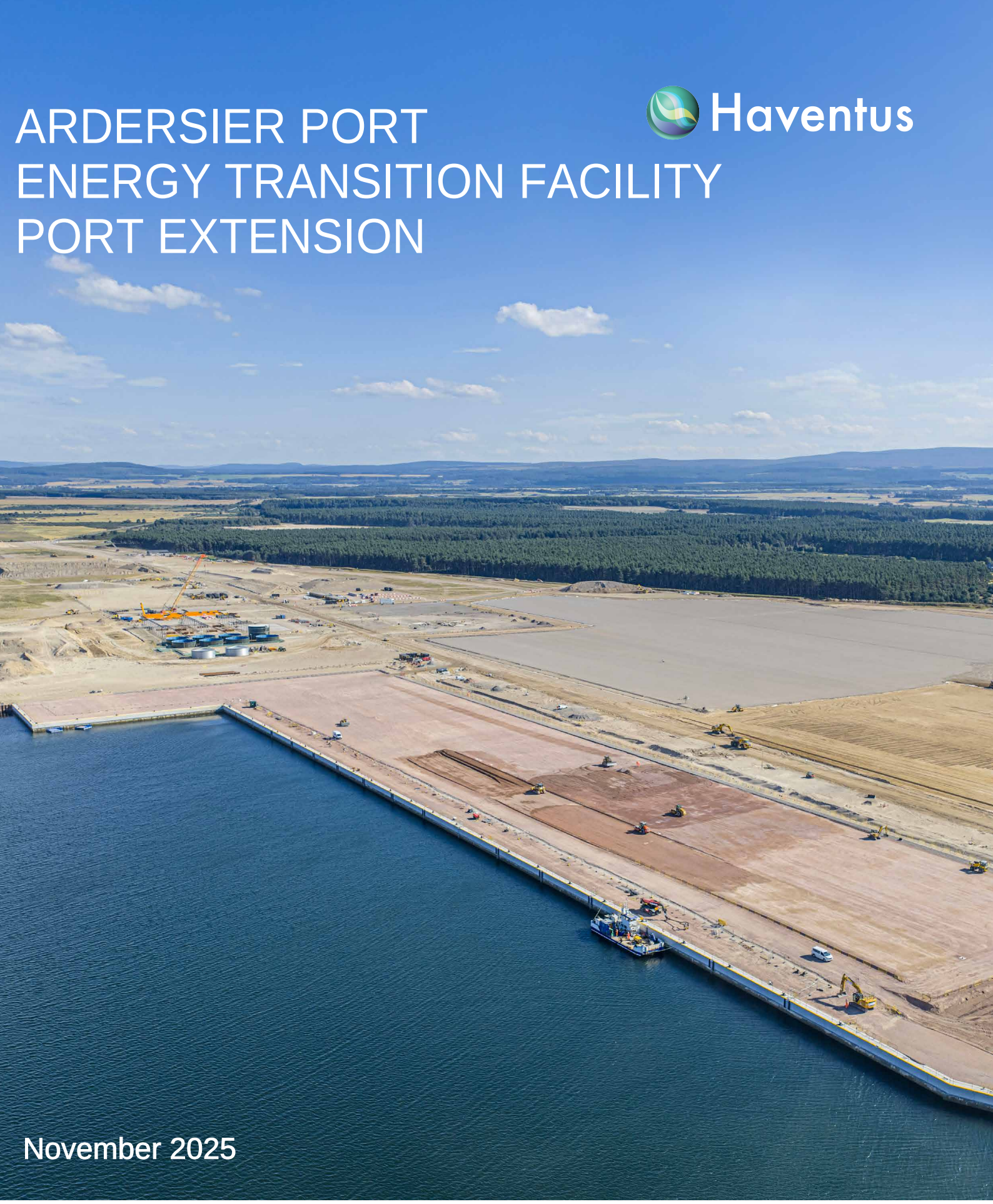
ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.1 Legislation, Policy and guidance

Ardersier Port Extension

784-B069769

Appendix 12.1 Legislation, policy and guidance

Haventus

September 2025

Document prepared on behalf of Tetra Tech Limited. Registered in England number: 01959704

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Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

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Status:	Draft	**Approved By:**	Doug Blease [Redacted] **Associate Director**
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Schedule 5 covers 154 protected animal species (mammals, reptiles, amphibians, fish, invertebrates).

Schedule 8 covers 185 protected plant species (higher plants, bryophytes, fungi, lichens).

Part 14 prohibits planting or causing to grow any plant in the wild outside its native range.

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The Act imposes a classification of soil and other waste containing viable propagules of invasive non-native plant species as controlled waste. This has been applied to Japanese Knotweed *Reynoutria japonica*, with the result that waste containing this species must be disposed of in accordance with the duty of care set out in section 34 of the Act.

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“Policy 1 gives significant weight to the nature crisis to ensure that it is recognised as a priority in all plans and decisions. Policy 4 protects and enhances natural heritage, and this is further supported by Policy 5 on soils and Policy 6 on forests, woodland and trees. Policy 20 also promotes the expansion and connectivity of blue and green infrastructure, whilst Policy 10 recognises the particular sensitivities of coastal areas.

Protection of the natural features of brownfield land is also highlighted in Policy 9, and protection of the green belt in Policy 8 will ensure that biodiversity in these locations is conserved and accessible to communities, bringing nature into the design and layout of our cities, towns, streets and spaces in Policy 14.

Most significantly, Policy 3 plays a critical role in ensuring that development will secure positive effects for biodiversity. It rebalances the planning system in favour of conserving, restoring and enhancing biodiversity and promotes investment in nature-based solutions, benefiting people and nature. The policy ensures that Local Development Plans (LDPs) protect, conserve, restore and enhance biodiversity and promote nature recovery and nature restoration. Proposals will be required to contribute to the enhancement of biodiversity, including by restoring degraded habitats and building and strengthening nature networks. Adverse impacts, including cumulative impacts, of development proposals on the natural environment will be minimised through careful planning and design, taking into account the need to reverse biodiversity loss. Development proposals for national, major or Environmental Impact Assessment (EIA) development will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks, so they are in a demonstrably better state than without intervention. Proposals for local development will include appropriate measures to conserve, restore and enhance biodiversity.”

See here for full details: https://www.gov.scot/publications/national-planning-framework-4/

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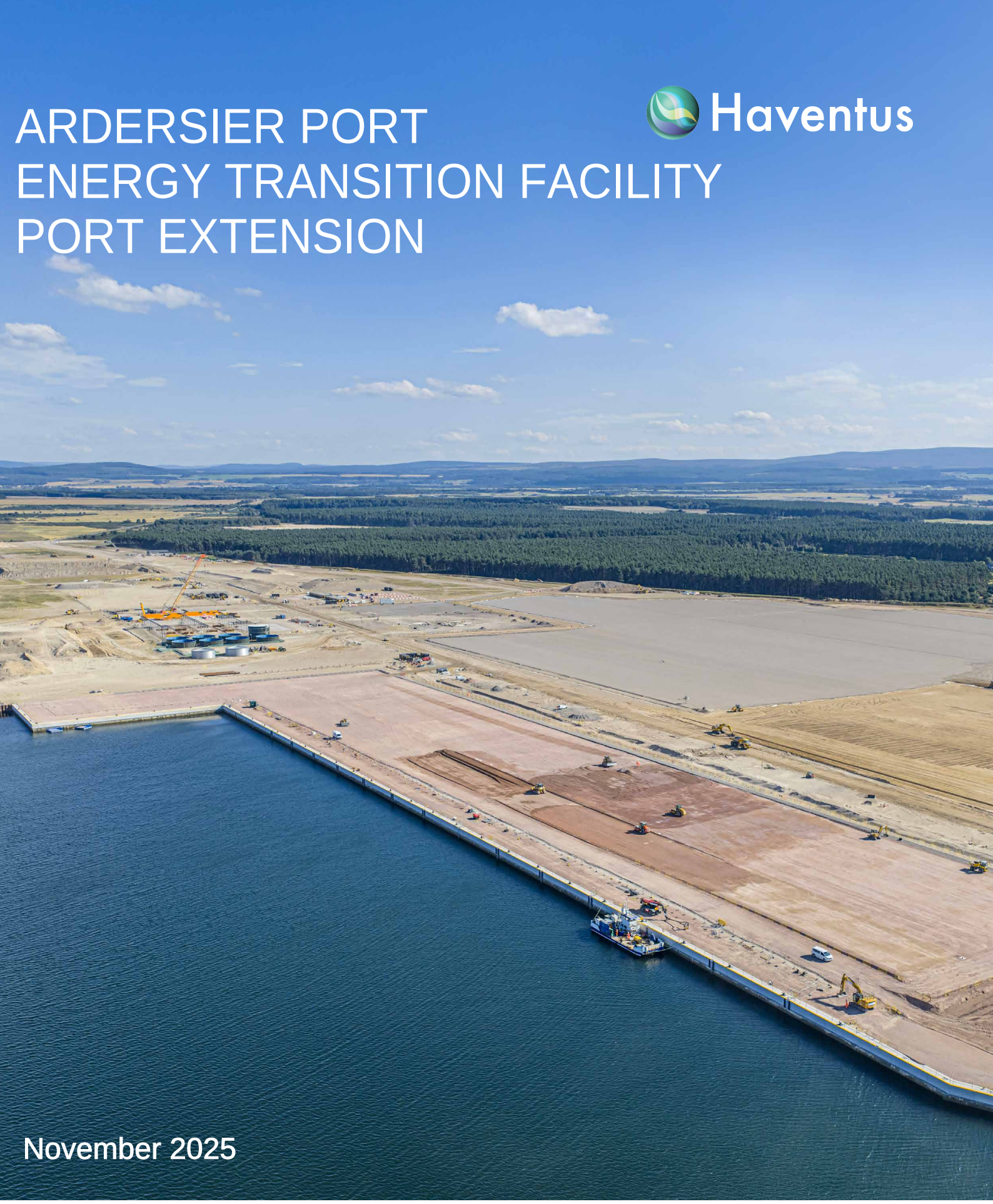

November 2025

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Status:	Draft	**Approved By:**	Doug Blease [Redacted] **Associate Director**
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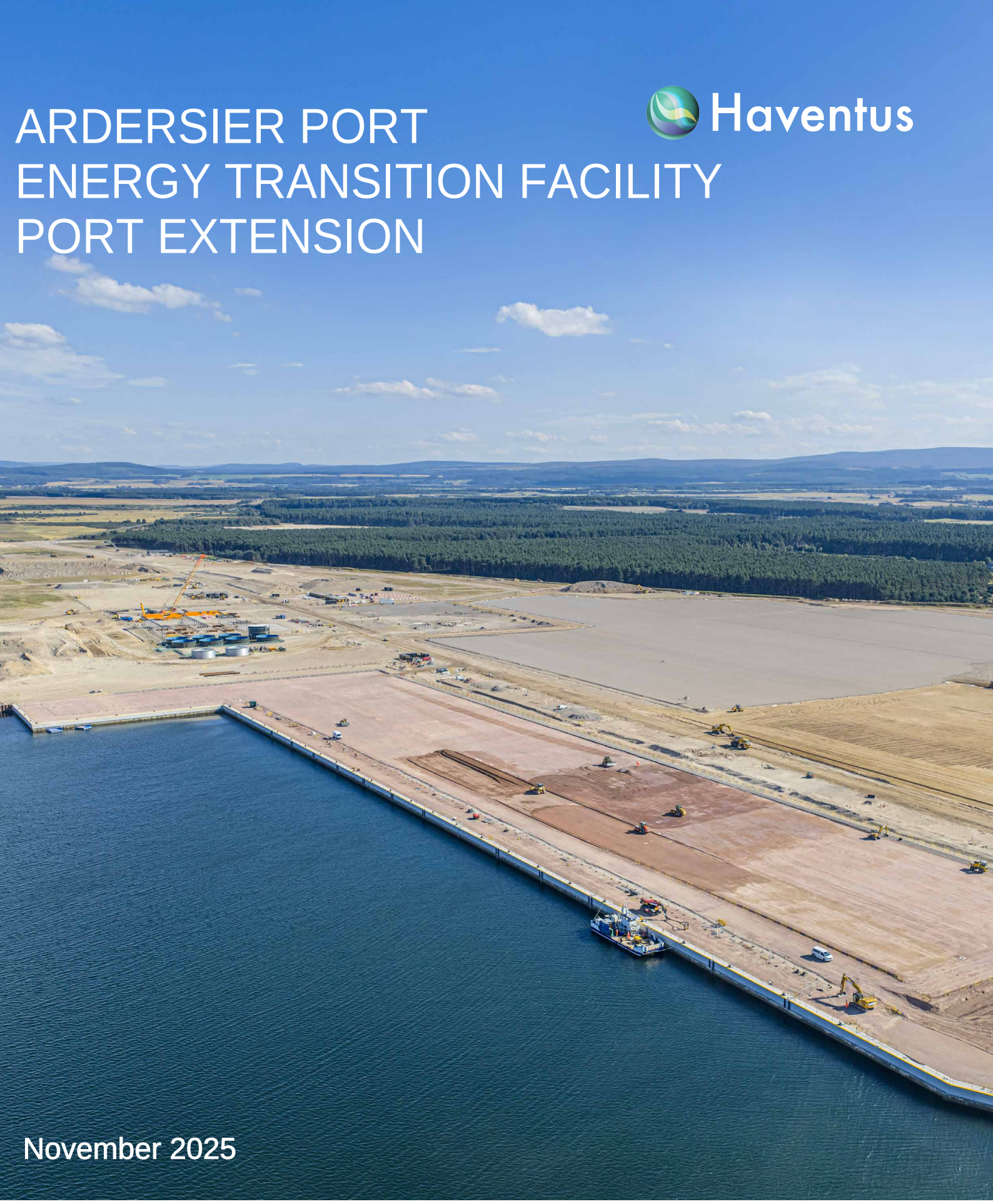

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Appendix 12.2 Methodology

Ardersier Port Extension

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Status:	Draft	**Approved By:**	Doug Blease [Redacted] **Associate Director**
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1.0 METHODOLOGY

1.1 ECOLOGICAL IMPACT ASSESSMENT METHODOLOGY

This appendix provides a summary of the assessment methodology.

1.1.1 Guidance

The EcIA follows the Chartered Institute of Ecology and Environmental Management (CIEEM)[1] 2024 guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3. The assessment integrates both desk-based and field survey data to identify and evaluate the likely significant ecological effects of the Ardersier Port Extension (hereafter the proposed development).

1.1.2 Site terminology

For the purposes of this EcIA chapter, the term “site” refers specifically to the terrestrial extension land proposed for development as part of the proposed development. This area comprises woodland and gorse scrub habitats and differs significantly from the consented port footprint assessed in the 2018 EIA, which was limited to previously developed (brownfield) land.

The inclusion of semi-natural habitats introduces new ecological considerations and has informed the updated assessment of potential impacts and mitigation requirements. A full description of both the site and its context is provided in Chapter 3 (Project Description) of the EIAR.

1.1.3 Zone of influence

The Zone of Influence (ZoI) was defined to assess direct and indirect ecological effects beyond the project boundary. Desk studies included data from National Biodiversity Network (NBN) Gateway, Multi-Agency Geographic Information for the Countryside (MAGIC), and aerial imagery, with search radii tailored to the important ecological features.

- 10km for sites of International Importance (e.g. Special Areas of Conservation (SAC), Special Protection Area (SPA), Ramsar sites);
- 2km for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI), protected or otherwise notable species and non-statutory designated sites of County Importance (e.g. Local Wildlife Sites (LWS));
- 2km for biological records; and
- 1km search for ancient woodland on the Ancient Woodland Inventory (AWI).

1.1.4 Importance

The **importance** of ecological features was determined using a schedule of geographic criteria (Table 1), considering factors such as the quality or extent of designated sites and habitats, species or habitat rarity, degree of threat across their range, and rate of decline.

[1] Chartered Institute of Ecology and Environmental Management (CIEEM). (2024). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.3. Winchester: CIEEM.

Value was assessed based on conservation significance, contribution to conservation objectives, and potential for restoration if degraded. Where relevant, cultural or economic value was also considered, supported by available evidence.

Sensitivity was defined as the feature's susceptibility to environmental change.

Features were considered important where they exhibited characteristics such as naturalness, rarity, irreplaceability, or high habitat diversity. This includes:

- Rare or declining species and habitats.
- Endemic or locally distinct populations.
- Large or concentrated populations of threatened species.
- Habitats with strong connectivity or typical assemblages of flora and fauna.
- Additional considerations included feature size, seasonal presence, role in ecosystem function, and species at the edge of their range, particularly those vulnerable to climate change.

Table 1. Level of Importance

Level of Importance	Sites	Habitats	Species
International	Designated, candidate or proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; UNESCO (Ecological) World Heritage Sites; UNESCO Biosphere Reserves; Biogenetic Reserves.	A viable area of habitat included in Annex I of the EC Habitats Directive; a habitat area that is critical for a part of the life cycle of an internationally important species.	A European Protected Species; an IUCN Red Data Book species that is globally Vulnerable, Endangered or Critically Endangered; a Category A internationally important bryophyte assemblage[2].
National (UK)	Sites of Special Scientific Interest/Areas of Special Scientific Interest; National Nature Reserves; Nature Conservation Review Sites; Marine Conservation Zones (UK offshore).	An area of habitat fulfilling the criteria for designation as an SSSI/ASSI or MCZ; a habitat area that is critical for a part of the life cycle of a nationally important species.	An IUCN Red Data Book species that is Vulnerable, Endangered or Critically Endangered in the UK; a species that is Rare in the UK (<15 10km grid squares); a Schedule 5[3] (animal) or Schedule 8 (plant) species included in the Wildlife and Countryside Act 1981; any

[2] Averis, A.B.G, Genney, D.R, Hodgetts, N.G, Rothero, G.P. & Bainbridge, I.P. 2012. *Bryological assessment for hydroelectric schemes in the west highlands* – 2nd edition. Scottish Natural Heritage Commissioned Report No. 449b
[3] https://www.legislation.gov.uk/ukpga/1981/69/schedule/5/enacted

Level of Importance	Sites	Habitats	Species
			species protected under national (UK) legislation where there is the potential for a breach of the legislation; a Category A nationally important bryophyte assemblage; a species that is Vulnerable, Endangered or Critically Endangered in The Vascular Plant Red Data List for Great Britain[4].
National (England, Scotland, Wales, Northern Ireland)	National Parks (Scotland); Marine Protected Areas (Scotland offshore); Marine Consultation Areas (Scotland).	Habitats of principal importance for biodiversity in the relevant countries, including; Scottish Biodiversity List (SBL) Priority Habitats, Priority Marine Features (PMFs) and ancient woodland (Scotland).	Species of principal importance for biodiversity in the relevant countries, including; SBL Priority Species and PMFs (Scotland).
Regional	Regional (Scotland).	Regional Local Biodiversity Action Plan habitats noted as requiring protection.	A species that is Nationally Scarce in the UK (present in 16-100 10km grid squares); a species that is included in the Regional LBAP; an assemblage of regionally scarce species.
County / Metropolitan	Woodland Trust Sites; Local Wildlife Sites (Scotland).	County LBAP habitats noted as requiring protection.	A species that is included in the County LBAP; an assemblage of species that are scarce at the county level.

[4] Cheffings, C.M. & Farrell, L. (eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005) The Vascular Plant Red Data List for Great Britain. Species Status No. 7. JNCC, Peterborough. Available at: https://hub.jncc.gov.uk/assets/cc1e96f8-b105-4dd0-bd87-4a4f60449907

Level of Importance	Sites	Habitats	Species
Local		Semi-natural habitats that are unique or important in the local area.	Species as defined by Local Authority lists (if available).
Site		Common and widespread habitats not covered above.	Common and widespread species not covered above.
Negligible		Habitats not considered to have any importance	
Negative			An Invasive Non-Native Species (INNS) as defined by the GB Non-Native Species Secretariat (NNSS) and supported by the GB Invasive Non-native Species Strategy (2015); legally controlled species under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended by the relevant country legislation).

1.1.5 Significance Matrix

The significance of ecological effects has been assessed in accordance with CIEEM EcIA guidance (2018; updated 2023), which recommends considering both the importance of the ecological feature and the magnitude of the predicted impact. The matrix below provides a structured approach to assist professional judgment, supported by clear definitions for transparency.

Definitions

Importance (Value of Ecological Feature):

- International: Critical for global biodiversity (e.g., Ramsar site, SAC of global relevance).
- National: Key to maintaining UK biodiversity (e.g., SSSI, nationally rare species).
- Regional: Important within a region or county (e.g., Local Biodiversity Action Plan priority habitat).
- County: Important within a single county or administrative area.
- Local: Contributes to local ecological networks or green infrastructure.

Magnitude of Impact:

- Major: Permanent or long-term loss or severe degradation of feature integrity.

- Moderate: Partial loss or significant alteration, reversible only in the long term.
- Minor: Small-scale, short-term, or reversible change with limited effect on integrity.
- Negligible: No measurable effect on structure, function, or viability.

Significance of Effect:

- Significant: Likely to influence decision-making or require mitigation/compensation.
- Not Significant: No material influence on decision-making; minor or negligible effect.

Table 2. Significance Matrix

Importance	Major	Moderate	Minor	Negligible
International	Very High (Significant)	High (Significant)	Moderate (May be Significant)	Negligible
National	High (Significant)	Moderate (Significant)	Low (Not Significant)	Negligible
Regional	Moderate (Significant)	Low–Moderate	Low	Negligible
County	Low–Moderate	Low	Negligible	Negligible
Local	Low	Negligible	Negligible	Negligible
Site	Negligible	Negligible	Negligible	Negligible

1.1.6 Assessment Methods

Establishing the Baseline

Baseline ecological conditions were established through a combination of desk study and field surveys, following current best practice and published guidance. The baseline describes the ecological features present within the zone of influence in the absence of the proposed development, taking into account recent trends, management activities, and other relevant projects. Where appropriate, future baseline conditions were predicted based on available evidence and professional judgement.

All surveys were undertaken by suitably qualified and experienced ecologists, using standard methodologies appropriate to the habitats and species present. Limitations to data collection, such as seasonal constraints or access restrictions, are clearly identified and their implications for the assessment are discussed.

Identification and Evaluation of Important Ecological Features

Ecological features (habitats, species, and ecosystems) were identified and evaluated using criteria set out in the CIEEM Guidelines. Importance was assigned within a defined geographical context (international, national, regional, or local), considering factors such as conservation status, rarity, legal protection, and functional role in the landscape. Only those features considered important and potentially affected by the project were taken forward for detailed assessment.

Impact Assessment

The likely impacts of the proposed development on important ecological features were identified and characterised for all relevant project phases (construction, operation, decommissioning). Impacts were described with reference to:

- Nature of impact: positive or negative.
- Extent: spatial area affected.
- Magnitude: size or intensity of change.
- Duration: short-term, long-term, permanent, or temporary.
- Frequency and timing: how often and when impacts occur.
- Reversibility: whether effects are reversible or irreversible.
- Assessment considered both direct and indirect impacts, as well as cumulative effects arising from other relevant projects or activities.

Mitigation, Compensation, and Enhancement

A sequential approach was adopted to avoid, mitigate, and compensate for negative ecological impacts, in line with the mitigation hierarchy. Where appropriate, opportunities for ecological enhancement and biodiversity net gain were identified. The likely effectiveness of proposed measures was evaluated based on current evidence and professional judgement.

Assessment of Residual Effects and Significance

Following the implementation of mitigation and compensation measures, residual effects were assessed for each important ecological feature. The significance of these effects was determined with reference to the conservation objectives for the feature and the relevant geographical scale. The assessment followed the definitions and approach set out in the CIEEM Guidelines, applying the precautionary principle where uncertainty remained.

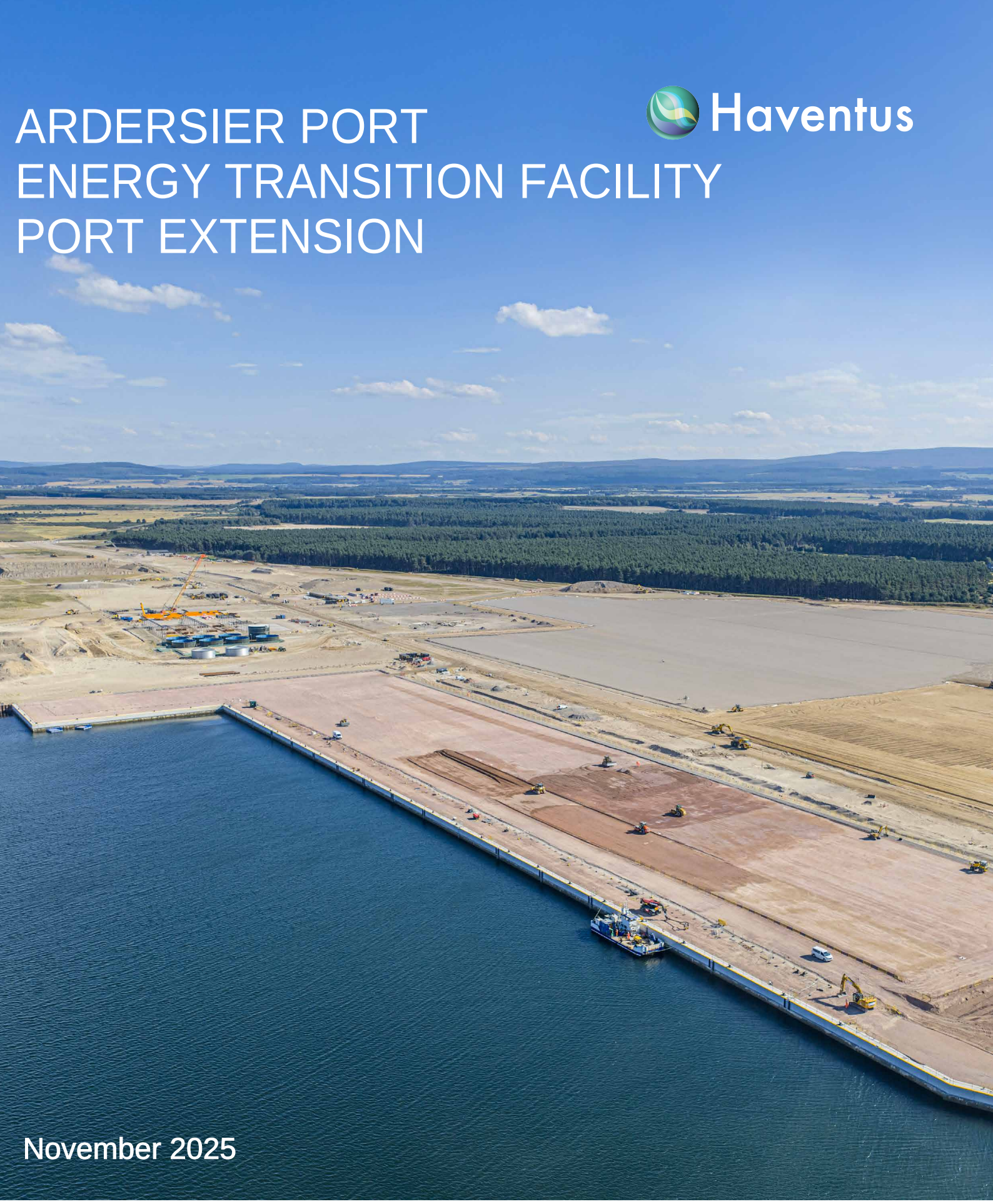
Assessment of Cumulative Impacts

Cumulative impacts were assessed by considering the combined effects of the proposed development in conjunction with other relevant projects and activities within the defined zone of influence. This included projects that are consented, under construction, or reasonably foreseeable, as identified through consultation with statutory bodies, review of planning applications, and desk-based data sources. The assessment considered additive and synergistic effects, particularly where ecological features may already be exposed to background levels of threat or pressure. Cumulative impacts were characterised in terms of their nature, extent, magnitude, duration, frequency, and reversibility, consistent with the approach used

for direct and indirect impacts. Where appropriate, cumulative effects were evaluated at the relevant geographical scale and with reference to conservation objectives for important ecological features.

ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.3 Desk study

Ardersier Port Extension

784-B069769

Appendix 12.3: Desk Study

Haventus

September 2025

Document prepared on behalf of Tetra Tech Limited. Registered in England number: 01959704

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Status:	Draft	**Approved By:**	Doug Blease [Redacted] **Associate Director**
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1.0 DESK STUDY

1.1 DESIGNATED SITES

Internationally designated sites located within 10km of both the terrestrial site ‘the site’ and the ‘dredge channel’ are summarised in Table 1.

Additionally, nationally designated sites and local non-statutory sites within 2km of the site are included. Sites designated solely for terrestrial ecological features, which would not be subject to direct or indirect impacts only from dredging activities, have been excluded from the Dredged Channel desk study to ensure relevance and focus in the assessment.

Table 1. Statutory and non-statutory designated sites identified during ttehe desk study.

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
Inner Moray Firth	Ramsar	c.20m north of the site c.50m north of the Dredged Channel	**Inner Moray Firth Ramsar Site qualifies under Ramsar Criterion 1 by** virtue of it containing a variety of wetland types: • Intertidal mudflats and sandflats supporting areas of saltmarsh are exceptionally well represented throughout the Inner Moray Firth. On the Beauly Firth a large area of saltmarsh covers the mudflats and sandflats. The bays at Munlochy, Longman and Castle Stuart are particularly dominated by extensive mudflats. Of specific importance are the large and dense eelgrass beds. • At Whiteness Head, there are sand dunes and a shingle bar. The shingle bar encloses a building intertidal system including, sandflats and associated saltmarsh. Sand dunes and further extensive areas of sandflats, lie to the southwest of the bar. **Inner Moray Firth Ramsar Site also qualifies under Ramsar Criterion 2** by supporting: • Osprey Pandion haliaetus forage throughout the Ramsar Site (2008 to 2012, up to 25 territories within feeding range, 12.5% of the GB population, with 4 pairs breeding within the site, 4% of the GB population), and • Common tern Sterna hirundo (310 pairs, 2% of the GB population). **Inner Moray Firth Ramsar Site further qualifies under Ramsar Criterion 5 by** regularly supporting waterbirds in numbers of 20,000 individuals or more. In the five-year period 1992/93 to 1996/97, a winter peak mean of 26,800 individual waterbirds was recorded, comprising 16,800 wildfowl and 10,000 waders. The site also qualifies under	International

[1] Geographic importance refers to the conservation value of ecological features assessed at scales ranging from international to site level, based on legal designations, rarity, and ecological significance.

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
			Ramsar Criterion 4 by supporting the following waterbird species at a critical stage in their life cycles: • Scaup Aythya marila (118 individuals, 1% of the GB population). • Curlew Numenius arquata (1,262 individuals, 1% of the GB population) • Goosander Mergus merganser (325 individuals, 4% of the GB population). • Goldeneye Bucephala clangula (218 individuals, 1% of the GB population). • Teal A. crecca (2,066 individuals, 1% of the GB population). • Wigeon Anas penelope (7,310 individuals, 3% of the GB population), and • Cormorant Phalacrocorax carbo (409 individuals, 3% of the GB population). **In the five-year period 1991/92 to 1995/96, a winter peak mean of** 33,148 individual waterbirds were recorded with the assemblage including a nationally important population, greater than 2,000 individuals, of: • Oystercatcher Haematopus ostralegus (3,063 individuals, 0.9% of the GB population). • Bar-tailed godwit, greylag goose, red-breasted merganser and redshank are also components of the waterbird assemblage. **Inner Moray Firth Ramsar site qualifies under Ramsar Criterion 6 by** regularly supporting 1% or more of the individuals in a population of waterbirds (1992/93 to 1996/97, winter peak means): • Bar-tailed godwit Limosa lapponica (1,090 individuals, 1% of the Western European biogeographic population). • Greylag goose Anser anser (2,651 individuals, 3% of the Iceland/UK/Ireland biogeographic population).	

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
			• Red-breasted merganser Mergus serrator (1,184 individuals, 1% of the NW & Central Europe biogeographic population), and • Redshank Tringa totanus (1,621 individuals, 1% of the Eastern Atlantic biogeographic population).	
Moray Firth	SAC	c.730m north of the site c.250m northwest of the Dredged Channel	**The Moray Firth Special Area of Conservation (SAC) has been designated to** protect bottlenose dolphin Tursiops truncatus and subtidal sandbanks. By doing so it contributes to the Scottish, UK and Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) marine protected areas (MPA) networks, the conservation of the wider marine environment around Scotland, and progress towards Good Environmental Status within the North-East Atlantic marine region. The main purpose of the Moray Firth SAC is to contribute to the favourable conservation status of the protected features in the UK.	International
Cawdor Wood	SAC	c.7.2km south of the site	**Annex I habitats that are a primary reason for selection of this site.** 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles This site is one of the largest oak woodland sites in northeast Scotland, and is important within the SAC series as it represents the more continental end of the habitat range. The wood is outstanding for its lichen flora, with species characteristic of relatively dry 'continental' climatic conditions. The ground flora is also characteristic of more	International

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
			continental stands, dominated largely by great wood-rush Luzula sylvatica and heather Calluna vulgaris.	
Culbin Bar	SAC	c. 8.8km east of the site	**Annex I habitats that are a primary reason for selection of this site.** • 1220 Perennial vegetation of stony banks Historically, Culbin Bar in northeast Scotland formed part of the same shingle aggregation as Lower River Spey – Spey Bay to the east. Although sea-level rise has separated the sites, they are still linked, being maintained by the same coastal processes. • Culbin Bar and the Lower River Spey – Spey Bay are, individually, the two largest shingle sites in Scotland and together form a shingle complex unique in Scotland. They represent Perennial vegetation of stony banks in the northern part of its range in UK. Culbin Bar is 7 km long. It has a series of shingle ridges running parallel to the coast that support the best and richest examples of northern heath on shingle. • Dominant species are heather Calluna vulgaris, crowberry Empetrum nigrum and juniper Juniperus communis. • The natural westward movement of the bar deposits new ridges for colonisation. • Being virtually unaffected by damaging human activities, Culbin Bar is an example of a system with natural structure and function. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • 2110 Embryonic shifting dunes	International

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
Whiteness Head	SSSI	c.20m northeast and c.250 northwest of the site c.50m north of the Dredged Channel	**Site of Special Scientific Interest (SSSI) notified natural features**: Geological • Geomorphology: Coastal geomorphology of Scotland Biological • Birds: Bar-tailed godwit Limosa lapponica issue, non-breeding • Birds: Knot Calidris canutus, non-breeding • Intertidal marine habitats: Sandflats • Coastlands: Saltmarsh • Coastlands: Sand dunes • Coastlands: Shingle	National
Ardersier Glacial Deposits	SSSI	c.1.6km southwest of the site	**Notified natural features:** Geological: Quaternary geology and geomorphology: Quaternary of Scotland	National
Kildrummie Kaines	SSSI	c.3.6km southeast of the site	**Notified natural features:** Geological • Quaternary geology and geomorphology: Quaternary of Scotland Biological • Fens: Open water transition fen • Freshwater habitats: Eutrophic loch • Woodlands: Juniper scrub	National

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
Rosemarkie and Shandwhich Coast	SSSI	c.5.6km west of the site	**Notified natural features:** Geological: • Structural and metamorphic geology: Moine • Stratigraphy: Callovian • Palaeontology: Mesozoic Palaeobotany Biological: • Coastlands: Maritime cliff • Coastlands: Sand dune • Woodlands: Upland birch woodland • Vascular plants: Purple mountain milk-vetch (Oxytropis halleri) • Birds: Breeding Cormorant	National
The Dens	SSSI	c.6.6km west of the site	**Notified natural features** Geological: • Geomorphology: Mass Movement	National
Cawdor Wood	SSSI	c.7.2km south of the site	**Notified natural features:** Biological • Woodlands: Upland oak woodland • Non-vascular plants: Lichen assemblage	National

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
Culbin Sands Forest and Findhorn Bay	SSSI	c.7.8km east of the site	**Notified natural features:** Geological : • Coastal Geomorphology of Scotland Biological Coastlands • Sand dune • Shingle • Saltmarsh Freshwater habitats • Mesotrophic loch Fens • Hydromorphological mire range Vascular plants • Vascular plant assemblage Non-vascular plants • Lichen assemblage • Fungi assemblage Invertebrates Invertebrate assemblage	National
Longman and Castle Stuart Bays	SSSI	c.7.3km southwest of the site	**Notified natural features:** Biological • Coastlands: Eelgrass beds • Coastlands: Mudflat	National

Site Name	Designation	Distance and direction from site	Reasons for designation	Geographic importance[1]
			• Coastlands: Saltmarsh • Birds: Cormorant Phalacrocorax carbo • Birds: Goldeneye Bucephala clangula • Birds: Red-breasted merganser Mergus serrator • Birds: Redshank Tringa	

1.2 ANCIENT WOODLAND

There are three parcels of ancient woodland recorded within 2km of the site.

Table 2 Ancient woodland within 2km of the site

Woodland I.D.	Distance from site	Size (ha)	Origin
6357	c.20m south of the site	235ha	Long-Established (of plantation origin)
7052	c.600m southeast of the site	31ha	Long-Established (of plantation origin)
6364	1.5km south of the site	58ha	Long-Established (of plantation origin)

1.4 PROTECTED SPECIES

The results of the desk NBN protected species data search are presented in Tables 3 and 4.

Table 3 Results of the NBN data search for protected mammals, reptiles, and amphibians within 5km of the site.

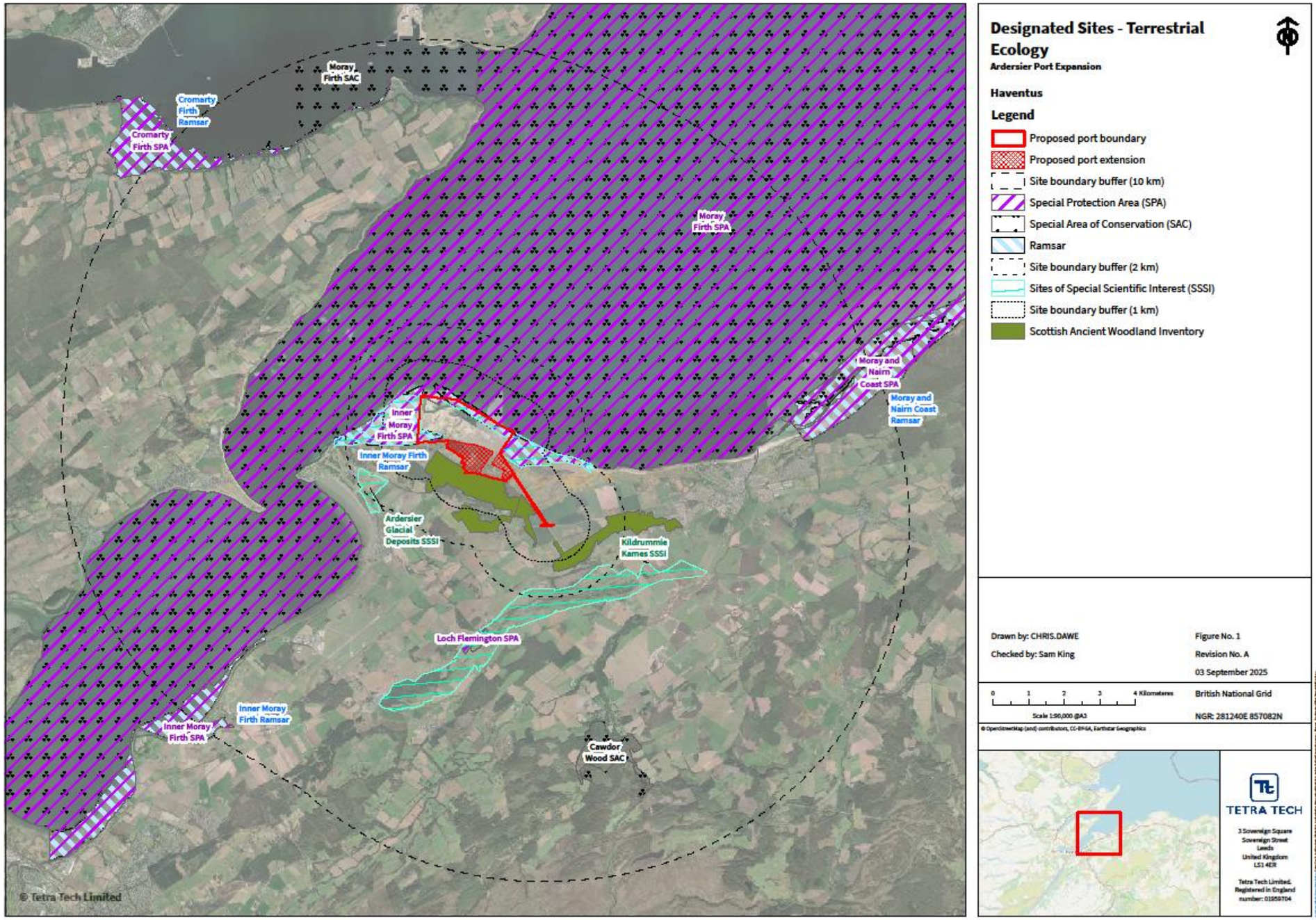
Species	Scientific name	Schedule 5[2]
Long-eared Bat	*Plecotus auritus*	
Common Dolphin	*Delphinus delphis*	Yes
Common Frog	*Rana temporaria*	Yes
Common Lizard	*Zootoca vivipara*	Yes
Common Porpoise	*Phocoena phocoena*	Yes
Common Toad	*Bufo bufo*	Yes
Eurasian Badger	*Meles meles*	
Eurasian Otter	*Lutra lutra*	Yes
Eurasian Red Squirrel	*Sciurus vulgaris*	Yes
European Water Vole	*Arvicola amphibius*	Yes

[2] Schedule 5 species are non-avian animals protected under the Wildlife and Countryside Act 1981 from killing, injury, disturbance, and damage to their places of shelter.

Species	Scientific name	Schedule 5[2]
Great Crested Newt	*Triturus cristatus*	
Grey Seal	*Halichoerus grypus*	Yes
Harbour Seal	*Phoca vitulina*	Yes
Long-finned Pilot Whale	*Globicephala melas*	Yes
Natterer's Bat	*Myotis nattereri*	
Palmate Newt	*Lissotriton helveticus*	Yes
Pine Marten	*Martes martes*	Yes
Smooth Newt	*Lissotriton vulgaris*	Yes

2.0 FIGURE

Figure 1 Statutory Designated Sites



Designated Sites - Terrestrial Ecology

Ardersier Port Expansion

Haventus

Legend

- Proposed port boundary
- Proposed port extension
- Site boundary buffer (10 km)
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar
- Site boundary buffer (2 km)
- Sites of Special Scientific Interest (SSSI)
- Site boundary buffer (1 km)
- Scottish Ancient Woodland Inventory

Drawn by: CHRIS.DAWE
Checked by: Sam King

Figure No. 1
Revision No. A
03 September 2025

0 1 2 3 4 Kilometres
Scale 1:90,000 @A3

British National Grid
NGR: 281240E 857082N

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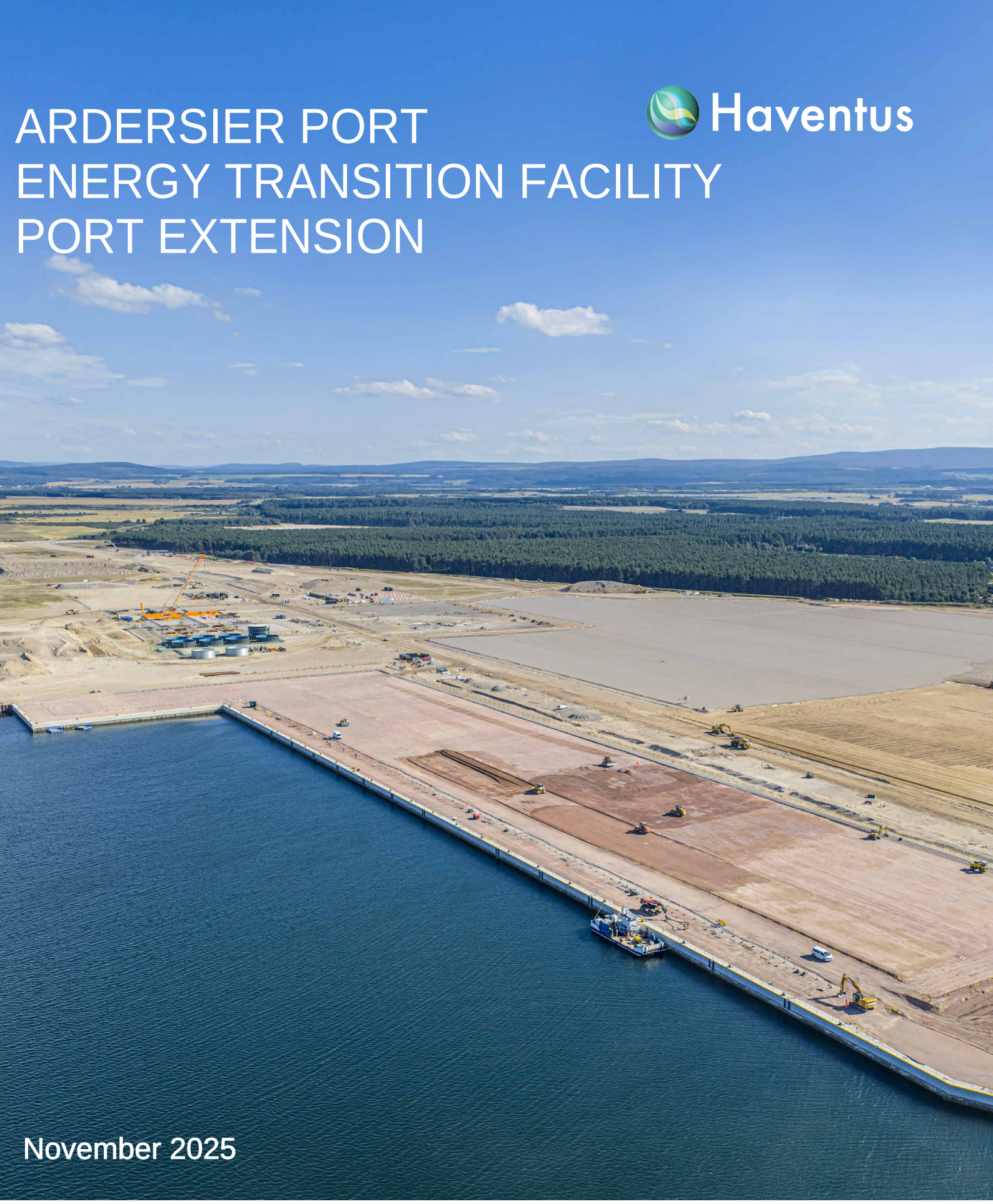
ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.4 Mitigation

Ardersier Port Extension

784-B069769

Appendix 12.4: Mitigation

Haventus

September 2025

Document prepared on behalf of Tetra Tech Limited. Registered in England number: 01959704

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Client:	Haventus
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1.0 MITIGATION

1.1 EMBEDDED MITIGATION

The development of the proposed development design has been an iterative process. The environment team has worked in close collaboration with the infrastructure design team to avoid or reduce environmental impacts through the proposed development design. This is referred to as embedded mitigation (or design interventions).

The principles of the design and mitigation hierarchy outlined in Chapter 2 (Methodology) have been followed. The first principle being to avoid potential adverse effects if at all feasible, before seeking to minimise or mitigate for any unavoidable impacts. Embedded mitigation for the proposed development is reported in EIAR Chapter 3 (Project Description).

EIAR Chapter 3 (Project Description) details the design alternatives that have been considered, including the environmental factors which have influenced the decision-making. Mitigation measures will seek to reduce impacts during both construction and operation phases. Any effects which cannot be mitigated or reduced are referred to as residual effects in Chapter 12 (Terrestrial Ecology), section 12.7.

1.2 COMPENSATION

Compensatory planting as agreed with NatureScot and Scottish Forestry will be conducted off site (Pithogarty Farm, nr. Tain, Highland Region) and will replicate a Scot's Pine dominated plantation, with the addition of 15% native broadleaf component as well as features within the planting scheme aimed at accelerating some niche habitat features within the planting zones such as artificial refugia and shelter for a range of notable fauna. Within the new planting design, a diverse mix of native species are scoped, tailored to local conditions and cognisant of nearby coastal habitats and riparian. Early planting and natural succession of fast-growing species such as birch will provide initial structure, while slower-growing species will contribute to long-term habitat development. The location of woodland creation has been pre-approved with NatureScot.

It is noted that the loss of the existing woodland at Ardersier will not be directly compensated for until the new woodland has established some maturity (expected at c.30 years), to reflect a similar structure. However, it is also noted that in the absence of the proposed dvelopment, it is assumed the plantation woodland on site would have been subject to standard thinning leading to eventual clear-fell and restock within a normal silvicultural cycle regardless. Thus, the only ultimate change in this effect is that the woodland loss is replaced elsewhere within the county (approx. 25km north).

Loss of habitat features within the proposed extension area such as ponds and wetlands will be compensated for through wider habitat creation and enhancement initiatives at the Port of Ardersier site, which are currently at concept stage.

Whilst these initiatives are not necessarily like for like compensatory measures, it is noted that the habitats lost are all somewhat anthropogenic in response to actions such as historic efforts to drain land and grow commercial forestry. The initiatives at Ardersier aim to increase habitat for qualifying features of the nearby designated sites, promote natural processes, and enhance semi-natural habitat quality. All

these initiatives have been designed in positive collaboration with relevant nature conservation regulators and stakeholders.

1.3 MITIGATION

Mitigation is included in the Outline Construction Environment Management Document (CEMD). The Outline CEMD will be developed into the CEMP for implementation during construction. Further information on the Outline CEMD (Environmental Assessment Methodology).

1.3.1 Construction Mitigation Measures

This section summarises the mitigation required during the construction of the proposed development. Unless stated all mitigation is embedded as it follows best practice measures and/or is required to achieve compliance with legislation. Mitigation measures of relevance during construction are included within the Outline CEMD. Construction will be carried out using industry best practice and in accordance with implementation of the requirements identified in the Outline CEMD. Construction information is presented in EIAR Chapter 3 (Project Description).

Designated Sites

General avoidance and mitigation

- Where practicable, schedule all works outside of sensitive periods for qualifying ecological features to avoid disturbance. If works must occur during these periods, a suitably qualified ecologist should be present on site to provide real-time ecological monitoring and guidance and advise the need for additional mitigation measures based on observed conditions and potential impacts.
- The programme for forestry operations should avoid the breeding season for birds and red squirrel (i.e. February to September).
- Closure of badger setts (those confirmed active and where breeding cannot be ruled out) will be subject to a licence condition limiting these works between July and December to avoid the period that young badger are dependants within sett features.
- If forestry operations occur prior to badger sett closure, the mitigation outlined in good practice guidance1 will be applied which will include standard exclusion zones for heavy machinery.
- Comply with the project Noise/ Vibration limits (see Chapter 6) and apply species specific standoff/temporal controls where relevant.
- Establish buffer zones and sediment controls/silt fencing to prevent sediment and pollution runoff reaching adjacent designated sites.
- Implement directional lighting to reduce visual disturbance to sensitive receptors utilising adjacent retained habitats.
- Embed pollution prevention measures within the CEMD (e.g., bunded fuel storage, spill kits, designated refuelling areas).

Site-specific embedded measures

[1] The Forestry Commission, 1995. *Forest Operations and Badger Setts: Forestry Practice Guide* 9. Published by Forestry Practice Division.

- Inner Moray Firth Ramsar: Maintain embedded existing 3m bund, in consented area; minimum 10 m buffers to wetland features; silt fencing and bunding; pollution controls embedded in the CEMD.

