chemicals would be stored or site compounds located within 30m of the burn or pond to prevent pollution and contamination;
- Quality of all nearby waterbodies would be safeguarded throughout the operations by applying standard Guidelines for Pollution Prevention (GPP) to prevent watercourse pollution and contamination; and
- A speed limit of 10mph would be in place throughout the construction site to minimise the risk of striking otter, badger or water vole.

6.2 Optional Enhancement

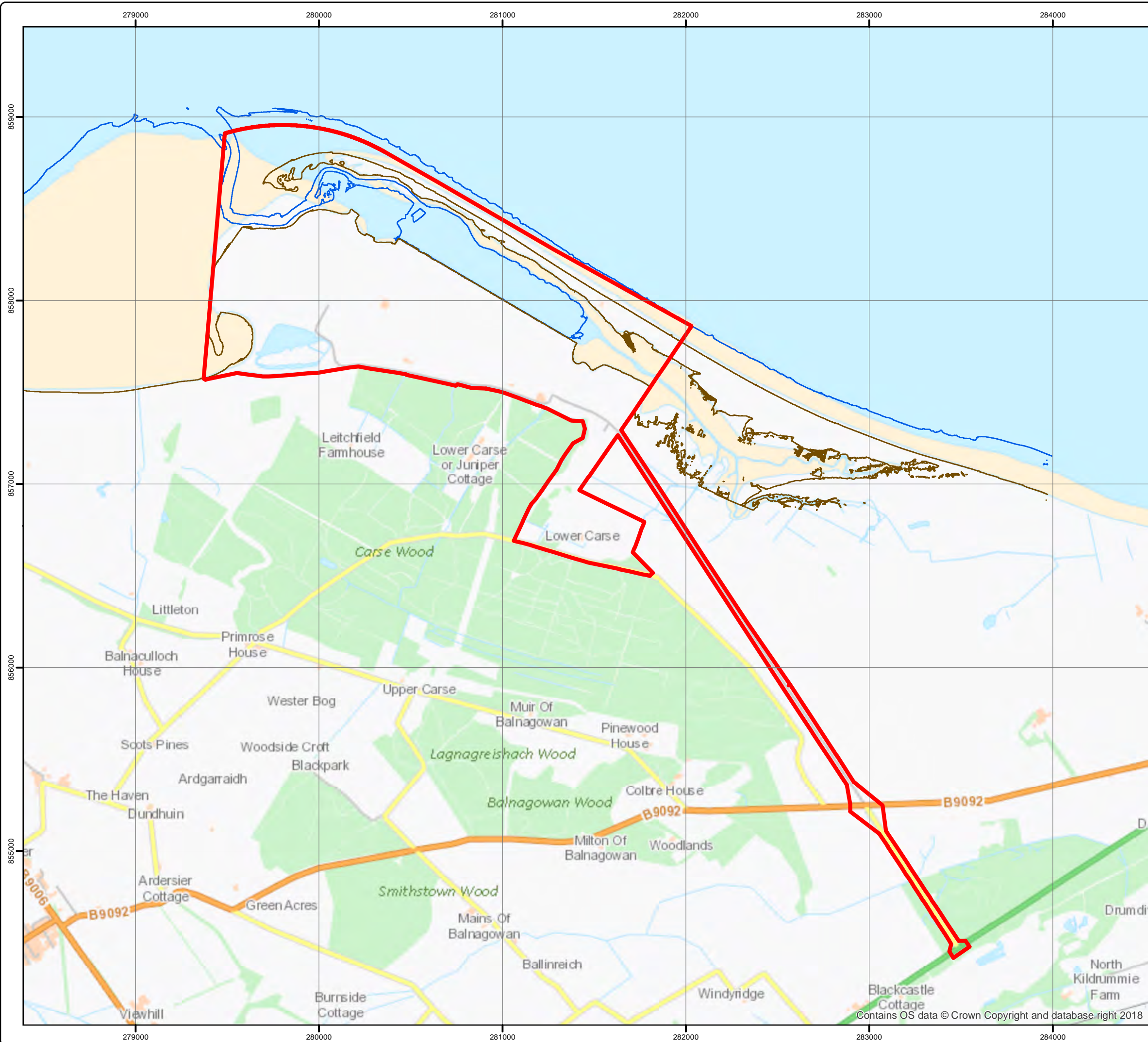
In order to enhance the habitats within the site for local wildlife, it is recommended that the following enhancement measures are implemented:

- Sowing areas within the site with native, locally sourced wildflower and grass seed would increase populations of insects and provide a food source for a variety of birds and bat species. Local wildflower and grass seed can be sourced from: <http://www.scotiaseeds.co.uk/>;
- Planting of a variety of aquatic and pollen producing plants around the pond within the site will support invertebrate diversity;