Habitats

General avoidance and mitigation

- Retain habitat margins and boundary features (e.g., scrub, woodland) wherever feasible to maintain elements of ecological connectivity.
- Implement compensatory planting and restoration for lost woodland and priority habitats.
- Some removed habitats can be recreated within a 2ha on-site donor area, which is currently at concept stage.

Habitat specific measures

- *Gorse scrub (h3e) / Mixed scrub (h3h):* Retain boundary/mosaic structure where feasible; incorporate scrub species in landscaping.
- *Scots Pine woodland (w2b) / Upland birchwood (w1e):* Retain boundary woodland blocks; agree off site compensatory planting; pre felling surveys; maintain connectivity.
- *Other neutral grassland (g3c):* Retain margins; use seed mixes to replicate structure; restore in retained areas.
- *Lowland dry acid grassland (g1a) / Other lowland acid grassland (g1d):* Recreate this habitat within wider Ardersier landscape scheme and(or) within a 2ha on-site donor area, which is currently at concept stage.
- *Dry lowland heath (h1a5) / Wet heath with cross leaved heath (h1a7):* Retain heathland margins;
- *Acid peat-stained lakes & ponds (r1c7):* The objective is to recreate suitable habitat using a 2-hectare on-site donor area. Detailed design will be developed at the planning stage, subject to ecological assessments and relevant approvals.

Compensation

- *Dry lowland heath (h1a5) / Wet heath with cross leaved heath (h1a7):* The objective will be to seek to recreate suitable habitat, utilising a 2ha on-site donor area. Detailed design will be undertaken at the planning stage.
- *Acid peat stained lakes & ponds (r1c7):* Recreation in a 2 ha on-site donor area..

Protected and Notable Species

General

- Baseline data on a range of ecological features will be maintained leading up to pre works checks by an experienced ecologist/ECoW to provide the most accurate constraints data (e.g., badger setts, red squirrel dreys, pine marten dens) and reduce the risk of direct injury or mortality.
- Should species evidence be encountered, the ECoW will advise whether additional mitigation is required or if works can proceed,
- An ECoW should deliver Toolbox Talks and implement stop work and emergency translocation procedures for unexpected encounters;

- ECoW to supervise compliance with Species Protection Plans (SPPs) as needed.

Badger

Avoidance

- Closure of breeding badger setts will avoid the period July to December when young badgers are dependent on the sett.
- Maintain ≥30 m buffers to any retained active setts.
- Retain commuting corridors between retained setts and foraging areas.
- When planning sett exclusion and closures, implement an approved Badger Protection Plan to avoid injury or mortality to badger.

Mitigation

- Where sett exclusion and closure or works within 30 m (or 100 m for high noise/vibration) of retained setts are unavoidable, secure a NatureScot derogation licence and implement a site-specific Badger SPP under ECoW supervision.
- Compensatory badger sett creation will be required to replace any loss of breeding sett. This will be designed in collaboration with an ecologist, located within the social clan territory and be constructed of buried chambers and pipe.
- A period of feeding badger to the alternative sett feature will occur followed by exclusion covering a period dictated by the licence conditions.
- Sett closure will occur under ECoW/ licensed ecologist supervision only after a successful period of exclusion and within licence conditions.
- Designate access tracks and apply speed limits to reduce the risk of road traffic mortality
- Direct lighting away from setts and corridors.

Compensation

- Provide artificial alternative sett under licence per NatureScot guidance with maintained access to suitable foraging resource.

Otter

- Repeat pre-construction surveys (≤3 months pre-start) to confirm status within 200 m of the works; implement an Otter SPP and deliver Toolbox Talks to the site team; implement lighting controls and continuous monitoring throughout the works to prevent illumination of watercourses.
- ECoW supervision to monitor onsite and nearby habitats for otter field evidence and inform the construction team of additional mitigation.

Pine marten

- All works affecting pine marten will require a SPP, to be prepared and implemented under licence where necessary.

Avoidance

- If a den site is found within baseline monitoring or pre-checks, a NatureScot licence will be required to avoid injury, mortality, or breach of legislation.

- This may include licensed translocation following the Scottish Code for Conservation Translocations (e.g., via Trees for Life).

Mitigation

- Phase/stagger forestry operations to encourage dispersal;
- Retain woodland habitats at boundaries to maintain some habitat connectivity;
- Designate access tracks and apply speed limits to reduce the risk of road traffic mortality
- Do not illuminate retained woodland habitats.

Compensation

- Enhance surrounding/retained woodland habitat.
- Install purpose-built pine marten den boxes in quiet, connected woodland where compliant with NatureScot standing advice and licensing.

Red squirrel

All works affecting red squirrel will require a SPP, to be prepared and implemented under licence where necessary.

Avoidance

- Where practicable, schedule felling outside Feb–Sept where practicable; appoint an ECoW to monitor for dreys in retained habitats and advise on avoidance/licensing.

Mitigation

- Where drey impacts cannot be avoided, obtain a NatureScot licence with a site specific SPP; Retain woodland habitats at boundaries to maintain some habitat connectivity; consider licensed translocation (e.g., via Trees for Life) under the Scottish Code;
- Apply buffer (50m to breeding dreys, 20m to standard dreys);
- Maintain trees around the perimeter of the proposed extension area (at least 10m) to provide a connecting pathway to any adjacent woodland;
- Designate access tracks and apply speed limits to reduce the risk of road traffic mortality.

Compensation

Enhance retained woodland habitats.

- Install artificial red squirrel dreys boxes in suitable woodland habitat to provide alternative nesting opportunities where natural dreys may be lost.
- Position boxes at appropriate heights (typically 4–6 m) in mature trees with good canopy connectivity, avoiding south-facing aspects to reduce overheating.
- Use durable, predator-resistant designs and ensure a mix of box types to mimic natural nesting options.

Bats

All works affecting bats will require a SPP, to be prepared and implemented under licence.

Avoidance

Time any demolition works in September to November outside core occupancy periods (summer roosts: May–Sept; hibernation roosts: Nov–Mar) and undertake with a licensed bat worker demarcating exclusion zones.

Mitigation

Secure a derogation licence and time works to coincide with bat absence (or following successful exclusion) and supervise roost removal and demolition by a licence holder.

- Install a variety of bat boxes in surrounding retained habitats to mitigate the initial loss of roosting features in Juniper Cottage Buildings 2&3 and to provide a translocation shelter for any bats found by the licensed ecologist.
- Maintain and enhance retained habitats to promote continued connectivity.
- Do not illuminate retained nearby habitats.
- Undertake pre felling PRF checks by a licensed bat worker.

Compensation

- Install compensatory bat boxes (e.g., Schwegler types, including hibernacula models 1FW/1WQ as appropriate) in retained habitats to replace lost PRFs from the woodland habitat;
- Install a purpose-built bat roost (“bat barn”) designed to support a maternity colony, providing like-for-like or enhanced replacement for the loss of a maternity roost. The structure will be located within the colony’s home range, connected to dark corridors.

Reptiles

Mitigation

- Prior to vegetation clearance or harvesting, install reptile refugia (e.g., artificial mats) across suitable habitat and allow sufficient settling time for reptiles to utilise them. Undertake a systematic search and translocate any reptiles found to pre-identified, suitable adjacent receptor habitat under the supervision of an experienced ecologist.
- Soft dismantle refugia (stone, brash, log piles) by hand under ecological supervision and relocate any reptiles found; undertake between April–September to avoid disturbing hibernating reptiles.

Compensation

- Establish reptile refugia in retained and recreated habitat (using timber from felling where practicable) and create/enhance habitat (e.g., grasslands) with varied sward structure and south facing banks.

Pollution Prevention (Construction Phase)

Install sediment controls where there is a risk of runoff prior to earthworks.

- Contain and manage excavated spoil within site boundaries; export non reusable material to a designated facility.
- Locate static or mobile storage/refuelling in designated areas away from watercourses; use bunded tanks with regular leak inspections; keep spill kits on site and train staff in their use; divert all spills for collection and ensure no untreated discharge to waterbodies.
- Secure fuels, lubricants, hydraulic fluids against unauthorised access/vandalism and provide spill containment; minimise on site storage of harmful materials and store in appropriately sized bunded units in line with manufacturer recommendations.

1.3.2 Operational Phase Mitigation

Noise management

- Restrict routine activities to normal working hours and schedule noisy maintenance during daylight to minimise disturbance to diurnal species. This approach confines noise to predictable periods when diurnal fauna are naturally active, reducing stress and behavioural disruption. It avoids interference with early morning and late evening rest periods, lowers cumulative acoustic stress, and supports habituation to consistent noise patterns. Daytime scheduling also facilitates effective monitoring of wildlife responses, enabling adaptive management if required.

Lighting control

- Use directional, downward facing, shielded lighting to prevent spill into adjacent habitats and maintain dark corridors along woodland edges and key commuting routes (see Appendix 5.1).

Traffic and access

- Limit maintenance visits to essential activities and confine to designated routes; designate speed-controlled routes to reduce collision risk with wildlife.

Habitat management & monitoring

- Maintain/enhance retained habitats, control invasives and preserve connectivity; undertake periodic ecological checks to confirm effectiveness and identify emerging risks.

Habitat Enhancement & Woodland Edge Management

- Deliver targeted improvements along retained woodland edges to transition towards either NVC W10 or W18 types via selective boundary thinning to increase light and promote natural broadleaf regeneration (oak, birch, rowan). Benefits include improved structural diversity, connectivity and resilience to disturbance.
- Create standing deadwood (e.g., ring barking) and place brash/stumps strategically to form natural barriers, reduce deer pressure, and provide microhabitats for invertebrates, fungi and small mammals.

- Reuse forest soils to introduce site native seedbanks, supporting establishment of understorey species and heathers where low organic content/microbial activity might otherwise limit germination in disturbed soils.

1.4 MONITORING

The Applicant environmental manager staff will be responsible for landscape and habitat monitoring and management, including objectives such as controlling invasive species, promoting native plant and tree diversity, and monitoring biodiversity indicators.

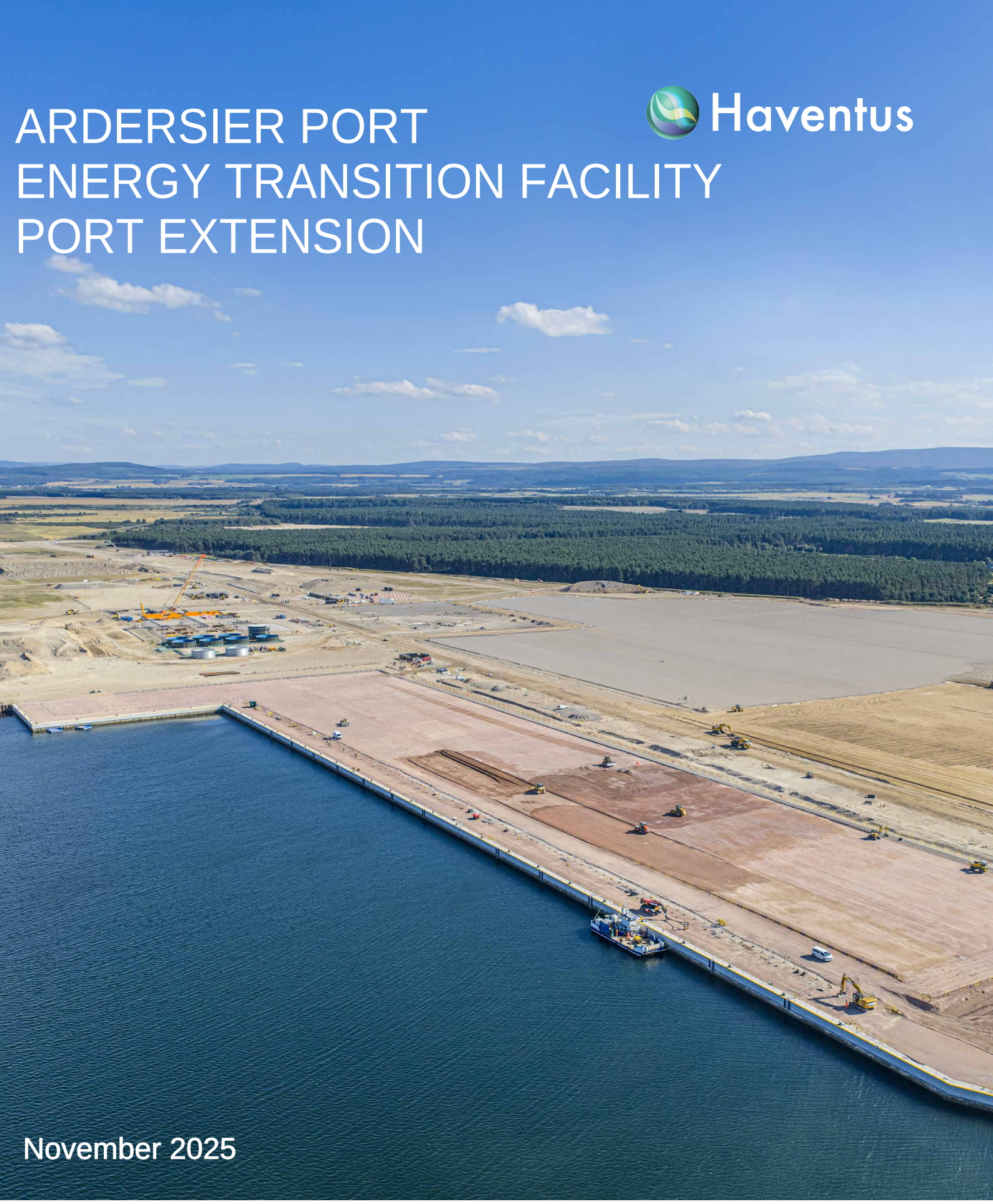
Monitoring will also include seasonal surveys for key protected and notable species, such as bats, red squirrel, pine marten, to evaluate the effectiveness of enhancement and mitigation measures. Static acoustic detectors, camera traps, and drey inspections may be deployed at strategic locations to track species activity and habitat use.

Where artificial features have been installed (e.g., bat barn/boxes, artificial dens and dreys), their occupancy and condition will be monitored, with maintenance or replacement undertaken, as required for the lifetime of the operation. Vegetation surveys will be used to assess the success of native planting and seedbank establishment, with adaptive management applied if target species fail to establish.

Monitoring results will be reviewed annually, ensuring that management actions remain responsive to ecological change and site-specific outcomes. All monitoring will be overseen by a qualified ecologist and reported to relevant statutory bodies where required.

ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.5 Bat Report - Ground Level Tree Assessment / Statics

Haventus Ardersier Port

Technical Appendix: Bats

JULY 2025 FOR HAVENTUS

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1.0 Background

This Technical Appendix is commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a package of ecological baseline studies, a series of bat surveys were undertaken to establish the presence of bats and their roosts within the proposed expansion area and surrounding 50m. The findings from the bat surveys are intended to inform a comprehensive assessment of the predicted impact on bats associated with the proposed development.

2.0 Methodology

2.1 Trees

2.1.1 Ground Level Tree Assessment

Ground level tree assessments (GLTA) were carried out within the proposed expansion area and up to 50m out with, where safe access allowed. During the GLTA, trees were inspected for potential roosting features (PRFs) and field signs indicative of bat presence from ground level then categorised following the criteria outlined in Table 1. Where no assessment on the absence of PRFs could be made from ground level, the feature was highlighted for further assessment via aerial access, during which a closer inspection of the feature can be made by qualified tree climber and bat licence holder. Only the trees which contained PRFs or which required further assessment were tagged and recorded using the mobile application *Avenza Maps* then mapped digitally using QGIS (*version 3.36.1*). The survey was undertaken over 5 days in March 2025 under favourable weather conditions.

Table 1: Surveying Trees for Potential Roosting Features (method table paraphrased from Collins., 2023)

Category	Description
None	No features likely to support roosting bats are present.
PRF	One or more features suitable for supporting roosting bats are present.
FAR	Further assessment required to determine whether PRFs are present.

2.1.2 Aerial Inspection

Aerial inspections of trees identified during the GLTA were carried out by 2no. bat licence holders and qualified tree climbers under favourable weather conditions. During these inspections, visual searches for field signs including bats (alive or dead), droppings, staining and feeding remains were undertaken with the use of endoscopes where necessary to inspect deeper crevices. The features were classified based on the number of bats they may support and the purpose the PRF may serve (e.g., maternity, hibernacula etc), see Table 2 below.

Table 2: Classification of PRFs in trees (method table paraphrased from Collins., 2023)

Category	Description
PRF-I	Field signs observed / space and shelter provided by the PRF is suitable to support an individual or very low numbers of roosting bats.
PRF-M	Field signs observed / space and shelter provided by the PRF is suitable to support multiple roosting bats, therefore may be used for breeding purposes.

2.2 Structures

2.2.1 Daylight Bat Walkover

A Daylight Bat Walkover (DBW) was undertaken to assign structures a category based on their suitability to support roosting bats. The survey was undertaken in March 2025 and involved a non-intrusive inspection of the structures within and adjacent to the site boundary from ground level by an experienced ecologist from HED Ltd. Structures possessing one or more PRF were then assigned a category and afforded a number of activity surveys accordingly. Features suitable for supporting roosting bats during the winter hibernacula period were also noted and recommendations provided.

2.2.2 Activity Surveys

Bat activity surveys were undertaken at dusk during the active period for bats (May – September, inclusive). The dusk surveys commenced 15 minutes before sunset and finished 2 hours after sunset, in line with industry guidance. Each structure was assigned a sufficient number of bat surveyors to achieve a suitable vantage point of the building and PRFs identified. Surveyors were equipped with handheld bat detectors (*Anabat Scout*) allowing audio detection of bats emerging from the building or foraging in the vicinity. Supplementary to this, thermal cameras *(FLIR A50)* were deployed at select positions to capture potential emergences in low-light conditions. Audio recordings were later analysed using *Kaleidoscope Lite* software to determine the species present during the survey. Survey timings and conditions are detailed in section 3.2.2.

2.3 Passive Surveys

Static detector deployment was undertaken to gain information on the species diversity and activity frequency of bats within the proposed expansion area and surrounding habitats. The static acoustic detectors (3no. *Song Meter Mini Bat 2)* were deployed across May to July 2025 over a minimum of 10 nights per deployment. The static detectors were deployed at set locations across the Scots Pine plantation among closed and open habitats such as woodland

edges, ditch embankments and closed woodland. Recordings were later analysed using bat acoustic analysis software (*Wildlife Acoustics, Kaleidoscope Lite)* to acoustically identify the species recorded. Time, date and climate conditions were also recorded by the static detectors and presented alongside survey findings.

2.2 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey; this does not confirm that species are absent from an area or will not be present in the future.

Internal inspections of structures could not be achieved due to access restrictions therefore assessments of structures are based on features visible from an external inspection at ground level. Visual aids were utilized where appropriate to gain a thorough assessment of the structures however this does not eliminate the potential for unrecorded potential roosting features to be present internally within structures.

Technical errors resulted in x1 of the audio detectors failing during Pinetrees cottage dusk Activity Survey 2 and a reduced recording length of a camera during Pinetrees cottage dusk Activity Survey 3. The minor loss of audio and thermal data is not anticipated to significantly impact the survey findings across the three activity surveys.

Finally, while acoustic analysis of echolocation calls provides a detailed insight into the species of bat present it is not an entirely diagnostic method for all species such as other methods (e.g., DNA analysis, close-up observation in hand) therefore in some instances bats were identified to genus level to avoid doubt over species identification. This is not anticipated to interfere significantly with the outcome of the survey and associated recommendations made.

3.0 Results

3.1 Trees

3.1.1 Ground Level Tree Assessment

The Scots Pine plantation offered suitable roosting, foraging and commuting habitat for bats owing to the linear treelines, open areas surrounding powerline wayleaves, and insect-rich ditches and understory. Most trees were mature, uniform and lacking potential roosting features (PRFs) however a number of decaying or damaged trees were recorded as offering suitable roosting features due to rot holes, woodpecker holes, tears, and cavities within standing deadwood. A summary of the findings from the GLTA is provided in Table 3 below.

Table 3: Summary of PRFs in Trees

PRF ref / Tag Number	Description	Grid Reference
PRF 0451	Standing deadwood with woodpecker holes. Another 2x trees to the North with woodpecker holes.	NH 81203 57220
PRF 0186	Scots Pine with broken limb (pointing East). Tree also contains a drey on North facing limb.	NH 81503 56572
PRF 0138	Standing deadwood, woodpecker holes, near footpath	NH 80602 56838
PRF 0136	Standing deadwood, woodpecker hole near top	NH 80624 56804
PRF 0448	Standing deadwood, vertical cavity (unknown depth) at top of trunk.	NH 81188 57270
PRF 0441	Standing deadwood, 3x woodpecker holes. Edge habitat (near drainage ditch).	NH 81224 57391
PRF 0130	Standing deadwood, woodpecker holes.	NH 81125 57360
PRF 0143	Standing deadwood, woodpecker hole approx. 4m high.	NH 80940 57479
PRF 0454	Standing deadwood, woodpecker hole, edge habitat (near watercourse).	NH 80738 57444
PFR 0139	Standing deadwood, woodpecker holes.	NH 80675 57199
PRF 0455	Cluster of 5 monoliths. PRF on broken stem on center tagged tree.	NH 80507 57378
PRF 0456	Standing deadwood, broken trunk creating vertical cavity.	NH 80444 57411
PRF 0458	Standing deadwood, woodpecker holes, near watercourse.	NH 80452 57517
PRF 0185	Standing deadwood, split trunk creating vertical cavity.	NH 80341 57548

PRF 0460	Standing deadwood, broken trunk creating vertical cavity.	NH 80317 57392
PRF 0182	Standing deadwood, broken trunk creating vertical cavity. Edge of woodland, near a fence.	NH 80164 57435
PRF 0402	Standing deadwood with woodpecker whole approx. 3 meters up.	NH 80780 57178
PRF 0403	Standing deadwood, broken at half height. Possible PRFs at point of break.	NH 80696 56924
PRF 0404	Standing deadwood, broken. Possible PRFs within trunk at point of break.	NH 80702 56925
PRF 0405	Standing deadwood, broken. Peeling bark and possible PRF within, trunk at point of break.	NH 80701 56933
PRF 0406	Standing deadwood.	NH 80696 56903
PRF 0407	Standing deadwood with woodpecker hole.	NH 80627 56885
PRF 0408	Standing deadwood, peeling bark and possible PRF at point of break.	NH 81002 57091
PRF 0145	Standing deadwood with several woodpecker holes.	NH 81212 57056
PRF 0146	Standing deadwood, broken, with several woodpecker holes at various heights (approx. 5m).	NH 81270 57124
PRF 021	Standing deadwood.	NH 80697 56905
PRFs 027 untagged	Cluster of 3x dead trees each with woodpecker holes. Near bridle path through woodland.	NH 80698 56916

3.1.2 Aerial Inspection

No bat roosts or evidence of historic roosts were observed during the aerial inspection. Several of the features identified offered sufficient depth to support roosting bats however, upon closer inspection were too exposed or fragile to provide suitable roosting sites. The results from the aerial inspection, including justification for the conclusions drawn and recommendations for further surveys, are provided in Table 4 below.

Table 4: Results from aerial inspection

PRF No./ Location NH	Date	Ground Level Assessment Roost Suitability Comments & Features	PRF search- Comments & Features	Bat Roost Yes/No/ Unknown (UK)	Recommendations & likely mitigations
0136, nearest to parking/ 80624 56804	19.06.25	Very decayed, crumbly wood with woodpecker holes up to 10cm deep, but fragile and exposed. FAR.	Woodpecker holes up to 10cm deep, but fragile and exposed. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0138/ 80602 56838	19.06.25	woodpecker holes on main stem. FAR	Woodpecker holes up to 10cm deep, but fragile and exposed. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0407/ 80627 56885	16.07.25	Woodpecker holes on main stem near top with active nest (chicks inside). No PRF at present.	Woodpecker holes up to 10cm deep, but fragile and exposed. PRF-I	No	No further PRF survey required for 3 months from survey date. Care should be taken felling or working near this tree.
021 and 0406/ 80696 56903	19.06.25	Top broken at 4m with top still attached. Woodpecker holes on main stem. FAR.	Shallow exposed woodpecker holes up to 5cm deep. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.

0405/ 80701 56933	19.06.25	Very shallow features/ woodpecker holes on main stem. FAR	No PRFs	No	No further survey required.
0404/ 80702 56925	19.06.25	Shallow features on decayed stem with deeper woodpecker holes at about m. FAR	7cm deep woodpecker holes at 6m. Fragile, crumbly decayed wood. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0403/ 80696 56924	19.06.25	Broken top with woodpecker holes on main stem. FAR	10cm deep woodpecker hole in very decayed timber with old bird nest. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0408/ 81002 57091	19.06.25	Broken top at 7.5m with multiple woodpecker holes on main stem. FAR	Very decayed upper stem with 10cm deep woodpecker holes with old bird nest. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0145/ 81212 57056	19.06.25	Very decayed at 3-4m with multiple woodpecker holes on main stem. FAR	Web covered, shallow woodpecker holes in very fragile timber. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0146/ 81270 57124	19.06.25	8m high decayed stem with multiple woodpecker holes on main stem. FAR	Shallow, exposed woodpecker holes in very fragile timber. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
027/ 80698 56916	19.06.25	3 slender dead trees near 0404 with woodpecker holes. FAR	3 slender dead stems with multiple shallow WP holes 5cm deep and exposed. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0451/ 81203 57220	19.06.25	8m high dead stem with woodpecker holes on main stem. 2 slender dead stems nearby with shallow woodpecker holes. FAR	Shallow, exposed woodpecker holes at 7-8m in very fragile timber. 2 slender dead stems with shallow WP holes 5cm deep and exposed. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0448/ 81188 57270	19.06.25	Tree fallen with any PRFs no longer viable	N/A	No	No further survey required

0441/ 81224 57391	19.06.25	4m high stem with woodpecker holes on main stem. FAR	Decayed, open exposed top with old bird nest and woodpecker hole. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0130/ 81125 57360	19.06.25	4.5m high dead stem with woodpecker holes on main stem. FAR	Decayed, open exposed top. No PRF.	No	No further survey required.
0402/ 80780 57178	16.07.25	Woodpecker hole at 10m on E side, exposed & decayed- FAR.	Woodpecker hole at 10m on E side- 5cm peep, exposed in very decayed, fragile timber- PRF-I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0139/ 80675 57378	16.07.25	Woodpecker hole at 5m near top of broken stem. More WP holes above- FAR	Woodpecker hole at 5m near top of broken stem, 30cm deep. Open holes above. PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0143/ 80948 57479. Tagged 0413	16.07.25	Woodpecker hole at 4m near top of broken stem- FAR.	Woodpecker hole at 4m near top of broken stem-shallow, exposed and open. Broken top with decayed pockets- shallow and exposed- PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0454/ 80738 57444	16.07.25	Top tear at 10m. Woodpecker hole on NE side at 4m- FAR.	Top tear out has shallow, exposed crack feature at 10m. Shallow, exposed woodpecker hole on NE side at 4m. PRF-I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0455/ 80507 57378	16.07.25	NE side of NE stem- verticle crack at 4m. Fractured tops on skinny stems. S stem has woodpecker holes and loose bark- FAR	NE side of NE stem, open, shallow, exposed, verticle crack at 4m. Fractured, decayed tops on skinny stems. S stem shallow woodpecker holes and loose bark. PRF-I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0456/ 80444 57411	16.07.25	N side woodpecker hole with shallow tear out above-FAR	N side woodpecker hole with shallow tear out above- very decayed and quite shallow, PRF-I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.

0458/ 80452 57517	16.07.25	Woodpecker holes on dead stem near top at 5-6 m- FAR	Woodpecker holes on dead stem near top at 5-6 m leading to hollow top- open and exposed to sky but with some shelter in decayed wood- PRF- I	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0185/ 80341 57548	16.07.25	Top broken off and leaning onto tree. Tear out wound at 7m top. Loose bark FAR	Tear out wound at 7m top has shallow, exposed cracks. Loose bark. PRF-I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0460/ 80317 57392	16.07.25	E side at top of broken stem at 5m, woodpecker hole on broken top- FAR	E side at top of broken stem, 5m, woodpecker hole on broken top- 10cm deep but quite exposed- PRF- I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0182/ 80164 57435	16.07.25	Scots pine in ok condition with broken top- FAR	Sheltered vertical crack, 6cm deep at 5m. PRF-I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near this tree.
0186	16.07.25	Rot hole on main stem, broken limb- FAR	W side at 4m, shallow rot pocket. S side at 7m, old limb fracture with shallow exposed cracks. PRF-I.	No	No further survey required for 3 months from survey date. Care should be taken felling or working near tree.
Key					
PRF-I potential roost feature only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.					
PRF-M- potential roost is suitable for multiple bats and may therefore be used for a maternity colony.					

3.2 Structures

3.2.1 Daytime Bat Walkover

Numerous PRFs were identified within the residential and commercial buildings centred within and surrounding the plantation owing to their age and proximity to favourable foraging and commuting habitat. A summary of the findings from the daylight bat walkover is provided in Table 5 below.

Table 5a: Summary of PRFs within structures

Target Note	Description	Grid Reference
028	Juniper Cottage Building 1 – moderate – high potential (summer activity) – moderate potential (hibernacula)	NH 80820 57108
029	Juniper Cottage Building 2 – moderate – high potential (summer activity) – moderate potential (hibernacula)	NH 80795 57118
030	Juniper Cottage Building 3 – High potential (summer activity) – High potential (hibernacula)	NH 80805 57135
041	Ruins – Negligible Potential (summer activity and hibernacula)	NH 80406 57363
042	Pinetrees cottage – Moderate Potential (summer activity) – moderate potential (hibernacula)	NH 80910 57022

Several structures at Juniper Cottage were identified as having bat potential, however these structures are not expected to remain when the current occupier vacates the site. As such no further investigation was completed by HED Ltd of these structures. Details are provided in Table 5b below.

Table 5b: Summary of PRFs within structures

Target Note	Description	Grid Reference
031*	Juniper Cottage Pheasantry Shed 1 – moderate potential (summer activity and hibernacula)	NH 80833 57164
032*	Juniper Cottage Pheasantry Shed 2 – moderate potential (summer activity and hibernacula)	NH 80876 57216
033*	Juniper Cottage Bird Shed 1 & 2 – Low Potential (summer activity and hibernacula)	NH 80902 57258
034*	Juniper Cottage Bird Shed 3 – Low Potential (summer activity and hibernacula)	NH 80908 57160
035*	Juniper Cottage Storage Shed 1 – Low Potential (summer activity and hibernacula)	NH 80850 57101
036*	Juniper Cottage Storage Shed 2 – Low Potential (summer activity and hibernacula)	NH 80796 57129
037*	Juniper Cottage Storage Shed 3 – Low Potential (summer activity and hibernacula)	NH 80817 57147

038*	Juniper Cottage Static Caravan 1 – Negligible – Low Potential (summer activity and hibernacula)	NH 80816 57135
039*	Juniper Cottage Silo 1 - Negligible Potential (summer activity and hibernacula)	NH 80803 57139
040*	Juniper Cottage Silo 2 - Negligible Potential (summer activity and hibernacula)	NH 80851 57184

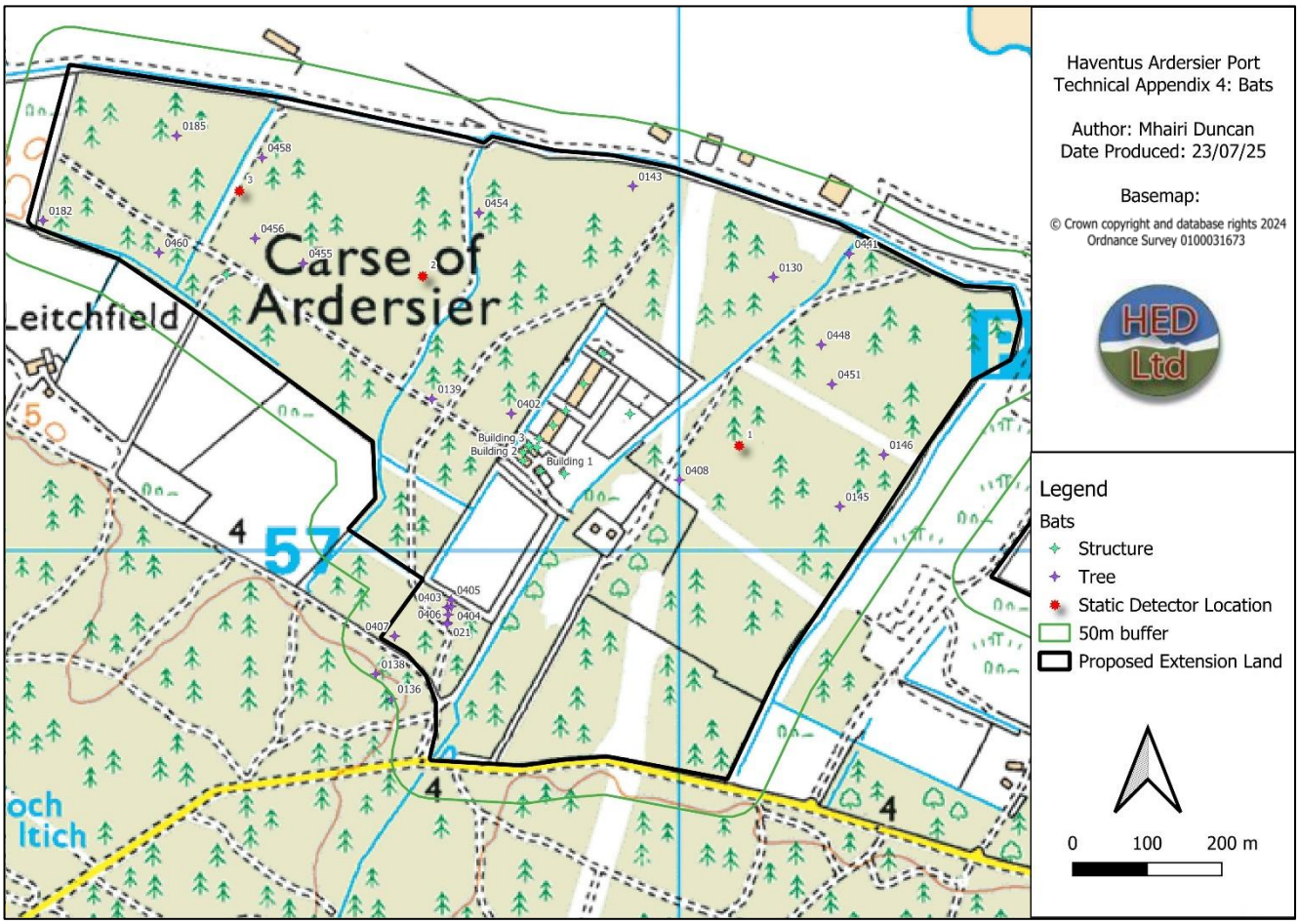


Figure 1:Results from DBW and GLTA including Static Detector Locations (site boundaries provided by Haventus)

3.2.2 Bat Activity Surveys

The structures surveyed offered favourable roosting, foraging and commuting features accounting for the numerous calls by detected across the surveys (see Tables below). Many of the observations recorded were of bats foraging overhead, passing over buildings between neighbouring plantations, and emerging/re-entering buildings. Most of the calls detected were identified as Common and Soprano pipistrelles (Ppip and Ppyg, respectively) along with a total of x5 Myotis sp. (Msp) and x1 Brown long-eared (Paur) bat detected. Buildings noted to be supporting roosts were Juniper Cottage Building 2 and Building 3 (see Table 7 and 8, respectively).

Table 6: Bat Activity Survey Results (Juniper Cottage Building 1)

Juniper Cottage 1	**Date**	**Start time**	**Sunset time**	**End time**	**Conditions (temp, wind, cloud cover, precipitation)**	**Emergence (Y/N) / Total count.**		**Species Detected / Total no. calls**	
Dusk 1	30.05.25	21:00	21:20	23:30	18°C, 1, 80%, none	N	-	Ppip	41
								Ppyg	1
								Msp.	1
								Paur	0
Dusk 2	12.05.25	21:05	21:25	23:25	15°C, 0, 0%, none	N	-	Ppip	20
								Ppyg	21
								Msp.	0
								Paur	0
Dusk 3	02.06.25	21:45	22:05	00:05	12°C,1-4, 0, light rain	N	-	Ppip	9
								Ppyg	2
								Msp.	1
								Paur	1

Common Pipistrelle (Ppip), Soprano Pipistrelle (Ppyg), Brown long-eared Bat (Paur), Myotis species (Msp)

Table 7: Bat Activity Survey Results (Juniper Cottage Building 2)

Juniper Cottage 2	Date	Start time	Sunset time	End time	Conditions (temp, wind, cloud cover, precipitation)	Emergence (Y/N) / Total count.		Species Detected / Total no. calls	
Dusk 1	16.05.25	20:30	21:15	23:35	12°C, 0, 50%, none.	N	-	Ppip	84
								Ppyg	30
								Msp	0
								Paur	0
Dusk 2	06.06.25	21:50	22:10	00:10	14°C, 0, 40%, none.	Y	5	Ppip	144
								Ppyg	25
								Msp	0
								Paur	0
Dusk 3	07.07.25	22:00	22:15	00:00	11°C, 0-1, 90%, none.	N	-	Ppip	289
								Ppyg	128
								Msp.	0
								Paur	0

Common Pipistrelle (Ppip), Soprano Pipistrelle (Ppyg), Brown long-eared Bat (Paur), Myotis species (Msp)

Table 8: Bat Activity Survey Results Juniper Cottage 3

Juniper Cottage 3	Date	Start time	Sunset time	End time	Conditions (temp, wind, cloud cover, precipitation)	Emergence (Y/N) / Total count.		Species Detected / Total no. calls	
Dusk 1	01.05.25	20:45	21:03	23:03	11°C, 1, 50-10%, none.	N	-	Ppip	80
								Ppyg	18
								Msp.	0
								Paur	0
Dusk 2	30.05.25	21:45	21:55	23:55	11°C, 1, 60%, none.	Y	9	Ppip	367
								Ppyg	128
								Msp.	0
								Paur	0
Dusk 3	16.07.25	21:45	22:02	00:02	16°C, 0, 80%, none.	Y	15	Ppip	437
								Ppyg	39
								Msp.	1
								Paur	0

Common Pipistrelle (Ppip), Soprano Pipistrelle (Ppyg), Brown long-eared Bat (Paur), Myotis species (Msp)

Table 9: Bat Activity Survey Results Pinetrees Cottage

Pinewood Cottage	**Date**	**Start time**	**Sunset time**	**End time**	**Conditions (temp, wind, cloud cover, precipitation)**	**Emergence (Y/N) / Total count.**		**Species Detected / Total no. calls**	
Dusk 1	05.05.25	21:50	22:10	23:10	10°C, 1, 80%, none	N	-	Ppip	16
								Ppyg	36
								Msp.	2
								Paur.	0
Dusk 2	26.05.25	21:30	21:45	23:45	11 °C, 1, 50%, none.	N	-	Ppip	0
								Ppyg	32
								Msp.	0
								Paur	0
Dusk 3	18.06.25	22:10	22:18	00:18	10°C, 1, 80%, none.	N	-	Ppip	124
								Ppyg	9
								Msp.	0
								Paur	0

Common Pipistrelle (Ppip), Soprano Pipistrelle (Ppyg), Brown long-eared Bat (Paur), Myotis species (Msp)

3.3 Passive Surveys

Numerous bat echolocation and social calls were detected throughout the passive survey period with composition being conducive of the overall habitat present. Typical tree-roosting species such as Daubenton's and Natterer's bats (identified as Myotis sp. for the purpose of this report), and structural-roosting bats such as Common and Soprano Pipistrelle and Brown long-eared bat were detected consistently across the deployment positions as summarised in Tables 10-12 below.

Table 10: Results from static detector deployment Position 1.

P1 (Closed Woodland)	Location: NH 81079 57139		
Species	Deployment Date		
	05.06.25_16.06.25	16.05.25_27.05.25	30.06.25_14.07.25
Common Pipistrelle	111	139	583
Soprano Pipistrelle	223	29	436
Brown Long Eared	14	2	59
Myotis sp.	9	3	6
Total Count	357	173	1084

Table 11: Results from static detector deployment Position 2

P2 (Woodland Edge)	Location: NH 80665 57361		
Species	Deployment Date		
	05.06.25_16.06.25	16.05.25_27.05.25	30.06.25_14.07.25
Common Pipistrelle	243	84	127
Soprano Pipistrelle	95	111	135
Brown Long Eared	10	3	18
Myotis sp.	10	1	7
Total Count	358	199	287

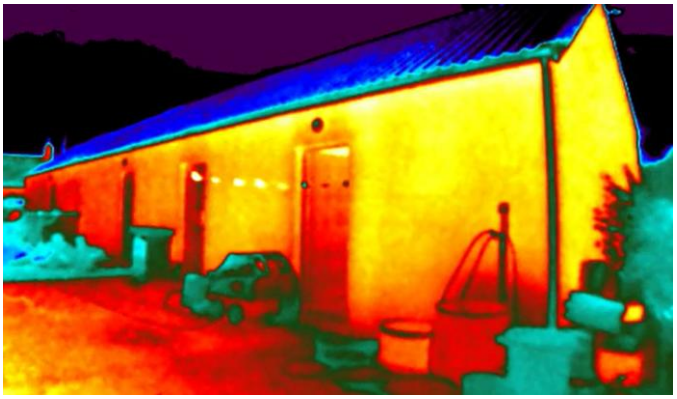
Table 12: Results from static detector deployment Position 3

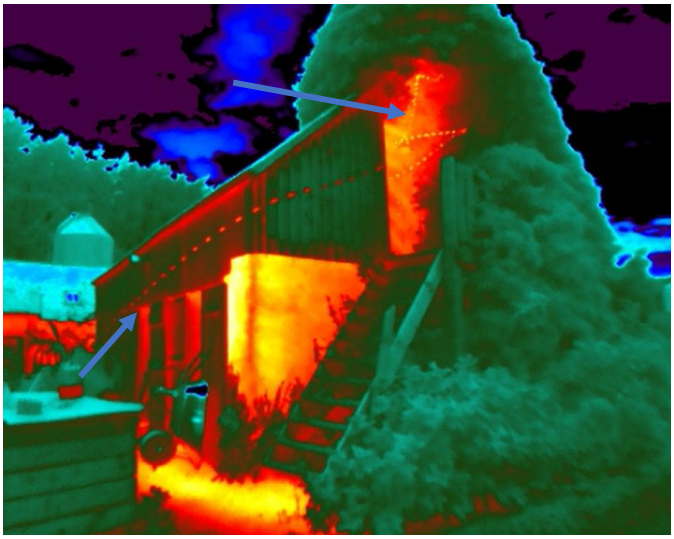
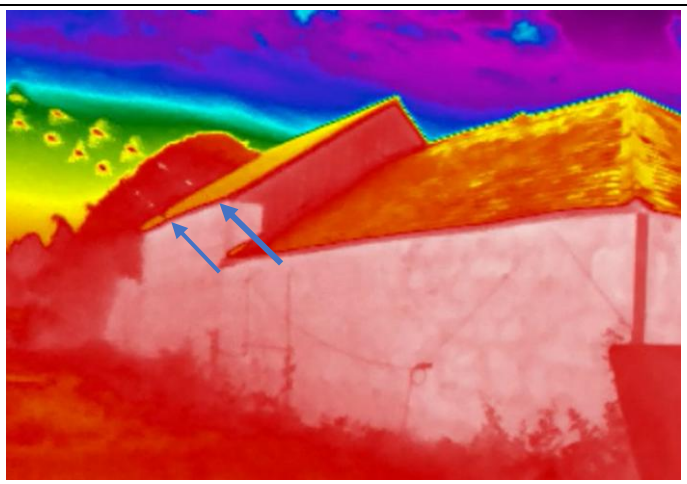
P3 (Ditch Adjacent)	Location: NH 80422 57475		
Species	Deployment Date		
	05.06.25_16.06.25	16.05.25_27.05.25	30.06.25_14.07.25
Common Pipistrelle	20	142	306
Soprano Pipistrelle	200	17	25
Brown Long Eared	52	24	19
Myotis sp.	3	8	21
Total Count	275	191	371

4.0 Survey Images

Target Note	Description	Image
026	Ruins of a small building, some shallow crevices between brickwork, mostly exposed to water ingress.	
027	Juniper Cottage Building 1 (viewed from the SW). A domestic property with a pebbledash exterior, a pitched slate roof with one flat roof extension. The cottage has two chimney stacks. Some gaps in the slates were observed and assessed as possible access points for bats. Classified as having moderate – high potential to support roosting bats based on presence of possible access	

	points and high quality surrounding habitat.	
027	Juniper Cottage Building 1 (viewed from the N).	
028	Juniper Cottage Building 2 (viewed from the SE). An outbuilding used for storage. The structure has a pitched roof of metal roofing sheets, seemingly unsealed eaves (no soffit board present), and a pebbledash exterior. Classified as having moderate to high potential to support roosting bats, with numerous possible access routes identified through both windows and doors, and via the eaves.	

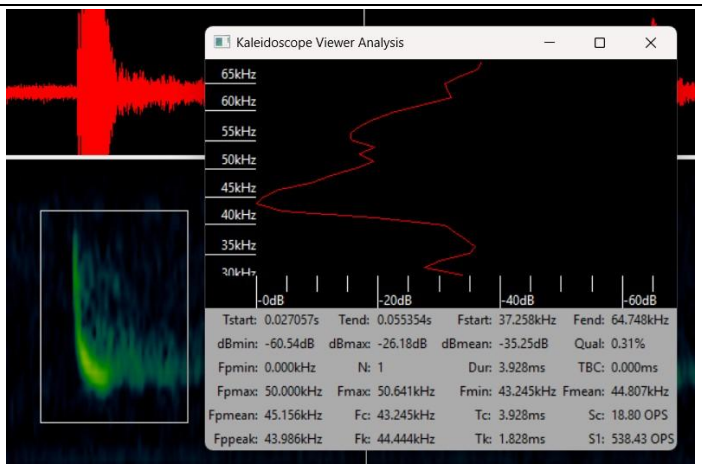
028	Juniper Cottage Building 2 (viewed from the NW). Confirmed emergence/re-entry location arrowed.	 
029a	Juniper Cottage Building 3 (viewed from the SE). An outbuilding, part of which is made of stone with a pitched slate roof. The other part is made of wood with a roof made of metal roofing sheets. Certain areas of the building were open to the elements, allowing access for bats. Confirmed emergence/re-entry points arrowed.	

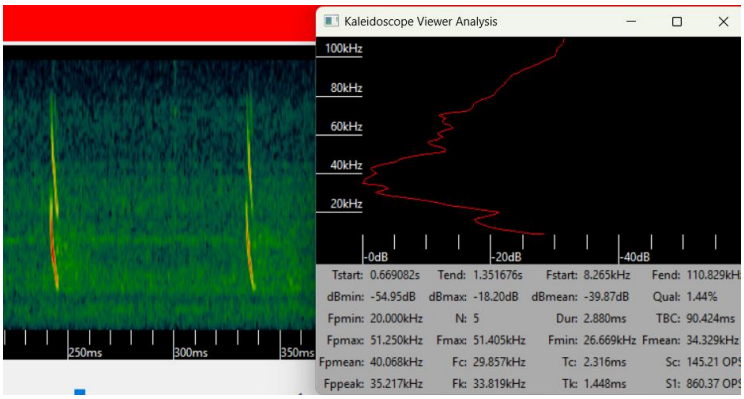
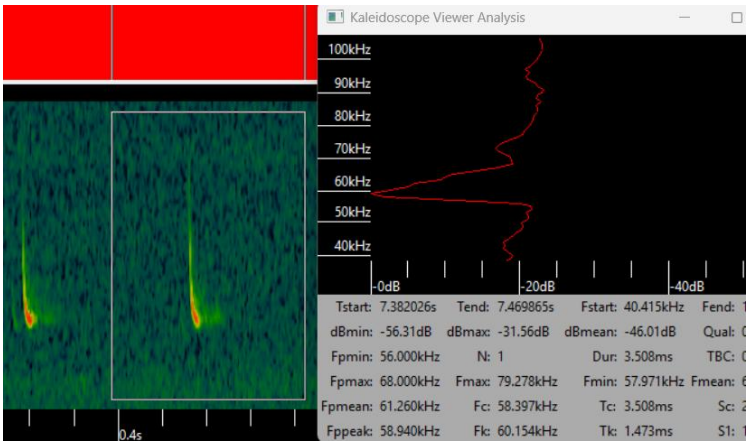
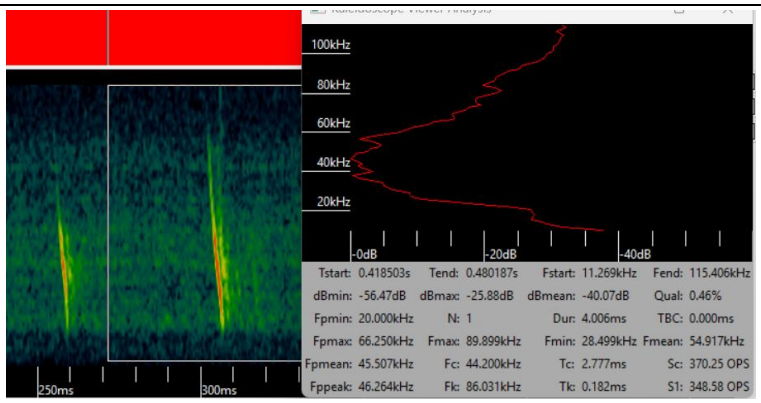
029b	Juniper Cottage Building 3 (viewed from the E). Wooden/metal roofed section of the building. Open access for bats via the door. Extensive shrub growth on this aspect of the building, which may also offer sufficient shelter for roosting bats. Confirmed emergence/re-entry point arrowed.	 
029c	Juniper Cottage Building 3 (viewed from N). Slate roof offers suitable gaps and spaces for roosting bats. Confirmed emergence/re-entry locations arrowed.	

030	Juniper Cottage Pheasantry Shed 1 (viewed from the S). Structure made of metal sheets. Open access though doors and through gaps in the eaves. Assessed as having moderate potential to support roosting bats.	
031	Juniper Cottage Pheasantry Shed 2 (viewed from the S). Structure made of metal sheets. Open access though doors and through gaps in the eaves. Assessed as having moderate potential to support roosting bats.	
032	Juniper Cottage Bird Shed 1 & 2 (viewed from the S). Two sheds made of plywood with roofs made of metal sheets. Possible access points for bats beneath the roofing sheets. Assessed as having low potential to support roosting bats.	

		
033	Juniper Cottage Bird Shed 3. Small wooden shed. Assessed as having negligible – low potential to support roosting bats.	
034	Juniper Cottage Storage Shed 1. Small wooden shed with a roof made from corrugated roofing sheets. Assessed as having low potential to up support roosting bats.	

035	Juniper Cottage Storage Shed 2. Small wooden shed with a roof made from corrugated roofing sheets. Assessed as having low potential to up support roosting bats.	
036	Juniper Cottage Storage Shed 3. Small wooden shed with a roof made from corrugated roofing sheets. Assessed as having low potential to up support roosting bats.	
037	Juniper Cottage Static Caravan 1. In a moderate state of disrepair. Assessed as having negligible – low potential to support roosting bats.	

038	Juniper Cottage Silo 1. Assessed as having negligible potential to support roosting bats.	
039	Juniper Cottage Silo 2. Assessed as having negligible potential to support roosting bats.	
040	Typical Common pipistrelle echolocation call extracted from Kaleidoscope spectrogram viewer.	