- Allowance for the colonisation of overhanging vegetation and the growth of tall vegetation to allow for a retention of natural vegetation systems around the pond by the restriction of vegetation management;
- A restriction to bank management and the retention of bankside trees and vegetation will support invertebrate diversity along the burn;
- Additional bat boxes and bird nesting boxes could be installed onto buildings or in trees within the new development and can be sourced from: [https://www.nhbs.com/equipment/bat-boxes?q=&fR\[hide\]\[0\]=false&fR\[live\]\[0\]=true&fR\[type\]\[0\]=5&hFR\[subjects_equipments.lvl1\]\[0\]=Nest%20Boxes%2C%20Habitats%20and%20Feeders%20%3E%20Bat%20Boxes](https://www.nhbs.com/equipment/bat-boxes?q=&fR[hide][0]=false&fR[live][0]=true&fR[type][0]=5&hFR[subjects_equipments.lvl1][0]=Nest%20Boxes%2C%20Habitats%20and%20Feeders%20%3E%20Bat%20Boxes;);
- Installing “Bug Hotels” would provide a habitat for invertebrates provided they are located close to grassland habitats. These are a low maintenance way to improve invertebrate populations in the development and can be sourced from: https://www.nhbs.com/equipment/bat-boxes?hPP=30&idx=titles&p=0&hFR%5Bsubjects_equipments.lvl1%5D%5B0%5D=Nest%20Boxes%2C%20Habitats%20and%20Feeders%20%3E%20Insect%20Boxes&is_v=1;
- Leaving piles of branches and logs when felling any vegetation would create habitats for invertebrates, small mammals and birds to shelter, forage and reproduce;
- A mixture of native coniferous and deciduous species could be planted within suitable areas in the site such as: Scot’s Pine (*Pinus sylvestris*), Silver birch (*Betula pendula*), Hawthorn (*Crataegus monogyna*) and Ash (*Fraxinus excelsior*), to maintain and improve habitat connectivity for protected species such as otter and bats in the locale; and
- Permanent lighting should be “bat friendly” to reduce the likelihood of disturbance. More information can be found from the Bat Conservation Trust “*Bats and Lighting in the UK – Bats and the Built Environment Series*” publication: http://www.bats.org.uk/data/files/bats_and_lighting_in_the_uk_final_version_version_3_may_09.pdf.

APPENDICES

A SITE LOCATION PLAN



- Legend
- Site Boundary
 - Mean Low Water Spring (MLWS)
 - Mean High Water Spring (MHWS)

Tidal contours from May 2018 Aspect
Topographic and Bathymetric survey

Do not scale this map

Client
CWC Group

Project
Ardesier Port

Title
Ardesier Port Site Plan

Status
FINAL

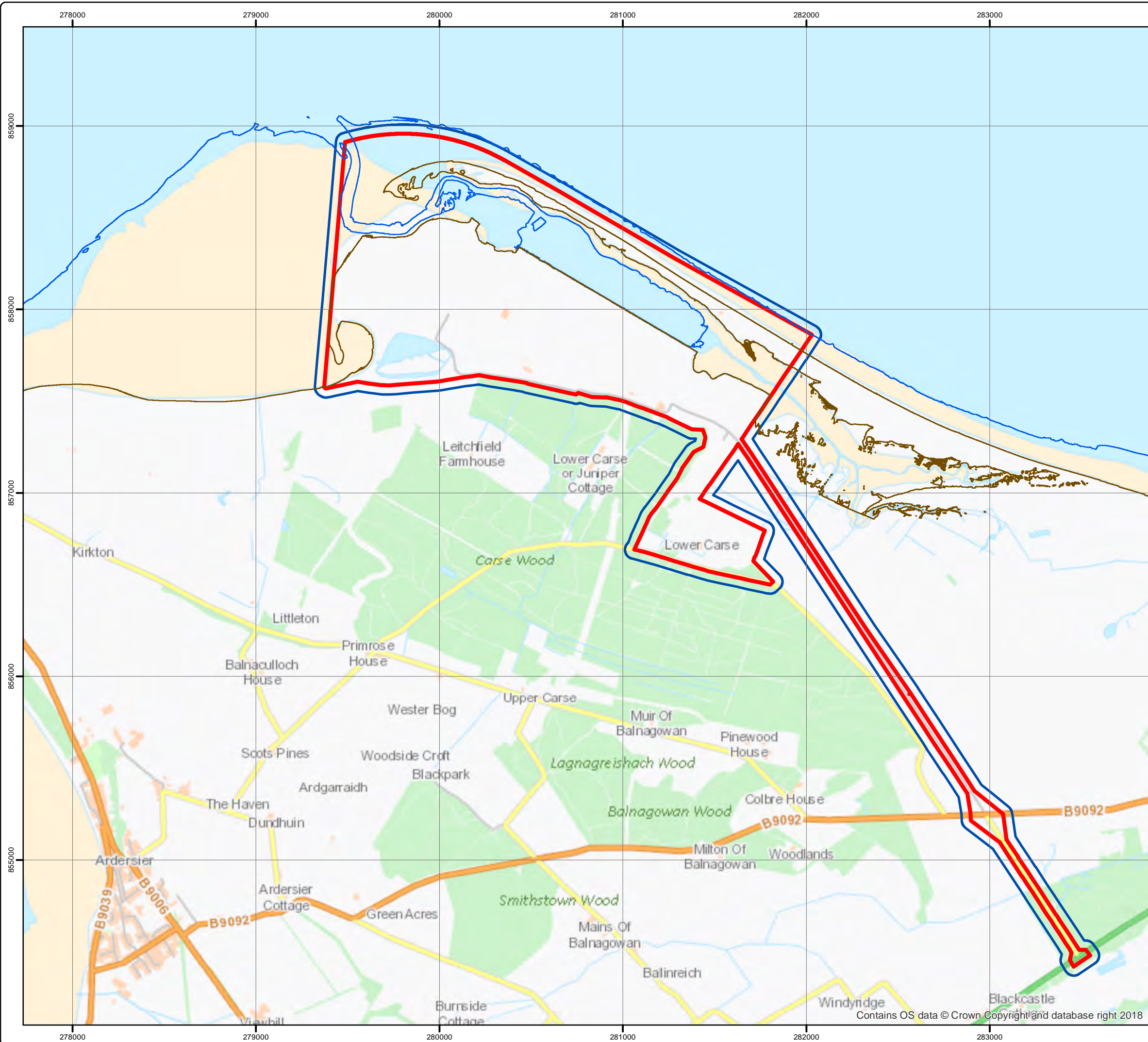
Drawing No. 670191-002	Revision
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Scale 1:20,000	A3	Date 24 Sep 2018
Drawn JS	Checked KMD	Approved KMD