041	Typical Brown long-eared bat echolocation call extracted from Kaleidoscope spectrogram viewer.	
042	Typical Soprano pipistrelle echolocation call extracted from Kaleidoscope spectrogram viewer.	
043	Typical Myotis sp. Echolocation call extracted from Kaleidoscope spectrogram viewer.	

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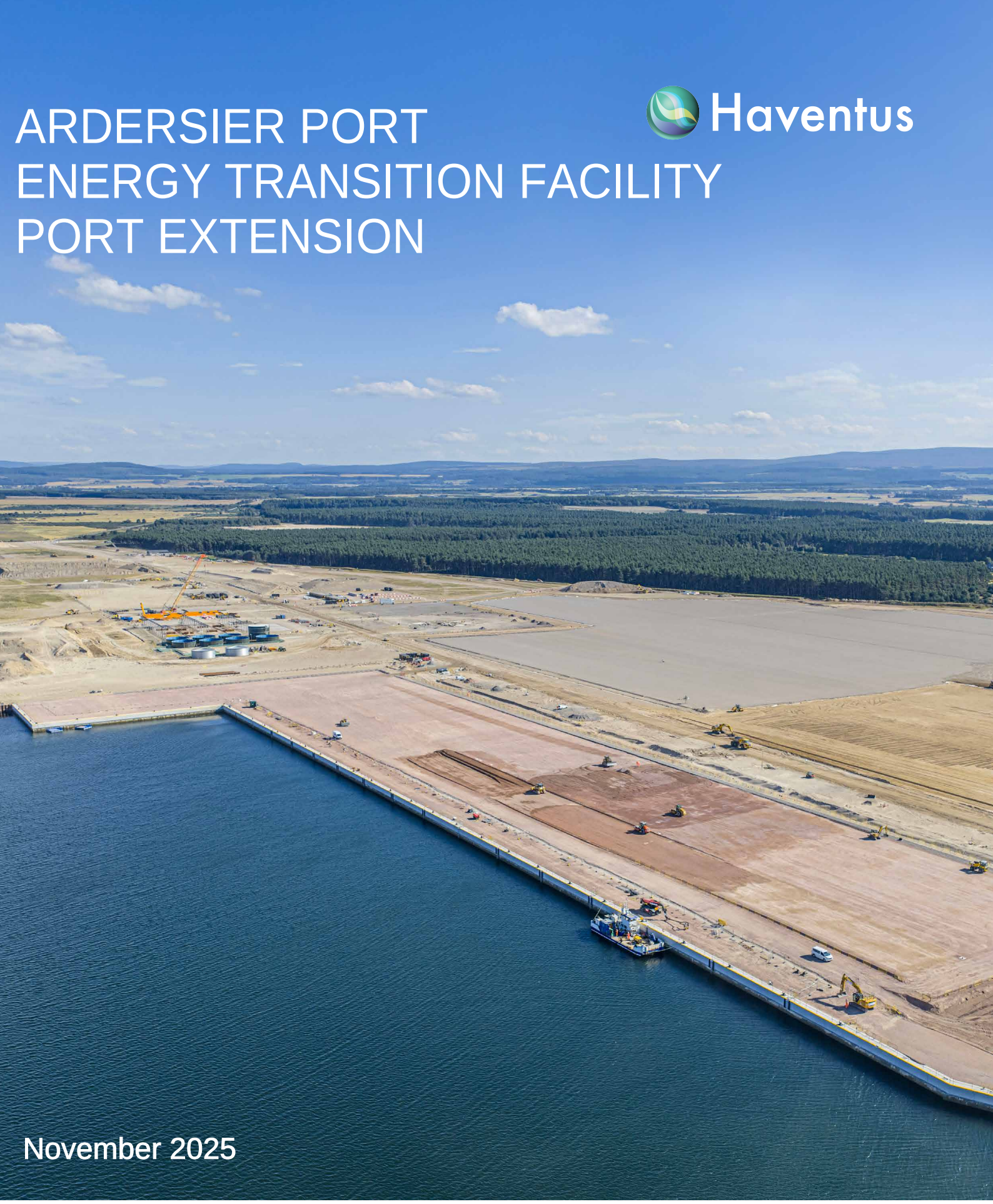

November 2025

Appendix 12.7 Red Squirrel

Haventus Ardersier Port

Technical Appendix: Red Squirrels

JULY 2025 FOR HAVENTUS

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Document prepared by:

Mhairi Duncan BSc (Hons)

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1.0 Background

This Technical Appendix (TA) was commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a suite of Protected Species Surveys (PSS), a red squirrel survey was carried out to establish the presence of red squirrels within the site area and surrounding 50m. The purpose of this red squirrel survey was to provide baseline data to inform a comprehensive assessment of the predicted impact on red squirrels during the construction and operation phases of the facility. The survey findings are provided within this document along with industry-approved guidance on licensing requirements, recommended mitigation and compensation initiatives.

2.0 Methodology

2.1 Red Squirrel Survey Methodology

This survey adopted industry approved methods by Gurnell., 2009 involving a walkover of the site boundary and a suitable buffer out with, where safe access allowed (50m buffer allocated). The survey was undertaken by an experienced ecologist from HED Ltd over five days in Spring 2025 under fair weather conditions.

A drey counting survey method was undertaken as a proxy of red squirrel presence whereby suspected active dreys/tree dens were numbered and geo-tagged. Other field signs such as feeding perches and incidental sightings were also noted to gather evidence on the activity status and purpose of dreys identified. All field signs were recorded and georeferenced using the mobile application *Avenza Maps* and later mapped digitally using QGIS (*version 3.36.1*).

The purpose of this survey was to collect baseline data on red squirrel presence and drey mapping to inform pre-felling surveys at a later stage. An assumption of drey activity status was recorded based on the appearance of the drey from a ground level assessment. If the drey appeared unkempt (loose/falling twigs with daylight passing through gaps) it was deduced that the drey was likely inactive at the time of the survey, in line with survey guidance. A conclusive assessment of drey activity status via ground-level surveillance or climbed inspection was not required at this stage.

2.2 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey. This does not confirm that species are absent from an area or will not be present in the future. Squirrel dreys are semi-permanent in nature, therefore the number of dreys counted within one survey season is not a direct reflection of the density of red squirrels within a single season.

3.0 Results

3.1 Red Squirrel Survey

The survey area offers favourable red squirrel habitat supported by an abundance of dreys (many of which assumed to be active at the time of visit), fresh feeding signs, and incidental red squirrel sightings. A public road separates the plantation proposed for re-development and another Scot's pine plantation to the South, however both areas of plantation are considered to support healthy populations of red squirrels, evidenced by the abundance of field signs suggesting adequate connectivity between the plantations. Table 1 below outlines the dreys recorded within the survey area.

Table 1: Summary of Red Squirrel Drey Counts

Ref	Tree Tag	Feature	Status	Grid Reference
001	Tag 0129	Drey	Active	NH 81125 57382
002	Tag 0131	Drey	Active	NH 81034 57245
003	Tag 0132	Drey	Active	NH 80867 57295
004	Tag 0134	Drey	Active	NH 80806 57200
005	Tag 0135	Drey	Active	NH 80637 56805
006	Tag 0140	Drey	Active	NH 80779 57319
007	Tag 0145	Drey	Active	NH 80736 57322
008	Tag 0146	Drey	Active	NH 80768 57387
009	Tag 0411	Drey	Active	NH 80872 57410
010	Tag 0142	Drey	Active	NH 80933 57481
011	Tag 0414	Dreys (x2)	Active	NH 80835 57492
012	Tag 0417	Drey	Active	NH 80666 57444
013	Tag 0444	Drey	Active	NH 81384 57315
014	Tag 1146	Drey	Active	NH 81250 57289
015	Tag 0445	Drey	Inactive	NH 81245 57297
016	Tag 0447	Drey	Active	NH 81211 57260
017	Tag 0452	Drey	Active	NH 81137 57269
018	Tag 0449	Drey	Active	NH 81140 57293
019	Tag 0453	Drey	Active	NH 80975 57507
020	Tag 0457	Drey	Active	NH 80405 57441
021	Tag 0457	Drey	Active	NH 80358 57418

022	Tag 0459	Drey	Inactive	NH 80359 57417
023	Tag 0183	Drey	Active	NH 80185 57430
024	Tag 0184	Drey	Active	NH 80313 57554
025	Tag 0188	Drey	Active	NH 81707 56485
026	Tag 0187	Drey	Active	NH 81576 56535
027	Tag 0186	Drey	Active	NH 81503 56568
028	Tag 0443	Drey	Active	NH 81380 57341
029	Untagged	Drey	Active	NH 81148 57140
030	Untagged	Drey	Active	NH 81010 57104
031	Untagged	Drey	Active	NH 81042 56933
032	Untagged	Drey	Active	NH 80753 56806
033	Tag 0194	Drey	Active	NH 80743 56711
034	Tag 0189	Drey	Active	NH 79688 57621
035	Tag 0190	Drey	Active	NH 79694 57626
036	Tag 0192	Drey	Active	NH 82798 55540

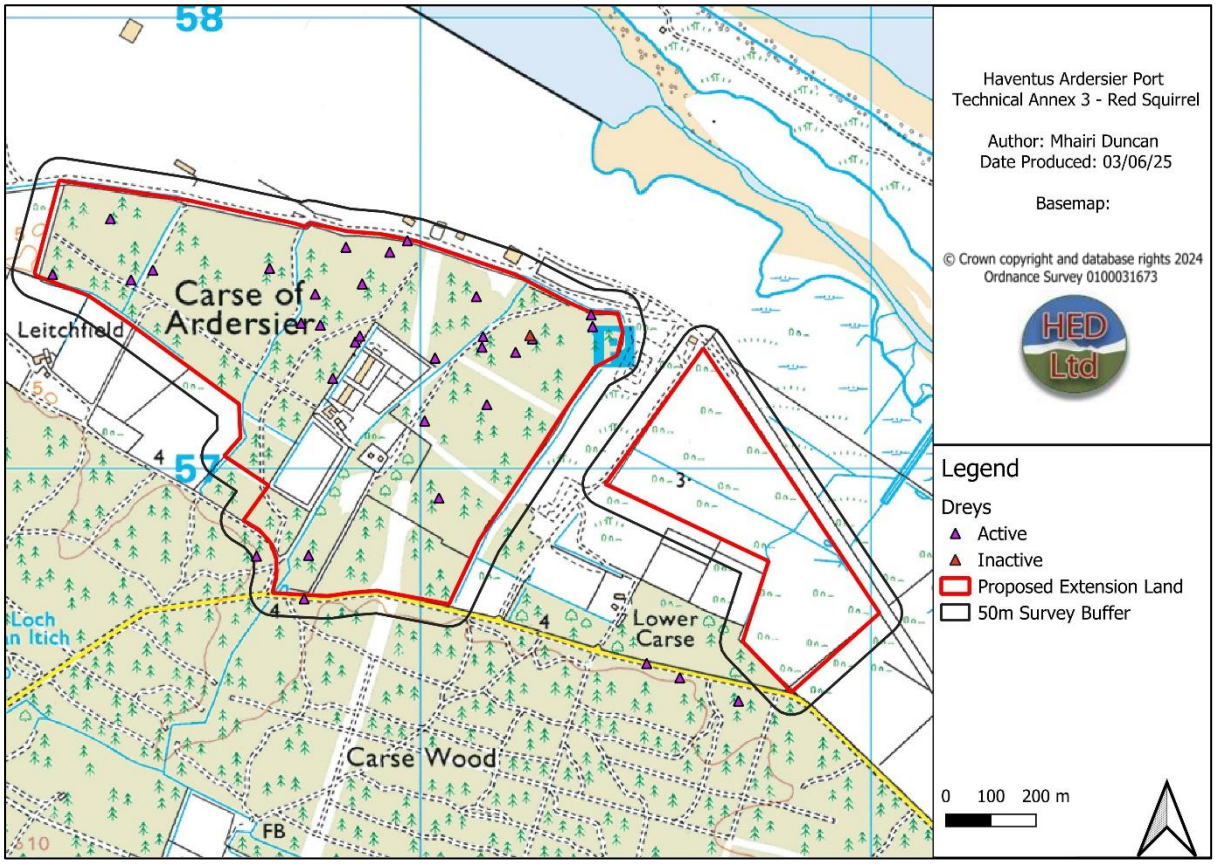

Figure 1: Technical Appendix 3 Red Squirrel Drey Map

4.0 Survey Images

Table 2: Examples of red squirrel dreys recorded during the survey

Ref	Description	Image
001	Active drey (Tag 0129) Located next to stem. Approx. >5m high. Well-provisioned drey (no gaps or light passing through) Feeding stations nearby indicate activity.	
002	Active dreys (Tag 0414) 2x situated on neighbouring trees (<3m apart). Both are well provisioned.	
003	Inactive drey (Tag 0445) Unkempt in appearance (light showing through gaps, fallen branches on top) Potentially the previous year's drey.	

004	Active drey (Untagged). Located at NH 81148 57140. Well consolidated appearance with a well-used feeding station at the base of the tree.	

5.0 References

Gurnell, J (2009). FCS Guidance Note 33: Practical techniques for surveying and monitoring squirrels

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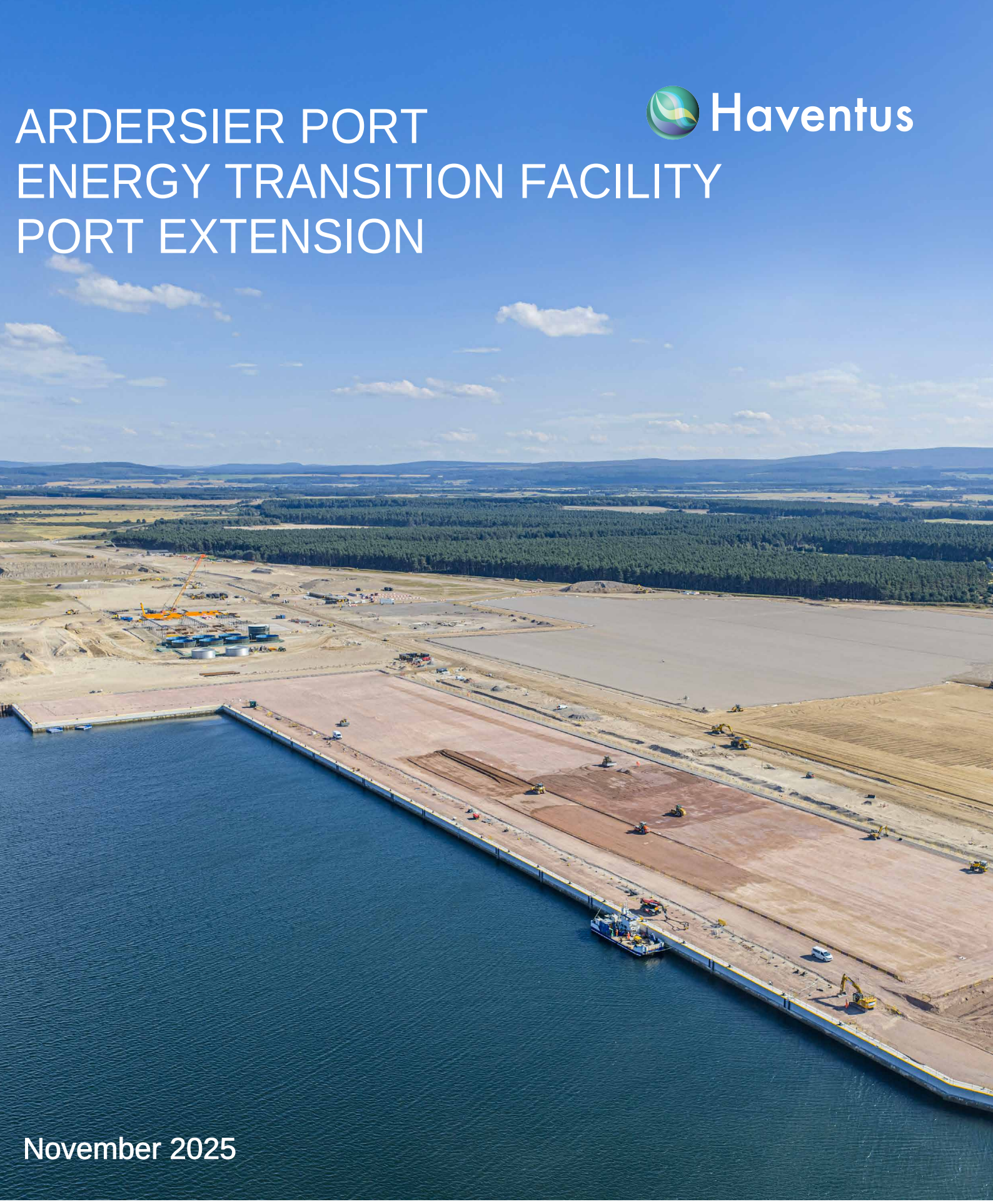

November 2025

Appendix 12.8 Pine Marten

Haventus Ardersier Port

Technical Appendix: Pine Marten

JULY 2025 FOR HAVENTUS

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Eilidh Milne BSc (Hons) MSc

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1.0 Background

This Technical Appendix (TA) was commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a suite of Protected Species Surveys (PSS), a pine marten survey was carried out to establish the presence of pine marten within the site area and surrounding 50m. The purpose of this pine marten survey was to gather baseline data to inform a comprehensive assessment of the predicted impact the construction and operation phase of the port facility will have on pine marten populations. The survey findings are provided within this document along with industry-approved guidance on licensing requirements, recommended mitigation and compensation initiatives.

2.0 Methodology

2.1 Pine Marten Survey Methodology

The survey methodology was informed by guidance from Birks (2012) in *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation* (The Mammal Society), which outlines appropriate field techniques for detecting pine martens and assessing the impacts of development on the species.

The purpose of this survey was to collect baseline data on pine marten presence within the port expansion area to inform further pre-felling surveys at a later stage. The survey was undertaken by an experienced ecologist from HED Ltd over five days in Spring 2025 under fair weather conditions. The port extension area and a 50m buffer zone out with it were surveyed (where accessible). The following field signs were searched for.

- **Scat:** Systematic searches were conducted along tracks, trails, forest rides, and stone walls, where pine martens will typically territory.
- **Dens/resting sites:** Pine marten use a wide variety of features for denning such as tree cavities, rock crevices or old birds' nests or red squirrel dreys. They can be challenging to positively identify due to the range of features used. Where accessible and without disturbance, potential den sites such as large tree cavities, disused setts, and dense brash were visually assessed for evidence of use as a den (e.g., scats, prey remains, bedding).
- **Feeding remains:** Pine marten often leave partially eaten small mammals, birds or eggs. They may also leave caches of food hidden near dens.
- **Prints:** Around 4 – 5cm in length, with 5 toes although often only 4 show clearly. Claw marks may also be visible due. Their 'T' shaped interdigital pad may also be visible.

All field signs were recorded and georeferenced using the mobile application *Avenza Maps* and later mapped digitally using QGIS (*version 3.36.1*).

2.2 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey. This does not confirm that species are absent from an area or will not be present in the future.

Pine martens are known to use a wide variety of structures for denning, including tree cavities, rock crevices, disused badger setts, and red squirrel dreys. Many of these features, particularly those located high in the canopy or within dense woodland, are difficult to access or inspect directly during ground-based surveys. As such, the absence of confirmed den sites during the survey does not rule out their presence within the site.

It is noted that the surveys were not conducted during the optimal season for pine marten, as it advised that surveys take place in July or August when scat is typically most abundant (NatureScot, 2024). As scat was identified during the survey, this is not anticipated to have impacted the efficacy of the survey effort. Further, some sections of the survey area were inaccessible at the time of survey due to access constraints. These are shown in Figure 1. Since the areas were not observed to contain suitable denning habitat, this is not expected to have had a substantial impact on the efficacy of the survey.

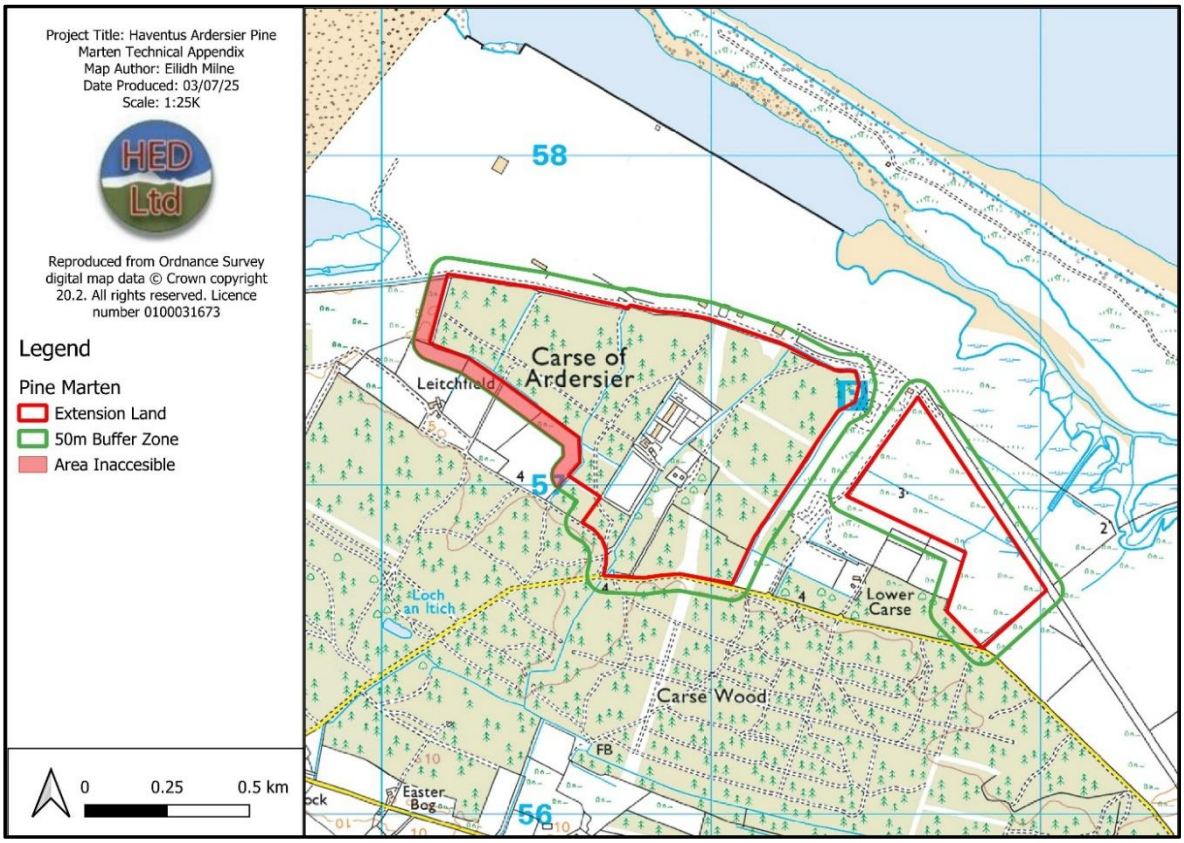


Figure 1: Access constraints

3.0 Results

The proposed expansion area provides high-quality habitat, suitable for pine marten occupation. Pine marten presence within the area was confirmed through the following observations:

- Pine marten scat was identified at NH 80990 57106.
- Camera trap monitoring of a badger sett captured incidental footage of an individual pine marten foraging (NH 80725 57563).

x6 observations of pine marten scat were also recorded by HED Ltd ecologists during a protected species survey in 2024. The location of these observations is given in Figure 2.

No pine marten dens were identified on the site, however the survey area, and particularly the Scots pine plantation, contains numerous features suitable for pine marten denning. These include red squirrel dreys, badger setts, tree cavities and brash piles. The location of squirrel dreys and badger setts are presented in Appendix 2.