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B PROTECTED SPECIES SURVEY AREA




Legend

- Site Boundary
- Protected Species Survey Area
- Mean Low Water Spring (MLWS)
- Mean High Water Spring (MHWS)

Tidal contours from May 2018 Aspect
Topographic and Bathymetric survey

Do not scale this map

Client		
Ardersier Port Ltd		
Project		
Ardersier Port Redevelopment		
Title		
Proected Species Survey Area		
Status		
FINAL		
Drawing No.	Revision	
670191-013		
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SMC	JEM	KMD



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C PROTECTED SPECIES LEGISLATION SUMMARY

Bat, Great Crested Newt and Otter

A European Protected Species (EPS) is a species listed in the EC Directive (92/43) The Conservation of Natural Habitats and of Wild Flora and Fauna (the "Habitats Directive"), which is transposed into UK law through the Conservation (Natural Habitats &c.) Regulations 1994 (the "Habitat Regulations") as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007. Under this legislation an EPS (*e.g.* all bat species) are protected from:

- (a) Deliberate or reckless capture, injuring or killing;
- (b) deliberate or reckless
 - (i) harassment of an animal or group of animals;
 - (ii) disturbance of such an animal while it is occupying a structure or place which it uses for shelter or protection;
 - (iii) disturbance of such an animal while it is rearing or otherwise caring for its young;
 - (iv) obstructing access to a breeding site or resting place of such an animal, or otherwise denying the animal use of the breeding site or resting place;
 - (v) disturbance of such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or
 - (vi) disturbing such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
- (c) deliberate or reckless taking or destroying the eggs of such an animal; or,
- (d) damaging or destroying a breeding site or resting place of such an animal.
- (e) any person:
 - (i) possessing or controlling;
 - (ii) transporting;
 - (iii) selling or exchanging; or
 - (iv) offering for sale or exchange,

any live or dead animal or part of an animal or anything derived from such an animal which has been taken from the wild and which is of a species or subspecies listed in Annex IV(a) to the Habitats Directive – unless the animal from which the part or the thing in question is derived, was lawfully taken from the wild (i.e. taken from the wild in the European Union without contravention of appropriate domestic legislation and before the implementation date of the Habitats Directive (in that Country *e.g.* 1994 in UK) or if it was taken from elsewhere).

European Protected Species Licensing

For a licence to be issued these three tests must be satisfied:

1. That the development is 'in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment';
2. That there is 'no satisfactory alternative'; and
3. That the derogation (i.e. any permission/licence granted) is 'not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range'.

To obtain a licence a Method Statement is required that identifies the activities to be undertaken, the location of all resting sites (*e.g.* bat roosts), the potential effects and details of the proposed mitigation.

Water Vole

Water voles are protected under the WCA, Schedule 5, as amended by the Nature Conservation (Scotland) Act, 2004, to include both intentional and reckless acts.

Subject to certain exceptions, it is now an offence to 'intentionally or recklessly':

- Kill, injure or take (capture) a water vole;
- Damage, destroy or obstruct access to any structure or place which a water vole uses for shelter or protection; or to
- Disturb a water vole while it is occupying a structure or place which it uses for that purpose.

Anyone who carries out, or knowingly causes or permits these acts to occur could be committing an offence.

In some cases licenses may be issued by Scottish Natural Heritage to enable certain otherwise illegal activities to take place. With respect to development-related activities, licenses can be issued where there is likely to be damage to a water vole burrow, or disturbance to a water vole within its burrow, for social, economic or environmental reasons. Licenses may only be issued for this purpose provided that:

- The activity authorised by the licence will contribute to significant social, economic or environmental benefit; and
- There is no other satisfactory solution.

Badger

Under the Protection of Badgers Act (1992), as amended by the Nature Conservation (Scotland) Act 2004, it is an offence to:

- Kill, injure or take a badger;
- Have in possession a dead badger or any part of a badger;
- Cruelly ill-treat a badger; and
- Damage, destroy, interfere or obstruct a badger sett or disturb a badger whilst it is occupying a sett.

Where an offence is committed the individual (as well as the body corporate, Scottish partnership or, as the case may be, unincorporated association) is guilty of the offence and is liable to be proceeded against and punished accordingly.

In some cases licenses may be issued by Scottish Natural Heritage to enable certain otherwise illegal activities to take place. With respect to development-related activities, licenses can be issued where there is likely to be damage or disturbance to a badger sett, for social, economic or environmental reasons. Licenses may only be issued for this purpose provided that:

- The activity authorised by the licence will contribute to significant social, economic or environmental benefit; and
- There is no other satisfactory solution.

D SITE PHOTOGRAPHS



Photo 1: Porta-cabin within the site boundary.



Photo 2: Wooden shed within the site boundary.



Photo 3: Concrete storage unit within the site boundary.



Photo 4: Metal storage shed within the site boundary.



Photo 5: Pond within the site boundary.



Photo 6: *Not fully dry* otter spraint on the north eastern bank of the pond within the site boundary.



Photo 7: Dry *intact* otter spraint on the north eastern bank of the pond within the site boundary.



Photo 8: Amphibian remains indicative of otter foraging on the north eastern bank of the pond within the site boundary.



Photo 9: Burn adjacent to coniferous woodland along the southern site boundary.



Photo 10: Grassland habitat adjacent to coniferous woodland within the site boundary.

E PROTECTED SPECIES SURVEY RESULTS



Legend

- Site Boundary
- Bat boxes
- Otter foraging evidence
- Otter spraint
- Mean Low Water Spring (MLWS)
- Mean High Water Spring (MHWS)

Tidal contours from May 2018 Aspect
Topographic and Bathymetric survey

Do not scale this map

Client

Ardersier Port Ltd

Project

Ardersier Port Redevelopment

Title

Proected Species Survey Results

Status

FINAL

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670191-012	

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the
GIS User Community

F SURESCREEN SCIENTIFICS EDNA RESULTS

Folio No: E2782
Report No: 1
Order No: G5107
Client: ENVIROCENTRE LTD
Contact: [Redacted]
Contact Details: [Redacted]
Date: 14/05/2018

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

Date sample received at Laboratory: 09/05/2018
Date Reported: 14/05/2018
Matters Affecting Results: None

RESULTS

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1009	670191	NH798577	Pass	Pass	Pass	Negative	0

SUMMARY

When Great Crested Newts (GCN); *Triturus cristatus* inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence.

The water samples detailed below were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the unique sample identity.

RESULTS INTERPRETATION

Lab Sample No.- When a kit is made it is given a unique sample number. When the pond samples have been taken and the kit has

been received back in to the laboratory, this sample number is tracked throughout the laboratory.

Site Name- Information on the pond.

O/S Reference - Location/co-ordinates of pond.

SIC- Sample Integrity Check. Refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. Inspection upon receipt of sample at the laboratory. To check if the Sample is of adequate integrity when received. Pass or Fail.

DC- Degradation Check. Analysis of the spiked DNA marker to see if there has been degradation of the kit since made in the laboratory to sampling to analysis. Pass or Fail.

IC- Inhibition Check- PCR inhibitors can cause false results. Inhibitors are analysed to check the quality of the result. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Result- NEGATIVE means that GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. POSITIVE means that GCN eDNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed. Positive or Negative.

Positive Replicates- To generate the results all of the tubes from each pond are combined to produce one eDNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.

METHODOLOGY

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks as well as spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in our laboratory. We can offer eDNA analysis for most other species including other newts.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in different buildings at our premises for added

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory checks on accuracy of results as part of our quality procedures.

Reported by: [Redacted]

Approved by: [Redacted]

End Of Report