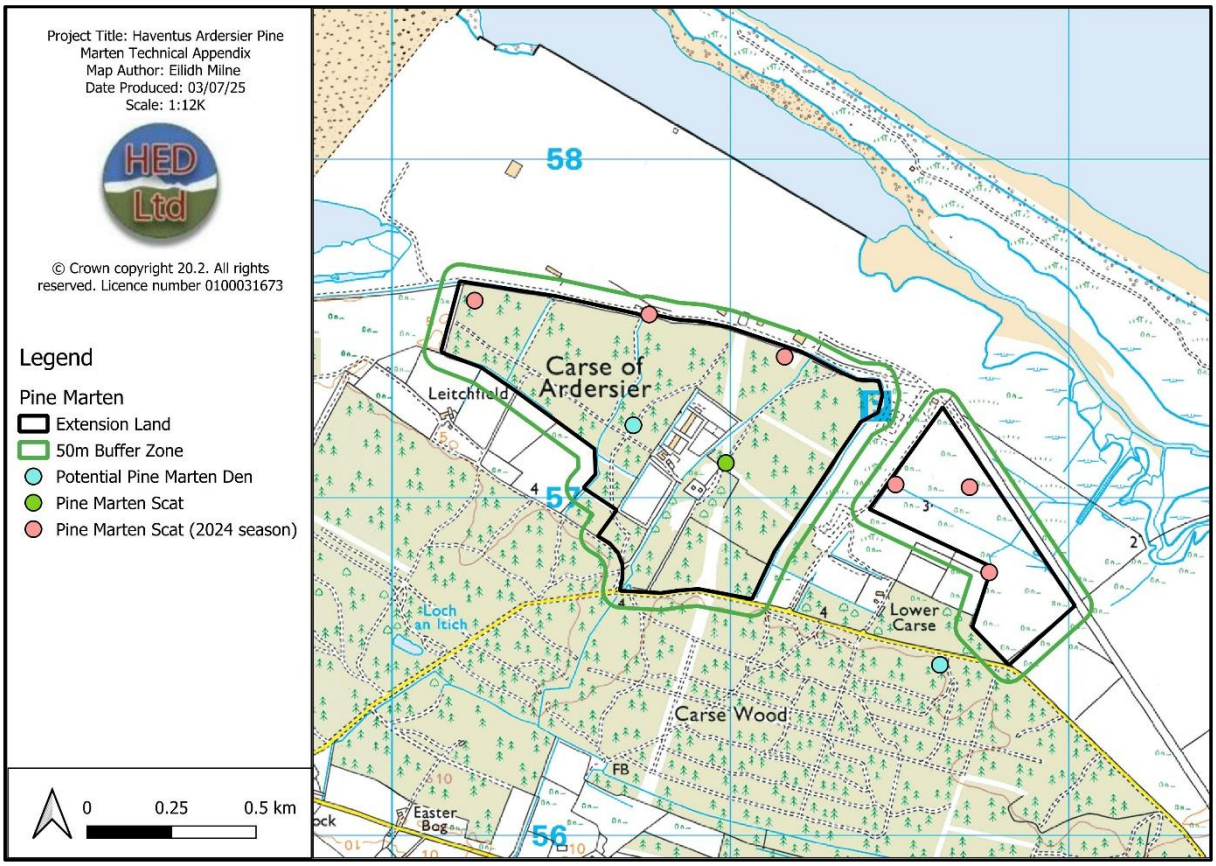


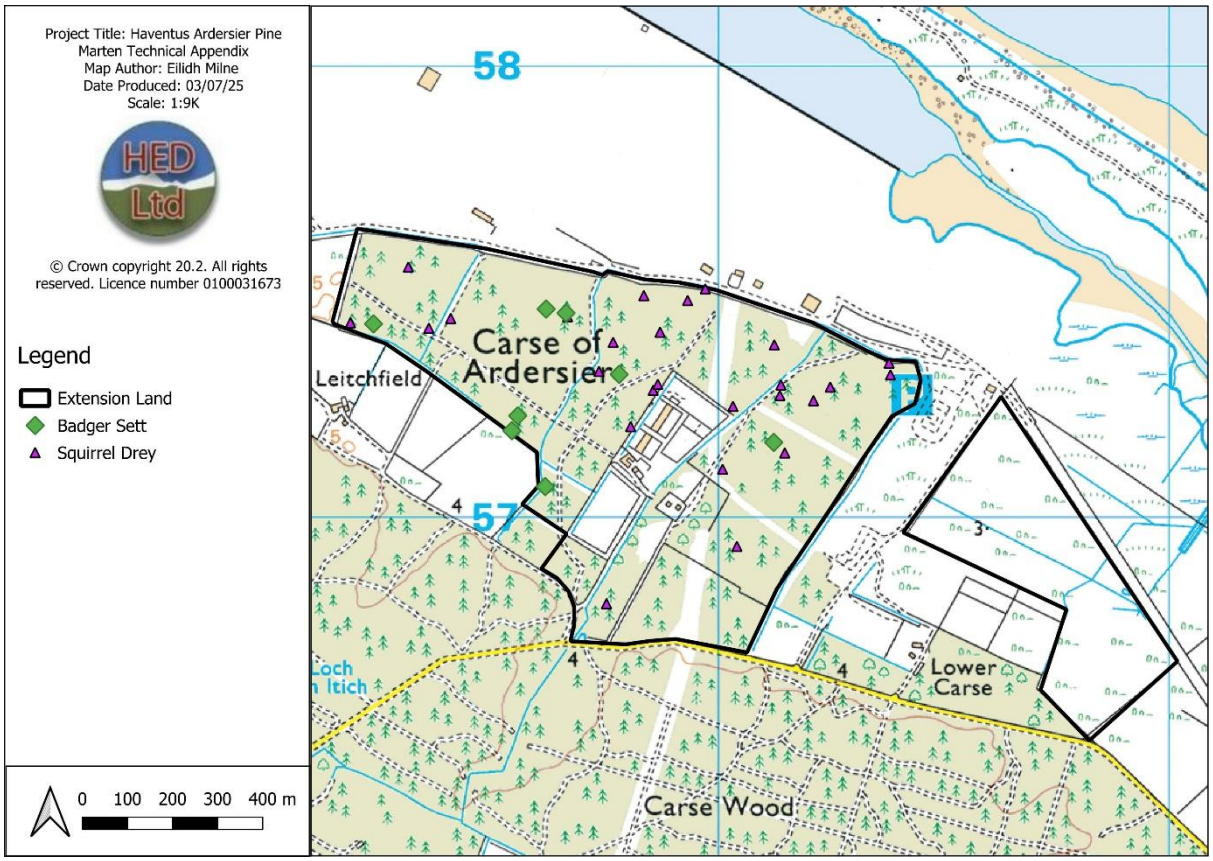
Figure 2: Survey results

Appendix 1: Survey Images

Table 1: Examples of red squirrel dreys recorded during the survey

Ref	Description	Image
1	Pine marten scat. 280985, 857099.	
2	Pine marten foraging around sett, caught on camera trap. 280725 857563.	
3	Possible pine marten den, identified at 280719 857205.	

Appendix 2: Suitable Denning Features



4.0 References

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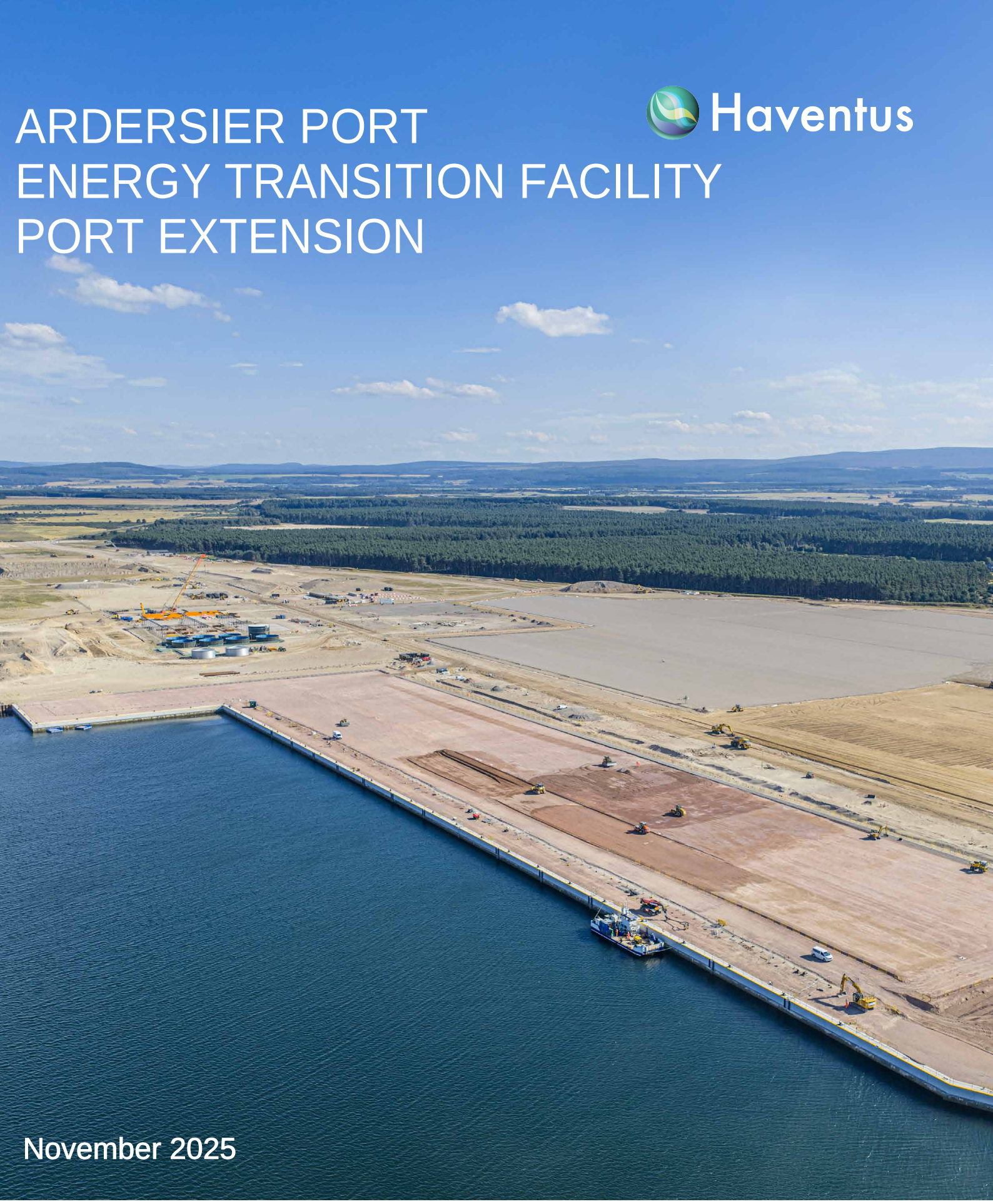

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Appendix 12.9 Otter

Haventus Ardersier Port

Technical Appendix: Otter

JULY 2025 FOR HAVENTUS

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Phil Hempborough BSc (Hons)

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1.0 Background

This Technical Appendix was commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a suite of Protected Species Surveys (PSS), an otter survey was carried out to establish the presence of otter within the site area and surrounding 250m. This was to provide baseline data to inform a comprehensive assessment of the predicted impact on otters during the construction and operation phases of the facility.

2.0 Methodology

2.1 Otter Survey Methodology

The survey methodology was informed by guidance from The Mammal Society, which outlines appropriate field techniques for detecting otters.

The purpose of this survey was to collect baseline data on otter presence to inform further pre-development surveys at a later stage. The survey was undertaken by an experienced ecologist from HED Ltd in Spring 2025 under fair weather conditions. The port extension area and a 250m buffer zone around it were surveyed (where accessible). The surveyor followed the banks of known waterways through the site in search of the following field signs:

- **Footprints:** Otter tracks can often be found in mud and sand close to waterbodies. They are roughly 40-80mm across and show four or five toes. Claw marks are not always present and sometimes the webbing between the toes can also be seen.
- **Feeding signs:** Otters will drag fish onto the bank to feed and leave the head behind. Remains of mussels and crabs with bite marks can also be found, as well as grayfish claws.
- **Holts:** On riverbanks, holts are found amongst tree roots, underbrush, bushes, piles of boulders, or small holes in the bank. A good indicator is the presence of spraints, tracks and the characteristic smooth wear at entrances and smell.
- **Spraints:** Spraints are the droppings of otters, which they use to mark their territories. They have minimal ‘goo’ and are typically packed with fish scales, fish bones, hollow frog bones, and similar remains. This makes the droppings very crumbly. They smell like fish with a hint of jasmine tea. The colour is black but can be pink if they consume a lot of crayfish.

All field signs were recorded and georeferenced using the mobile application *Avenza Maps* and later mapped digitally using QGIS (*version 3.38.3*).

2.2 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey. This does not confirm that species are absent from an area or will not be present in the future.

Further some sections of the survey area were inaccessible at the time of survey due to access constraints. These are shown in Figure 1. Since the areas were not observed to contain suitable denning habitat, this is not expected to have impacted the efficacy of the survey.

3.0 Results

3.1 Otter Survey

Though the survey area provides suitable otter habitats, no signs of otter activity were found during the survey. Several distinct aquatic habitats were present throughout the survey area, detailed in Figure 1 below.

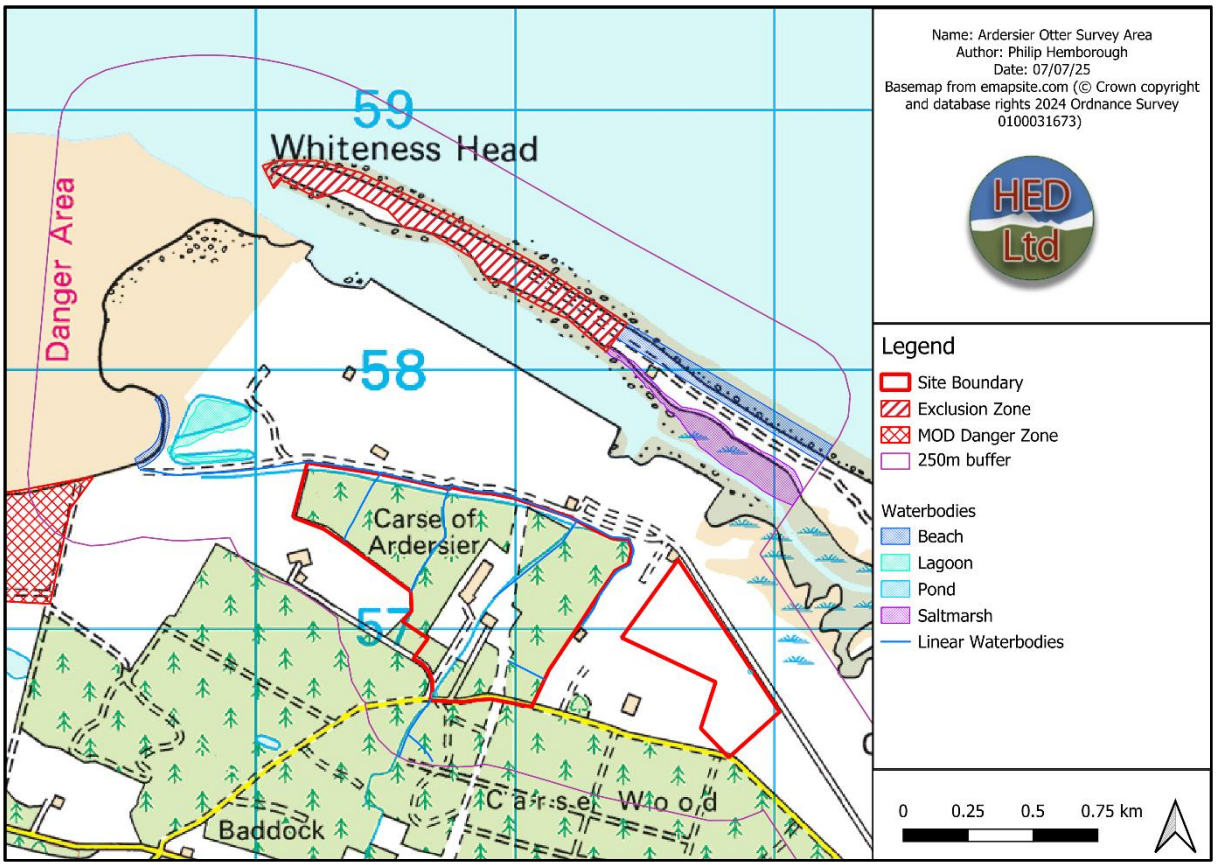

Figure 1: Map detailing the aquatic habitats surveyed.

4.0 Conclusion and Recommendations

Due to the lack of noted otter activity, there is likely to be little impact to otters directly onsite or in the immediate area. However, a search of online records show that historically otters have been observed in the area. It is recommended that an otter Species Protection Plan (SPP) be in place during works in the event that an otter or holt is discovered during the works period. The otter survey should be repeated no more than 3 months prior to the works to confirm there has been no substantial change regarding otter presence.

4.1 Legislation

Otters are designated as European Protected Species and are thus protected in European Law under the Habitats Directive (Annex II and IV of EC Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora).

In the Scottish legal framework, they are protected under the Conservation of Habitats and Species Regulations 2017. Regulation 41 of this legislation affords otter and their shelters legal protection. It is an offence to:

· Deliberately or recklessly kill, injure or take (capture) an otter;

· Deliberately or recklessly disturb or harass an otter;

· Damage, destroy or obstruct access to a breeding site or resting place of an otter. (Protected Species - Otters, 2023

5.0 References

Otter (2025). Mammal Society. [online] Mammal Society. Available at: https://mammal.org.uk/british-mammals/otter [Accessed 07.07.25]

Protected Species - Otters. (2023). Retrieved from NatureScot: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-otters

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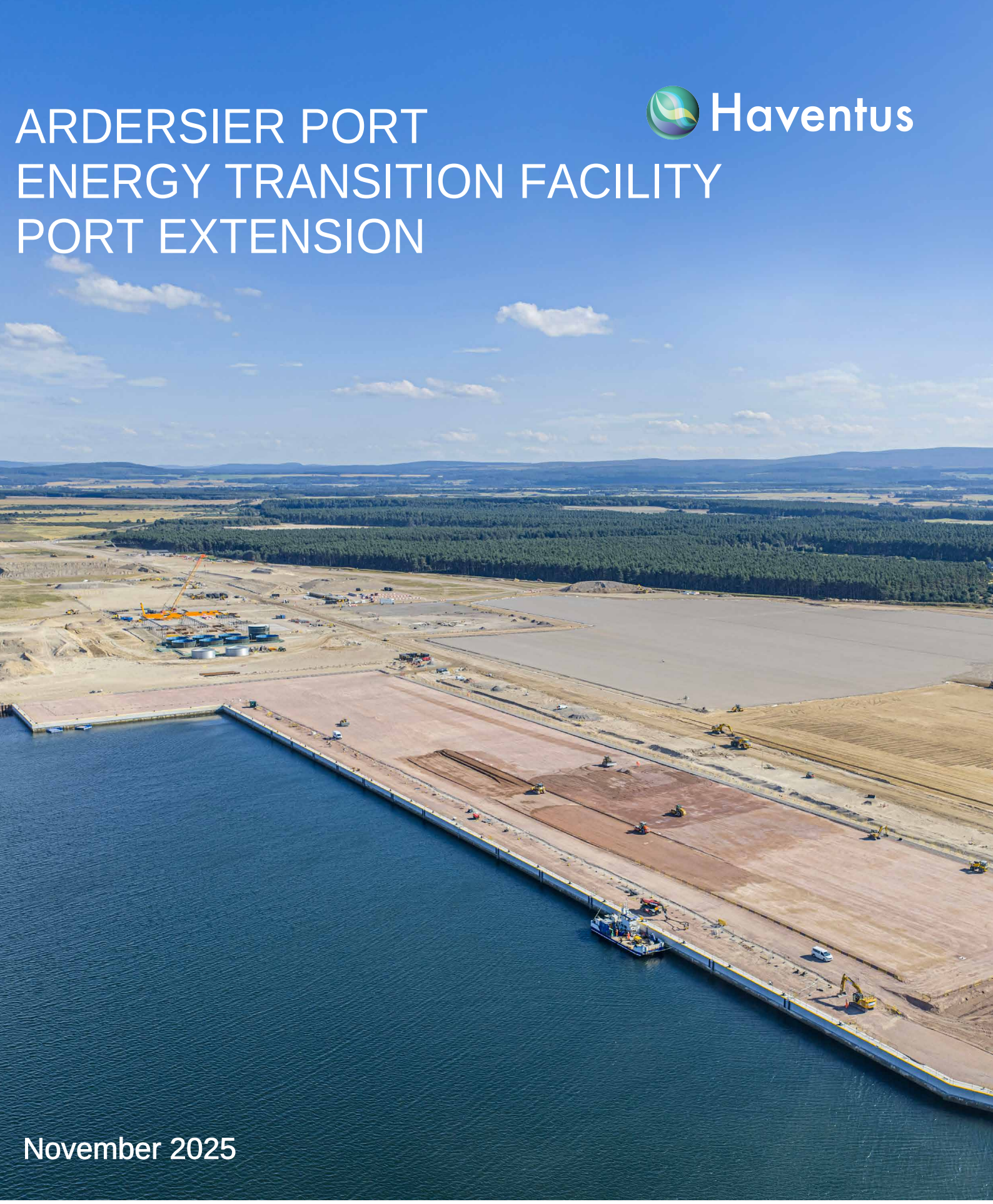

November 2025

Appendix 12.10 Great Crested Newt eDNA Report

Haventus Ardersier Port

Technical Appendix: Great Crested Newt

JULY 2025 FOR HAVENTUS

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1.0 Background

This Technical Appendix is commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a suite of Protected Species Surveys (PSS), a Habitat Suitability Index (HSI) and subsequent Environmental DNA (eDNA) analysis was carried out on bodies of freshwater within 500m of site (Figure 1) in order to establish the possible presence of Great Crested Newts (GCN). The findings from the HIS and eDNA analysis are intended to inform a comprehensive assessment of the predicted impact on GCN populations associated with the proposed development.

2.0 Methodology

2.1 Habitat Suitability Index

In order to establish the habitat suitability of each of the sampled ponds for GCN, a HSI survey was undertaken. Developed by Oldham et al. (2000), it is widely accepted by the Amphian and Reptile Groups of the UK (ARGUK) to be a viable method for estimating the habitat suitability of a pond for GCN (ARGUK, 2010). The survey consists of assigning a numerical value to ten environmental factors, including location, pond ephemeralness, fish and bird populations, to produce a habitat suitability score for GCN.

2.2 Environmental DNA analysis

In conjunction with HSI, an eDNA analysis of each of the identified ponds was undertaken on 23rd May 2025. eDNA surveys ideally need to be undertaken during the breeding season (15th April – 30th June) in order to have the greatest likelihood of detecting GCN presence. eDNA surveys works by analysing the DNA found within the local environment for specific species, if GCN are using the ponds for breeding purposes, then their DNA will be detected by this survey. During the survey, water samples were collected from around the perimeter of the ponds in order to maximise the chances of collecting GCN DNA. Once these samples are collected together, they are mixed and decanted into six tubes filled with preservative solution, this provides six replicants for the laboratory to analyse and confirm their findings (Surescreen Scientifics, 2023).

2.3 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey; this does not confirm that species are absent from an area or will not be present in the future.

2.4 Pond

Locations

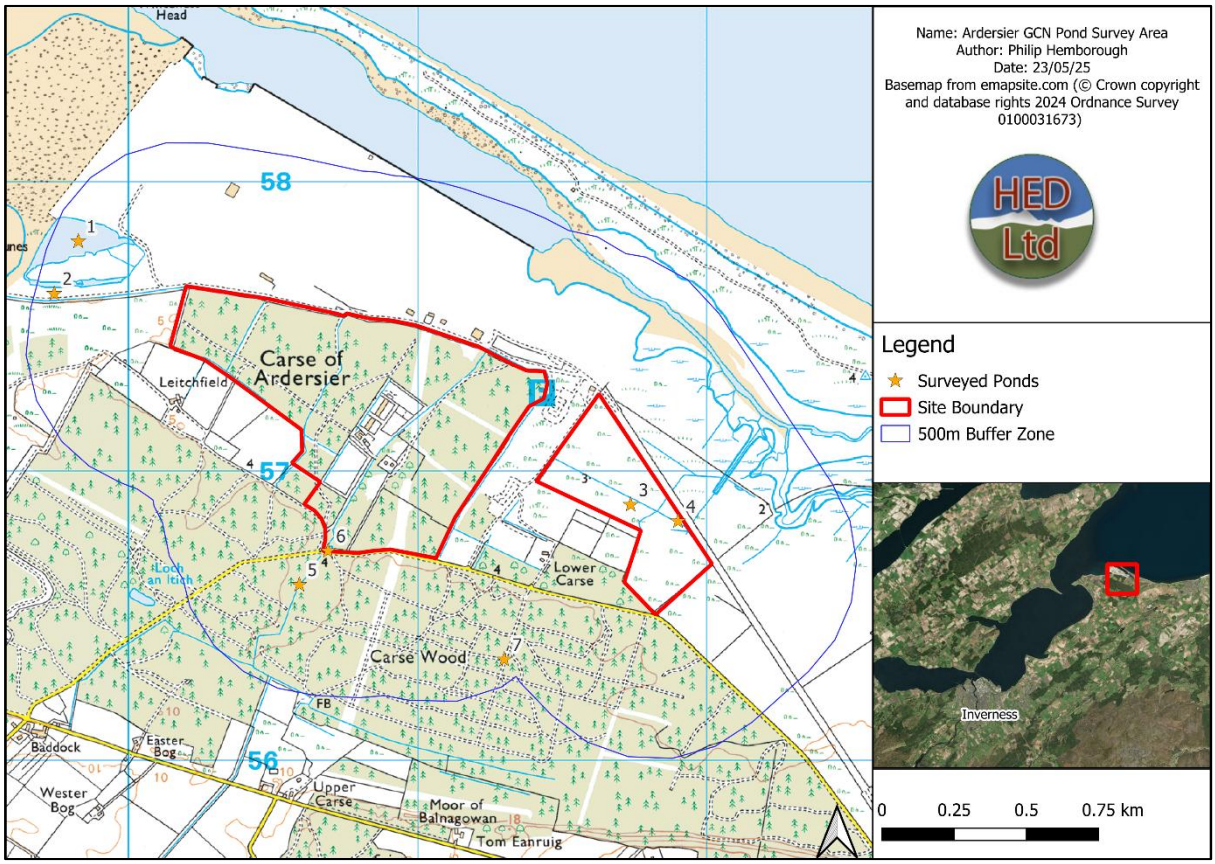

Figure 1: Map detailing the locations of surveyed ponds for GCN presence.

3.0 Results

3.1 Pond 1 (NH 79809 57790)

Description: A large brackish lagoon west of site, open water with a periphery of reeds and marshy grassland, leading onto a perimeter of trees on the embankment.

HSI: See Table 1 below.

Table 1: Habitat Suitability Index Pond 1

Factor	Score	Suitability Index
1) Geographic location	Zone C	0.01
2) Pond area	N/A	-
3) Permanence	Never dries	0.9
4) Water Quality	Good	1.0
5) Shade	<10%	1.0

6) Waterfowl	Major	0.01
7) Fish	Possible	0.67
8) Pond Count	0.32 ponds/km^2	0.45
9) Terrestrial Habitat	Good	1.0
10) Macrophytes	20%	0.5
Result	**Poor**	**0.29**

eDNA Result: Negative

3.2 Pond 2 (NH 79778 57627)

Description: A subsection of pond 1, this area is shallow and partially shaded. This area is considered distinct from pond 1 due to the cover provided by reeds and grasses, despite being connected.

HIS: See Table 2 below.

Table 2: Habitat Suitability Index Pond 2

Factor	Score	Suitability Index
1) Geographic location	Zone C	0.01
2) Pond area	N/A	-
3) Permanence	Never dries	0.9
4) Water Quality	Good	1.0
5) Shade	20%	1.0
6) Waterfowl	Minor	0.67
7) Fish	Possible	0.67
8) Pond Count	0.32 ponds/km^2	0.45
9) Terrestrial Habitat	Good	1.0
10) Macrophytes	80%	1.0
Result	**Below Average**	**0.50**

eDNA Result: Negative

3.3 Pond 3 (NH 81737 56886)

No results, pond unsuitable for GCN. During the survey this pond was completely dry when surveyed for HSI and eDNA.

3.4 Pond 4 (NH 81905 56833)

Description: A deep, peat-stained pond surrounded by marshy grassland, scrub and woodland. This area was once drained for grazing and has since begun to recover, with the drainage channels in a state of disrepair. The perimeter of the pond is partially shaded with gorse scrub and no floating plants were present, a significant population of tadpoles was noted during the survey.

HSI: See Table 3 below.

Table 3: Habitat Suitability Index Pond 4

Factor	Score	Suitability Index
1) Geographic location	Zone C	0.01
2) Pond area	~193m^2	0.4
3) Permanence	Rarely Dries	1.0
4) Water Quality	Moderate	0.67
5) Shade	40%	1.0
6) Waterfowl	Absent	1.0
7) Fish	Absent	1.0
8) Pond Count	<0.1 ponds/km^2	0.1
9) Terrestrial Habitat	Good	1.0
10) Macrophytes	0%	0.3
Result	**Poor**	**0.39**

eDNA Result: Negative

3.5 Pond 5 (NH 80629 56655)

Description: A large, linear, near stagnant pond. This appears to be a large drainage channel roughly 3m across. It is shaded by Scot's Pine plantations but has no floating plants or boundary plants for cover, very little invertebrate activity was noted during the survey.

HSI: See Table 4 below.

Table 4: Habitat Suitability Index Pond 5

Factor	Score	Suitability Index
1) Geographic location	Zone C	0.01
2) Pond area	~2000m^2	0.8

3) Permanence	Never Dries	0.9
4) Water Quality	Poor	0.33
5) Shade	80%	0.6
6) Waterfowl	Absent	1.0
7) Fish	Possible	0.67
8) Pond Count	0.32 ponds/km^2	0.45
9) Terrestrial Habitat	Good	1.0
10) Macrophytes	0%	0.3
Result	**Poor**	**0.41**

eDNA Results: Negative

3.6 Pond 6 (NH 80687 56731)

Description: Well sheltered and shallow, this pond seemed to be partially dried out but is fed by pond 5. The surrounding terrestrial habitat would be capable of supporting GCN.

HSI: See Table 5 below.

Table 5: Habitat Suitability Index Pond 6

Factor	Score	Suitability Index
1) Geographic location	Zone C	0.01
2) Pond area	~150m^2	0.3
3) Permanence	Sometimes Dries	0.5
4) Water Quality	Good	1.0
5) Shade	80%	0.6
6) Waterfowl	Minor	0.67
7) Fish	Absent	1.0
8) Pond Count	0.32 ponds/km^2	0.45
9) Terrestrial Habitat	Good	1.0
10) Macrophytes	80%	1.0
Results	**Poor**	**0.44**

eDNA Result: Negative

3.7 Pond 7 (NH 81295 56354)

No results, pond unsuitable for GCN. During the survey this pond was completely dry when surveyed for HSI and eDNA.

3.8 Results Summary

A summary of the HSI scores and eDNA results for all ponds sampled is provided in Table 6 below.

Table 6: Overall Survey Results

Pond Number	Habitat Suitability	eDNA Results
1	Poor	Negative
2	Below Average	Negative
3	N/A	N/A
4	Poor	Negative
5	Poor	Negative
6	Poor	Negative
7	N/A	N/A

Despite the high habitat suitability of several of the ponds surveyed, eDNA analysis shows that no breeding GCN were present in or around these ponds during, or up to several weeks prior to (Biggs, 2024), the surveys. However, a search of available online resources shows several records of GCN within the surrounding area, particularly to the south-east of site with the latest record being from 2018. Given the historical presence and habitat suitability for GCN, it is recommended that a Species Protection Plan (SPP) be put in place prior to the proposed development taking place.

4.0 References

ARG UK (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom.

Biggs J., et al. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt Defra Project WC1067 Appendix 5. Oxford: Freshwater Habitats Trust.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10(4), 143-155.

SureScreen Scientifics (2023). Great Crested Newt eDNA Guidance. Available at: https://www.surescreenscientifics.com/wp-content/uploads/2023/03/Detailed-GCN-Sample-Collection-Guidance-V4-1.pdf.

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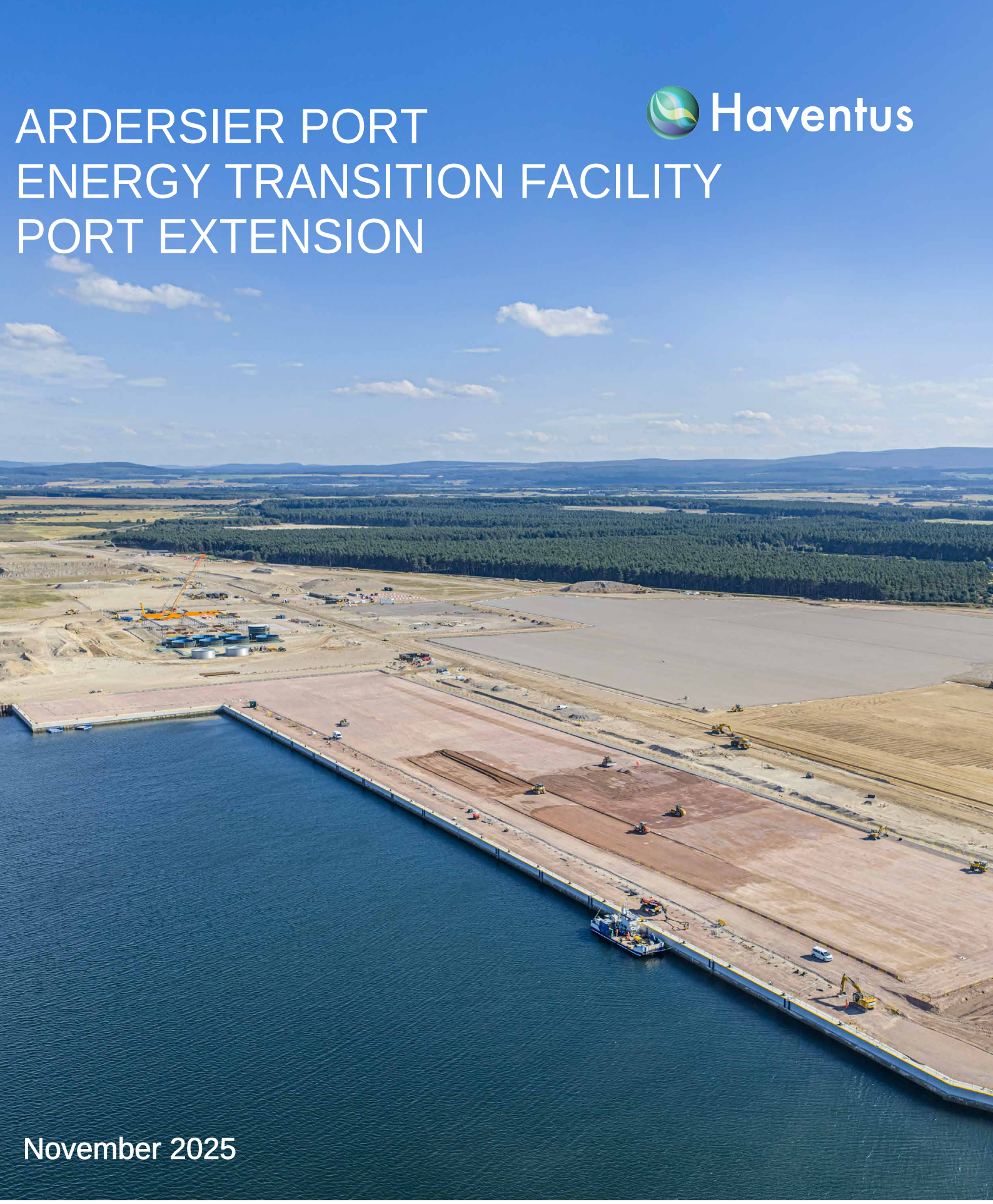

November 2025

Appendix 12.11 Reptile Report

Haventus Ardersier Port

Technical Appendix 09: Reptiles

JULY 2025 FOR HAVENTUS

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Philip Hemborough

BSc (Hons)

Ecologist

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1.0 Background

This technical appendix is commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a package of ecological baseline studies, reptile surveys were undertaken to establish the presence of reptiles within the site and map areas of potential refugia/hibernacula within the existing site and proposed clearance area. The findings from the reptile surveys are intended to inform a comprehensive assessment of the predicted impact on reptiles principally by habitat loss associated with the proposed development.

2.0 Methodology

2.1 Reptile Survey

The reptile surveys were carried out during the optimal survey period (late March – May). The purpose of the surveys was to map areas of suitable habitats to support reptiles, then use artificial cover objects (ACOs) to encourage reptiles to shelter beneath, where upon the ACOs could be manually checked in order to establish reptile presence in the area.

The ACOs selected for this survey were 50cm x 50cm roofing felts which were deployed at density of 1 per ha within approximately 100ha of suitable habitat present within the existing site and proposed clearance area, in line with industry recommendations (Catherine., 2024).

All ACOs and suitable habitats were recorded and georeferenced using the mobile application *Avenza Maps* and later mapped digitally using QGIS (*version 3.36.1*), the results of survey are detailed in Figure 1 and Table 1 below.

2.2 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey; this does not confirm that species are absent from an area or will not be present in the future.

3.0 Results

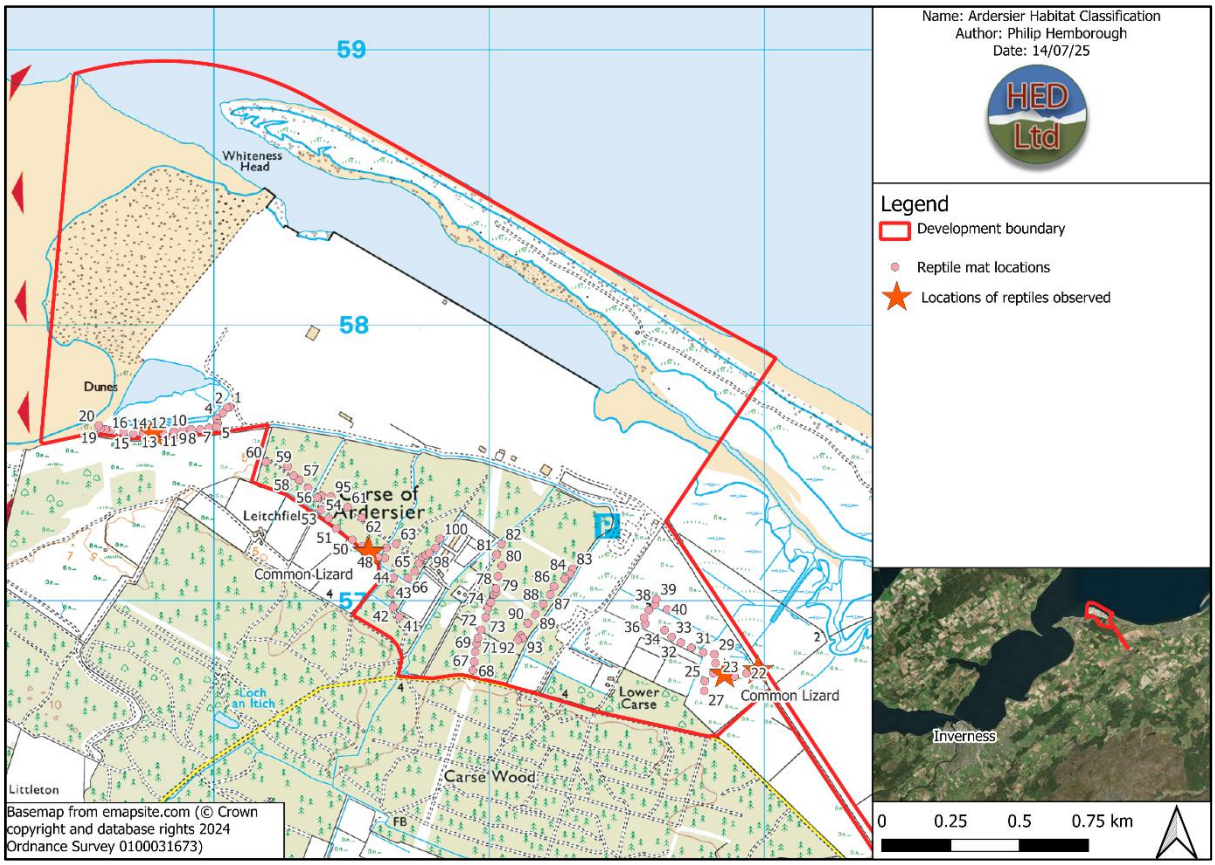

Figure 1: Map of proposed development area with locations of reptile mats and reptile observations.

Table 1: Detailing the reptiles observed over the course of the survey period.

Target Note	Description	Grid Reference
001	Adult common lizard observed basking on refugia (log pile) near ACO-137	NH 80564 57171
002	Adult common lizard observed beneath ACO 110	NH 81976 56742
003	Common lizard observed beneath ACO-113	NH 81856 56732
004	Common lizard observed beneath ACO-102	NH 79778 57609
005	Adult common lizards x3 observed beneath ACO-110	NH 81976 56742
006	Adult common lizards x2 observed beneath ACO-137	NH 80564 57171

007	Common toad observed under ACO-159	NH 80948 56814
008	Common toad observed under AC0-120	NH 81735 56829
009	Common lizard observed under ACO-113	NH 81858 56731

4.0 Conclusion and Recommendations

Over the course of the survey, ten common lizards (Zootoca vivipara) were observed using the ACOs over the course of seven visits. These observations were not limited to a single area but were also not spread out uniformly across the survey area; this suggests that although there is much suitable habitat, a limited population of reptiles are likely to be present across the site.

Due to the large amount of suitable habitat and confirmed reptile presence, there are some recommendations to be taken into account when planning for removal of said habitats of the proposed development scheme.

Firstly, any refugia/hibernacula should be left in place if possible to do so, however if these structures are to be removed, it should be done softly by machine or by hand with an ecological clerk of works (ECoW) supervising. This should be done between the months of April – September Cathrine, C. (2024) in order to avoid disturbing hibernating reptiles.

Secondly, any habitat removal should be done under the supervision of a suitably trained ecologist and within the months afore mentioned in order to minimise the risk to hibernating reptiles.

5.0 Survey Images

Target Note	Description	Image
001	Adult common lizard observed basking on refugia (log pile) near ACO-137	
003	Adult common lizards x2 observed beneath ACO-137 (1 photographed).	

6.0 References

Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Cathrine, C. (2024). ARG UK Advice Note 10: Reptile Survey and Mitigation Guidance for Peatland Habitats. Version 2. Amphibian and Reptile Groups of the United Kingdom.

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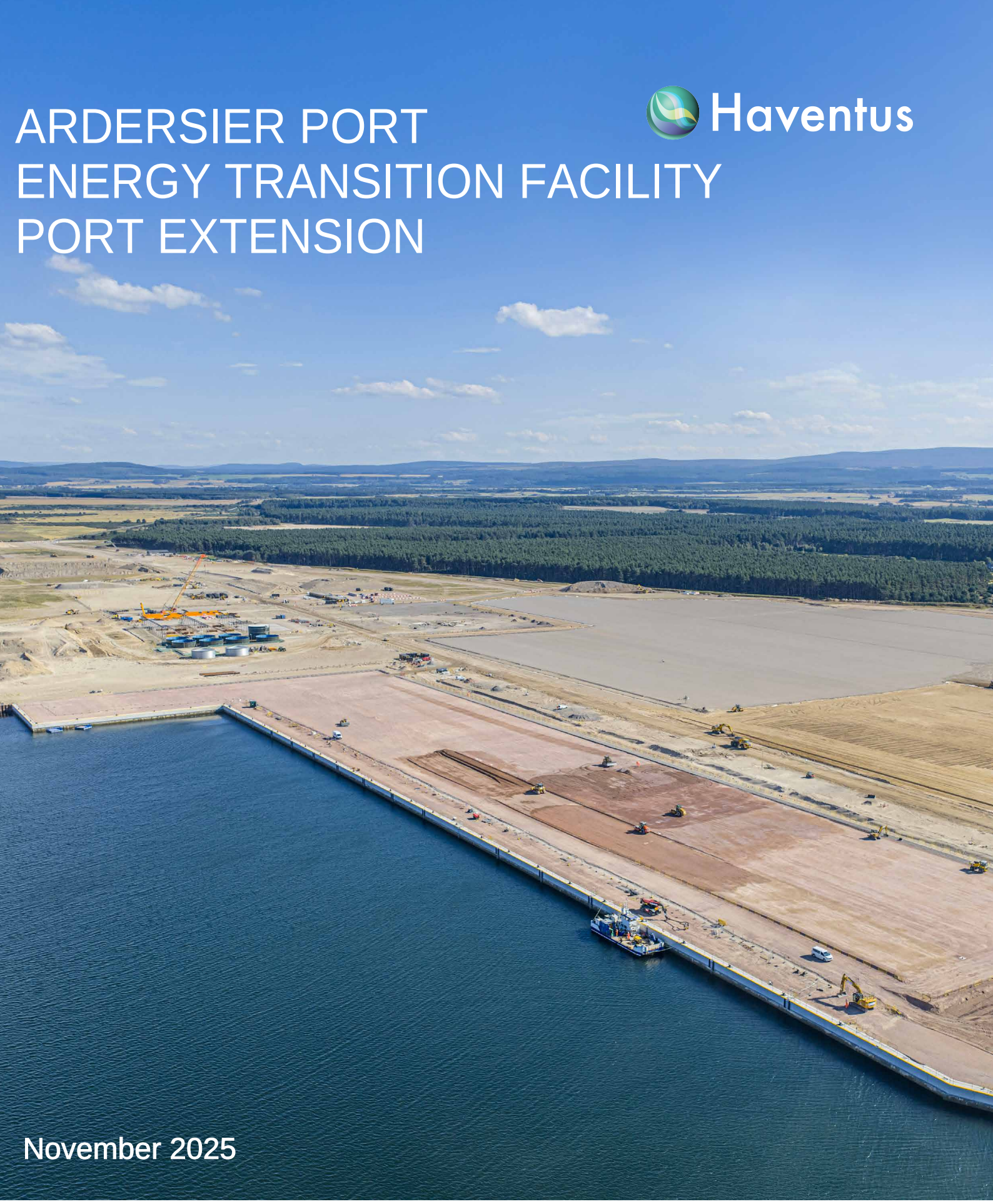

November 2025

Appendix 12.12 Water Vole Report

Haventus Ardersier Port

Technical Appendix: Water Vole

JULY 2025 FOR HAVENTUS

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Mhairi Duncan BSc (Hons)

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1.0 Background

This Technical Appendix was commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a suite of Protected Species Surveys (PSS), a water vole survey was carried out to establish the presence of water vole within the proposed expansion area and waterbodies up to 250m out with, displayed in Figure 1 below. The purpose of this survey was to provide updated baseline data to inform a comprehensive assessment of the predicted impact on water voles during the construction and operation phases of the facility. The survey findings are provided within this document along with industry-approved guidance on licensing requirements, recommended mitigation and compensation initiatives.

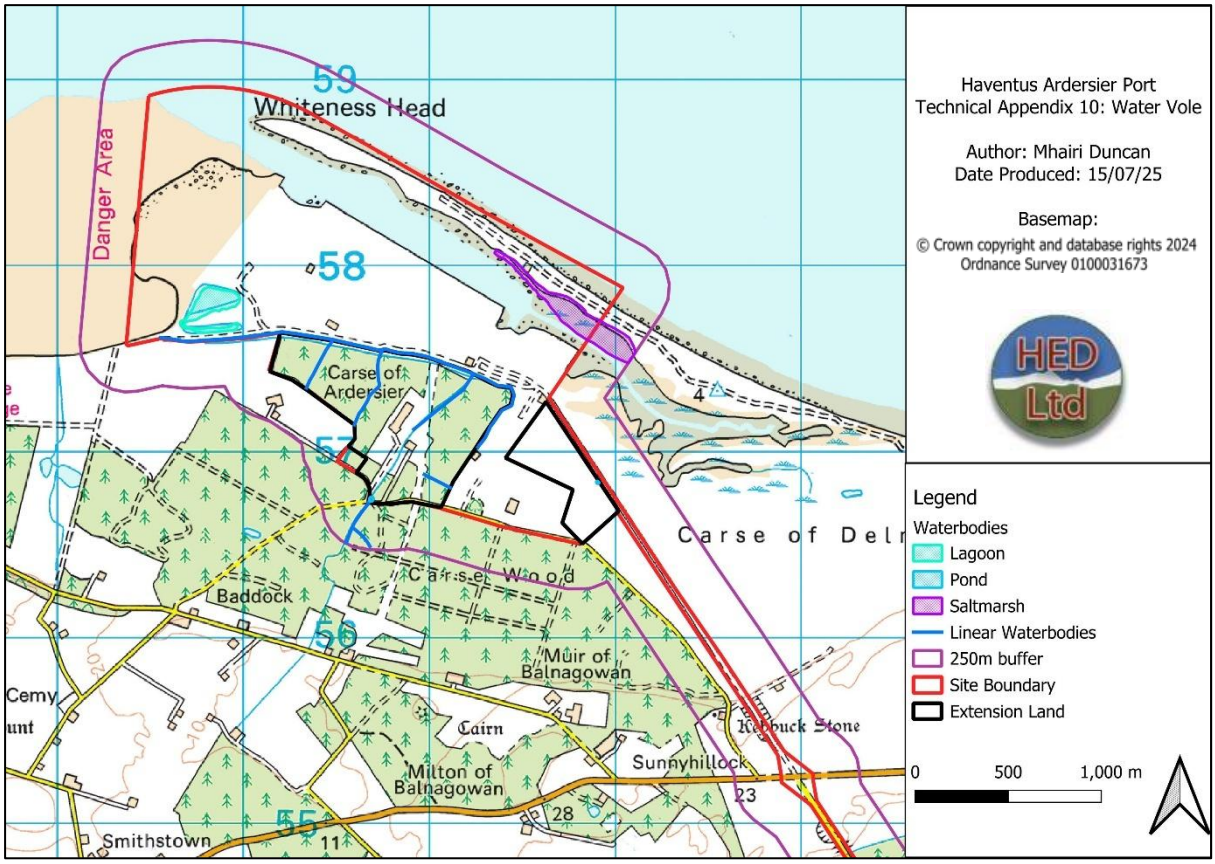


Figure 1: Water Vole Survey Area

2.0 Methodology

2.1 Water Vole Survey Methodology

This survey adopted industry approved methods by Dean et al., 2016 involving a walkover of the site boundary and a suitable buffer out with, where safe access allowed (250m buffer allocated). The survey was undertaken by experienced ecologists from HED Ltd over 2 days between May and July 2025 under fair weather conditions avoiding periods of heavy rainfall.

A field survey was undertaken involving 2no. surveyors walking along the banks of waterbodies (up to 10m from toe, where safe access allowed) within the survey area. During the survey, the suitability of the habitat to support water voles and field signs indicative of water vole activity were searched for using binoculars, hand lenses and measuring implements. Habitat suitability was assessed based on the following factors: availability and connectivity of waterbodies; bank profile; presence of suitable above-water nesting/burrowing substrate; depth, flow and fluctuation of watercourse; and availability of herbaceous vegetation for foraging and sheltering purposes. Field signs searched for included burrows, above-ground nests, latrines, feeding remains, prints and trails. Field signs of key predators were also recorded, in line with industry guidance. All field signs identified were recorded and georeferenced using the mobile application *Avenza Maps* and later mapped digitally using QGIS (*version 3.36.1*).

2.2 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey. This does not confirm that species are absent from an area or will not be present in the future. Sections of the ditches within the plantation woodland could not be accessed within 5m of the toe of the ditch due to dense gorse cover. It is not anticipated that this significantly impacted the overall assessment of the ditches.

3.0 Results

3.1 Water Vole Survey

The survey area presented a number of distinct aquatic habitats including lagoon, pond, saltmarsh and tidal ditches. The lagoon, saltmarsh and tidal ditches were suspected to be brackish due to their proximity and connectivity with the shoreline as well as the presence of salt-tolerant plant species. The waterbodies surveyed presented moderate suitability to support water voles, based on their slow-flow rate, gradually sloped embankments, suitable burrowing/nesting substrate and moderate herbaceous vegetation cover.

Despite there being suitable resting, foraging and commuting habitats present, no field signs evident of water voles were observed during the surveys. Evidence of key predators included plucks, recent and historic nests, and incidental sightings of raptors (Buzzards), in addition to anecdotal evidence of cats and pine marten within the survey area. In support of these findings, there have been no historic records of water vole within a 1km radius of the proposed expansion area according to online databases.

4.0 Survey Images

Table 1: Examples of water vole habitat surveyed.

Ref	Description	Image
1	Overview of saltmarsh environment located Northeast of proposed expansion area. Photograph taken at low tide.	
2	Overview of lagoon located on Northwestern corner of site. Suitable bank-side and in-channel herbaceous vegetation cover, slow flowing waterbody with suitable burrowing substrate.	
3	Tidal ditch running across edge of proposed expansion area and site haul road. Suitable bank substrate for burrowing, moderate herbaceous vegetation over.	

4	Tidal ditch cutting through proposed expansion area (plantation woodland). Bank substrate suitable for burrowing, low-moderate herbaceous vegetation cover.	
5	Freshwater pond located within scrubland area East of proposed expansion area.	

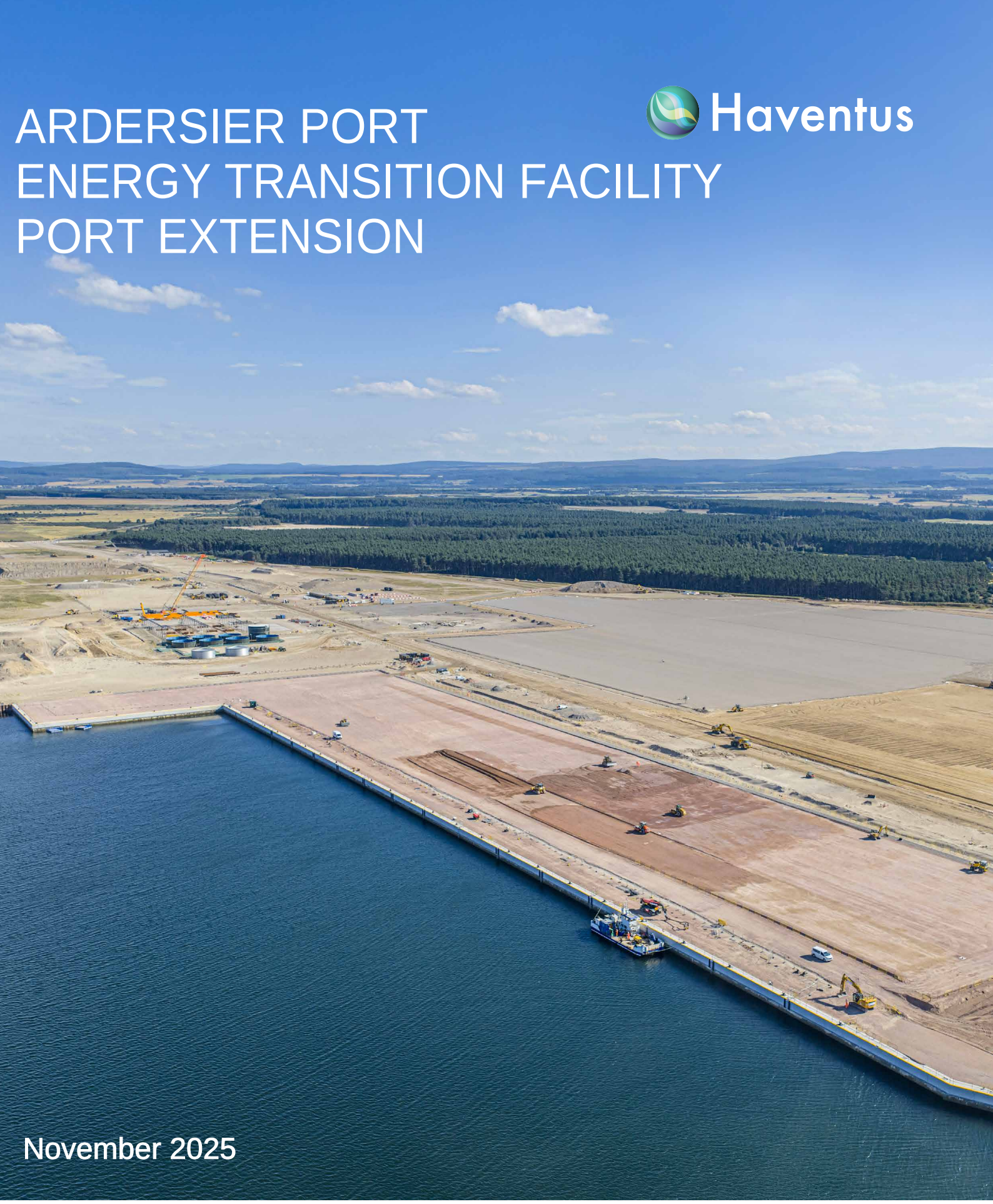
5.0 References

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

NatureScot, (2024). Standing advice for planning consultations – Water Voles. Available at: Standing advice for planning consultations - Water Voles | NatureScot [Accessed 09.07.25]

ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.13 Phase 1 and Habitat Condition Assessment

Haventus Ardersier Port

Technical Appendix: Phase 1 and Habitat Condition Assessment

JULY 2025 FOR HAVENTUS

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1.0 Background

This Technical Appendix is commissioned by Haventus in respect of proposals for the expansion of the Ardersier Port redevelopment area. As part of a suite of surveys, a Phase 1 Habitat Survey and Habitat Condition Assessments were undertaken across the site in order to establish a habitat baseline prior to development.

2.0 Methodology

2.1 Phase 1 Habitat Survey

In order to establish which habitats are present within the proposed development boundary, a habitat survey and condition assessment was undertaken using the UK Habitats (UKHabs) classification system version 2.0 (UKHab Ltd., 2023). The UKHabs system is based upon the physical characteristics of a habitat and on the plant species found there, with several habitat types categorised by specific identifier species. The habitat survey took place over several days, through April and May, in order to sufficiently cover the various habitats. During the survey, habitat parcels and plants species lists were mapped and noted using the application *Avenza Maps 5.4.2* and then digitally mapped using *QGIS 3.38.3*, the results are shown in figure 1.

2.2 Habitat Condition Assessment

In conjunction with the habitat survey, a Habitat Condition Assessment was carried out in order to assess the quality of various habitat parcels. The condition assessment used the Statutory Biodiversity Metric Condition Assessment methodology (DEFRA, 2024), where set criterion for each habitat must be reached in order achieve the various levels of condition. This metric is used as a standard way to assess the perceived quality of a habitat relative to the ideal conditions for that habitat. The results of the condition assessment are shown in figure 2 and table 1.

2.3 Limitations

Ecological surveys are limited by several factors that affect the presence of flora and fauna (weather, climate, animal behaviour, etc). Evidence of protected species and/or invasive species is not always found during a survey; this does not confirm that species are absent from an area or will not be present in the future. These surveys were undertaken in favourable weather conditions and at a time of year when most flowering plants were in bloom in order to assist with their identification.

3.0 Results

3.1 Habitat Survey

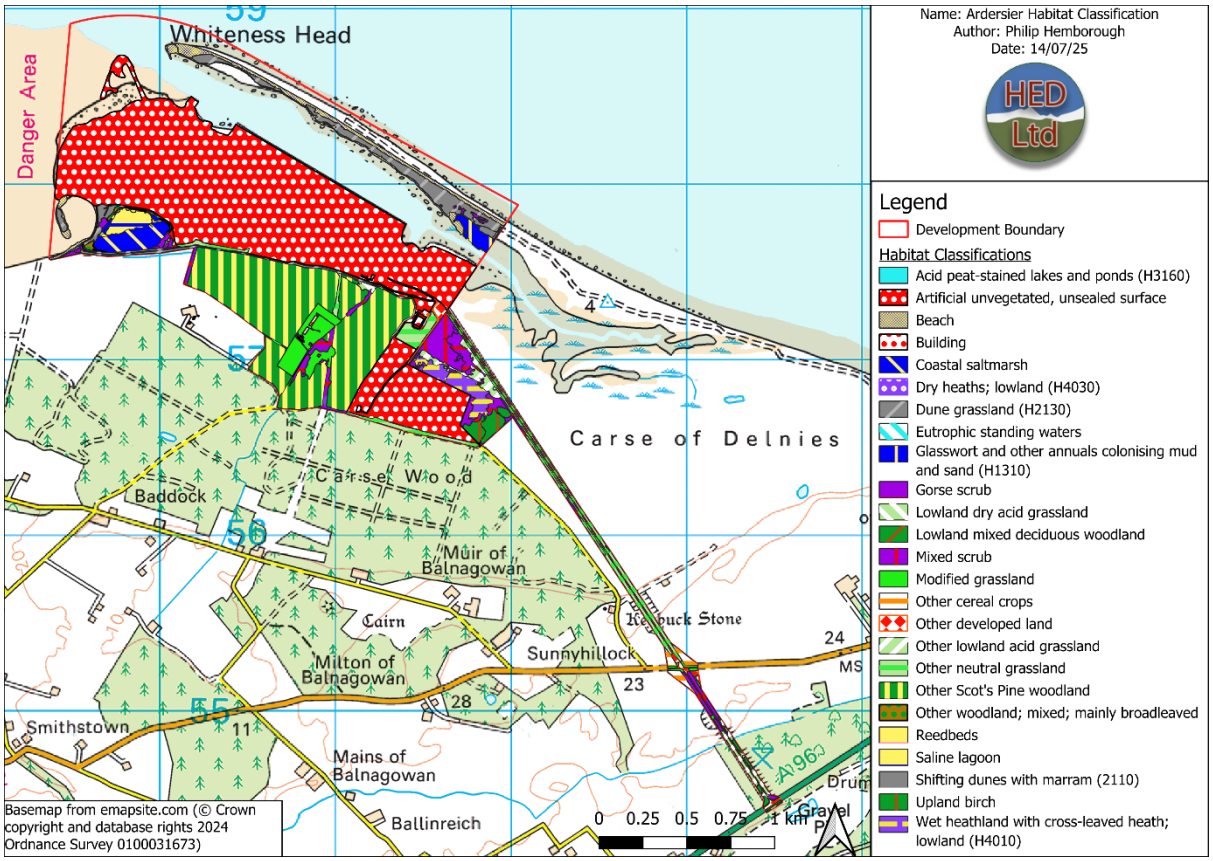


Figure 1: Map showing the habitat classifications of the area within the proposed development boundary.

3.2 Habitat Condition Assessment

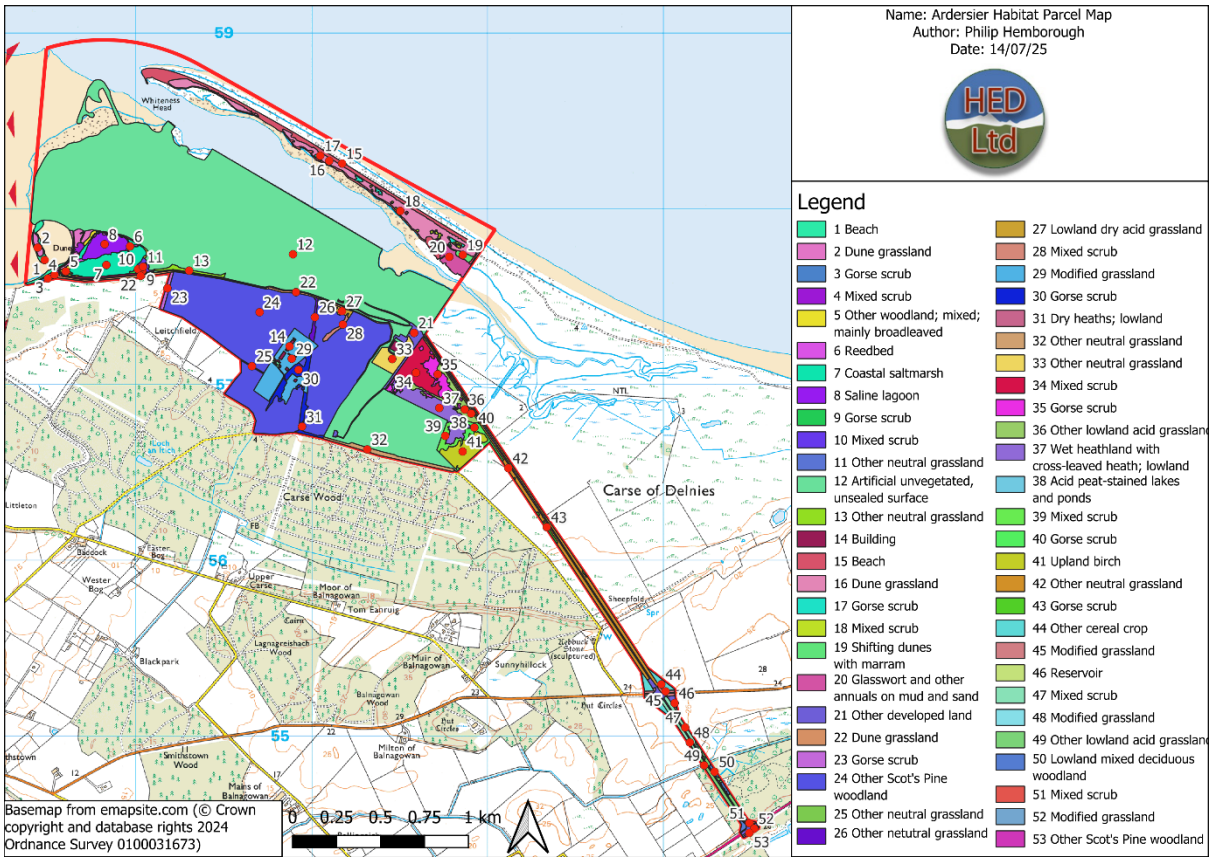


Figure 2: Map detailing the layout of distinct habitat parcels of the proposed development at Ardersier green port.

Table 1: A summary of habitats and associated results of condition assessment.

Parcel Number	Habitat Classification	Habitat Condition
1	Beach	Good
2	Dune grassland	Poor
3	Gorse scrub	Moderate
4	Mixed scrub	Moderate
5	Other woodland; mixed; mainly broadleaved	Moderate
6	Reedbed	Good
7	Coastal saltmarsh	Good
8	Saline lagoon	Good
9	Gorse scrub	Moderate
10	Mixed scrub	Moderate
11	Other neutral grassland	Poor
12	Artificial unvegetated, unsealed surface	N/A
13	Other neutral grassland	Poor

14	Building	N/A
15	Beach	Good
16	Dune grassland	Poor
17	Gorse scrub	Poor
18	Mixed scrub	Poor
19	Shifting dunes with marram	Moderate
20	Glasswort and other annuals on mud or sand	Good
21	Other developed land	N/A
22	Dune grassland	Poor
23	Gorse scrub	Moderate
24	Other Scot's Pine woodland	Poor
25	Other neutral grassland	Poor
26	Other neutral grassland	Moderate
27	Lowland dry acid grassland	Moderate
28	Mixed scrub	Moderate
29	Modified grassland	Poor
30	Gorse scrub	Moderate
31	Dry heaths; lowland	Good
32	Other neutral grassland	Poor
33	Other neutral grassland	Poor
34	Mixed scrub	Good
35	Gorse scrub	Good
36	Other lowland acid grassland	Moderate
37	Wet heathland with cross-leaved heath; lowland	Good
38	Acid peat-stained lakes and ponds	Fairly Poor
39	Mixed scrub	Good
40	Gorse scrub	Good
41	Upland birchwood	Moderate
42	Other neutral grassland	Moderate
43	Gorse scrub	Moderate
44	Other cereal crop	N/A
45	Modified grassland	Poor
46	Reservoir	N/A

47	Mixed scrub	Moderate
48	Modified grassland	Poor
49	Other lowland acid grassland	Good
50	Lowland mixed deciduous woodland	Moderate
51	Mixed scrub	Good
52	Modified grassland	Poor
53	Other Scot's Pine woodland	Poor

Below is given a summary of each habitat classification observed during the survey as detailed in Figure 1.

Acid peat-stained lakes and ponds (r1c7) - A small, shallow, nutrient-poor freshwater body typically found in heathland or bog landscapes. The water is darkly stained with humic acids leached from surrounding peat soils, giving it a brown or tea-colored appearance. These ponds are usually acidic (pH < 6), with low conductivity and sparse aquatic vegetation adapted to low-nutrient, acidic conditions.

Beach (t2h) - A dynamic coastal habitat comprising unconsolidated sediments such as sand, shingle, pebbles, or cobbles, shaped by tidal and wave action. Beaches are typically found between high and low tide marks and can range from steep, coarse shingle shores to flat, sandy expanses.

Coastal saltmarsh (t2a) - A low-lying, vegetated intertidal habitat found on sheltered coasts, estuaries, and behind barrier systems, regularly flooded by saline or brackish tidal waters. Saltmarshes develop on fine sediments like silts and clays and are characterised by zoned vegetation with species adapted to saline conditions.

Dry heaths: lowland (h1a5) - A nutrient-poor, acidic habitat found on free-draining, sandy or gravelly soils in lowland areas, typically below 300 m altitude. Dominated by dwarf shrubs such as *Calluna vulgaris* (heather), *Erica cinerea* (bell heather), and *Ulex spp.* (gorse), often with a mosaic of grasses, mosses, and lichens.

Dune grassland (s3a7) - A semi-natural habitat found on stabilized sand dunes, typically located inland from mobile foredunes along the coast. Characterised by species-rich grassland on calcareous or neutral sandy soils, dune grasslands support a diverse flora including Festuca, Galium, Lotus, and Carex species, along with lichens and mosses.

Glasswort and other annuals on mud or sand (t2a5) - A pioneer coastal habitat found on intertidal mudflats and sandflats, particularly in estuaries and sheltered bays. It is dominated by salt-tolerant annual plants such as *Salicornia* spp. (glasswort), *Suaeda maritima* (annual sea-blite), and other halophytes that colonise bare, often waterlogged sediments. This habitat typically occurs at the lower margins of saltmarshes and represents an early stage in saltmarsh succession.

Gorse scrub (h3e) - A dense, spiny shrub-dominated habitat typically found on nutrient-poor, acidic soils in lowland heaths, grasslands, and upland fringes. Dominated by *Ulex* species (commonly *Ulex europaeus* or *Ulex gallii*), often mixed with other shrubs like *Cytisus scoparius* (broom) or young trees.

Lowland dry acid grassland (g1a) - A species-rich grassland habitat found on free-draining, nutrient-poor, acidic soils in lowland areas, often associated with heaths, commons, and sandy or gravelly substrates. Dominant grasses typically include *Festuca ovina* (sheep's fescue), *Agrostis capillaris* (common bent), and *Anthoxanthum odoratum* (sweet vernal grass), with characteristic herbs such as *Galium saxatile* and *Rumex acetosella*.

Lowland mixed deciduous woodland (w1f) - A broadleaved woodland habitat found across lowland Britain, typically on base-poor to neutral soils. It features a mix of native tree species such as *Quercus robur* (pedunculate oak), *Betula* spp. (birch), *Fraxinus excelsior* (ash), and *Acer campestre* (field maple), often with a well-developed understorey of shrubs like *Corylus avellana* (hazel) and *Crataegus monogyna* (hawthorn).

Mixed scrub (h3h) - A transitional habitat dominated by a variety of native and non-native woody shrubs, often including *Crataegus monogyna* (hawthorn), *Prunus spinosa* (blackthorn), *Rosa* spp., *Corylus avellana* (hazel), and sometimes young trees such as *Betula* spp. or *Quercus robur*. Found on a range of soils in lowland and upland fringe areas, mixed scrub often develops through natural succession on abandoned grassland, heathland, or disturbed ground.

Modified grassland (g4) - Grassland habitats that have been significantly altered by agricultural management, fertilisation, reseeding, or drainage, resulting in reduced species diversity and often dominated by productive grasses and herbs such as *Lolium perenne* (perennial ryegrass) and *Trifolium repens* (white clover). These grasslands typically occur in lowland pastoral or arable landscapes and support fewer specialist or conservation-important species compared to semi-natural grasslands.

Other lowland acid grassland (g1d) - A broad category encompassing various acidophilous (acid-loving) habitats found in lowland areas on acidic, nutrient-poor soils. This includes

habitats such as acid grasslands, heathlands, and acid woodlands that do not fall neatly into more specific classifications. These habitats are characterised by low pH soils, supporting specialised plant communities adapted to acidic conditions, including ericaceous shrubs, acid-tolerant grasses, and mosses. They often occur on sandy, gravelly, or peat soils and provide important refuges for acid-adapted flora and fauna.

Other neutral grassland (g3c) - Grassland habitats found on well-drained, neutral to slightly acidic soils that do not fit into the main semi-natural grassland types like MG (mesotrophic) communities. These grasslands often have a moderate species diversity and can include both improved and semi-improved swards with grasses such as *Agrostis capillaris* (common bent), *Holcus lanatus* (Yorkshire fog), and herbs like *Plantago lanceolata* (ribwort plantain). They occur in a variety of lowland and upland fringe locations, often as part of pastoral or mixed farming landscapes, and may act as transitional or secondary habitats between more defined grassland types.

Other Scot's Pine woodland (w2b) - Woodland dominated by *Pinus sylvestris* (Scot's pine) occurring outside of the primary native Caledonian pinewood areas, often planted or secondary in origin. These woodlands typically grow on acidic, well-drained soils in upland or lowland settings and may include a mixture of native and non-native understorey species such as heather (*Calluna vulgaris*), bilberry (*Vaccinium myrtillus*), and grasses.

Other woodland; mixed; mainly broadleaved (w1h5) - Woodland dominated by a mix of broadleaved tree species, often including native and planted trees such as *Quercus robur* (oak), *Acer pseudoplatanus* (sycamore), *Fagus sylvatica* (beech), and *Fraxinus excelsior* (ash). These woodlands occur on a range of soil types and can be semi-natural or managed plantations. The understorey and ground flora vary widely but typically include shrubs like *Corylus avellana* (hazel) and herbs adapted to the local conditions.

Reedbed (f2e) - A wetland habitat dominated by dense stands of common reed (*Phragmites australis*), typically found in shallow, nutrient-rich standing or slow-flowing freshwater such as lakes, rivers, and estuaries.

Saline lagoon (t2g5) - A coastal waterbody separated from the sea by a barrier such as sand or shingle but retaining some saline influence through seepage or occasional tidal exchange. Saline lagoons have variable salinity levels, often brackish to hyper-saline, creating unique conditions that support specialized plant, invertebrate, and bird communities. Typical vegetation includes salt-tolerant algae and submerged plants, while fauna may include rare crustaceans, molluscs, and overwintering or breeding waterfowl.

Shifting dunes with marram (s3a6) - A dynamic coastal habitat characterised by mobile sand dunes dominated by *Ammophila arenaria* (marram grass), which stabilises the sand and facilitates dune formation.

Upland birchwood (w1e) - Woodland dominated primarily by *Betula pubescens* (downy birch) and/or *Betula pendula* (silver birch), typically found in upland areas on acidic, often peaty or mineral soils.

Wet heathland with cross-leaved heath; lowland (h1a7) - A semi-natural heathland habitat found on acidic, poorly drained, nutrient-poor soils, often waterlogged for much of the year. Dominated by *Erica tetralix* (cross-leaved heath) alongside *Calluna vulgaris* (heather) and various sedges (*Carex* spp.), wet heathlands support a mosaic of bog pools, wet hummocks, and wetter hollows.

3.3 Invasive Non-Native Species

During the course of the survey, several locations containing invasive non-native plant species (INNS) were noted and are shown in Figure 3 below.

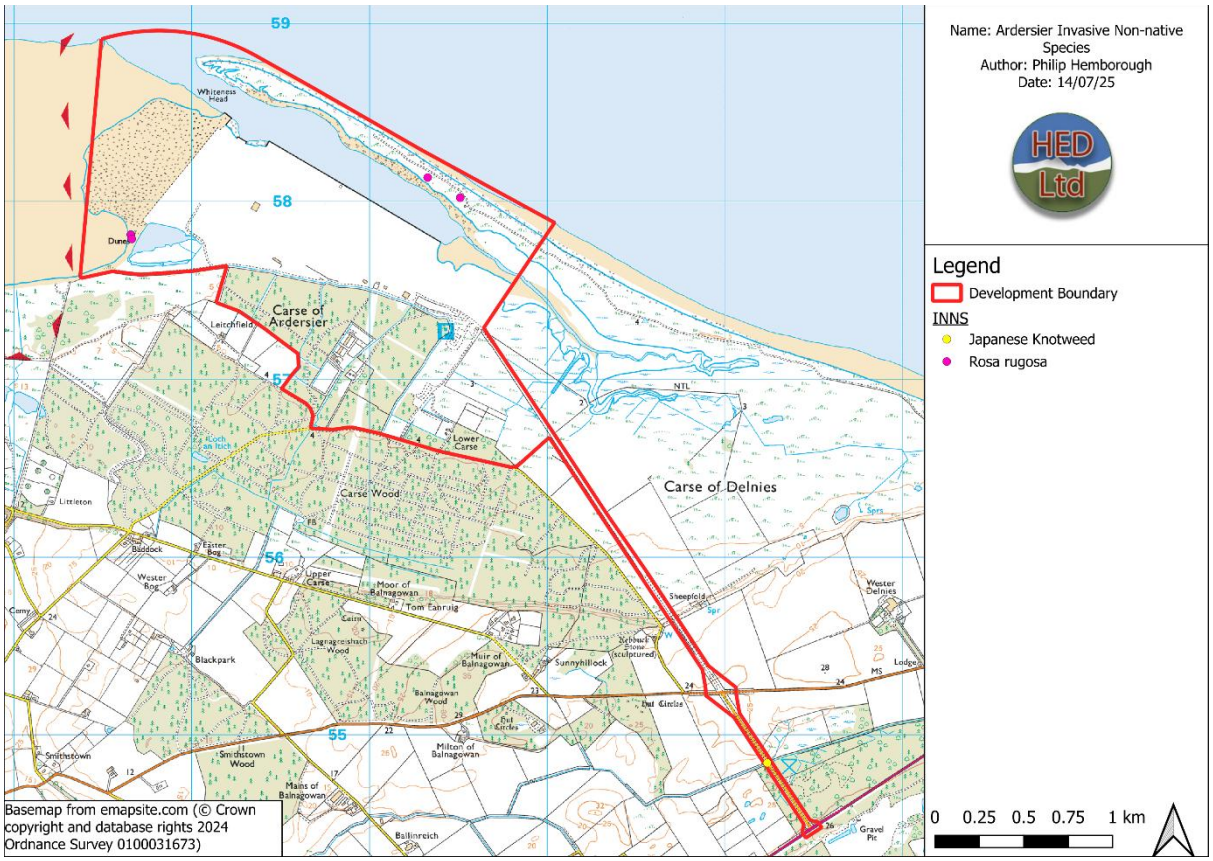


Figure 3: Map detailing the locations of observed invasive non-native species within the proposed development site boundary.

4.0 Summary

The results of the habitat survey show that there are 25 habitat types across the surveyed area, separated into 53 separate habitat parcels. The habitat condition assessment suggests that most of these habitats are in low to moderate states of condition, with a several being in good condition, mostly where they have been left alone to recover from human activities in the recent past.

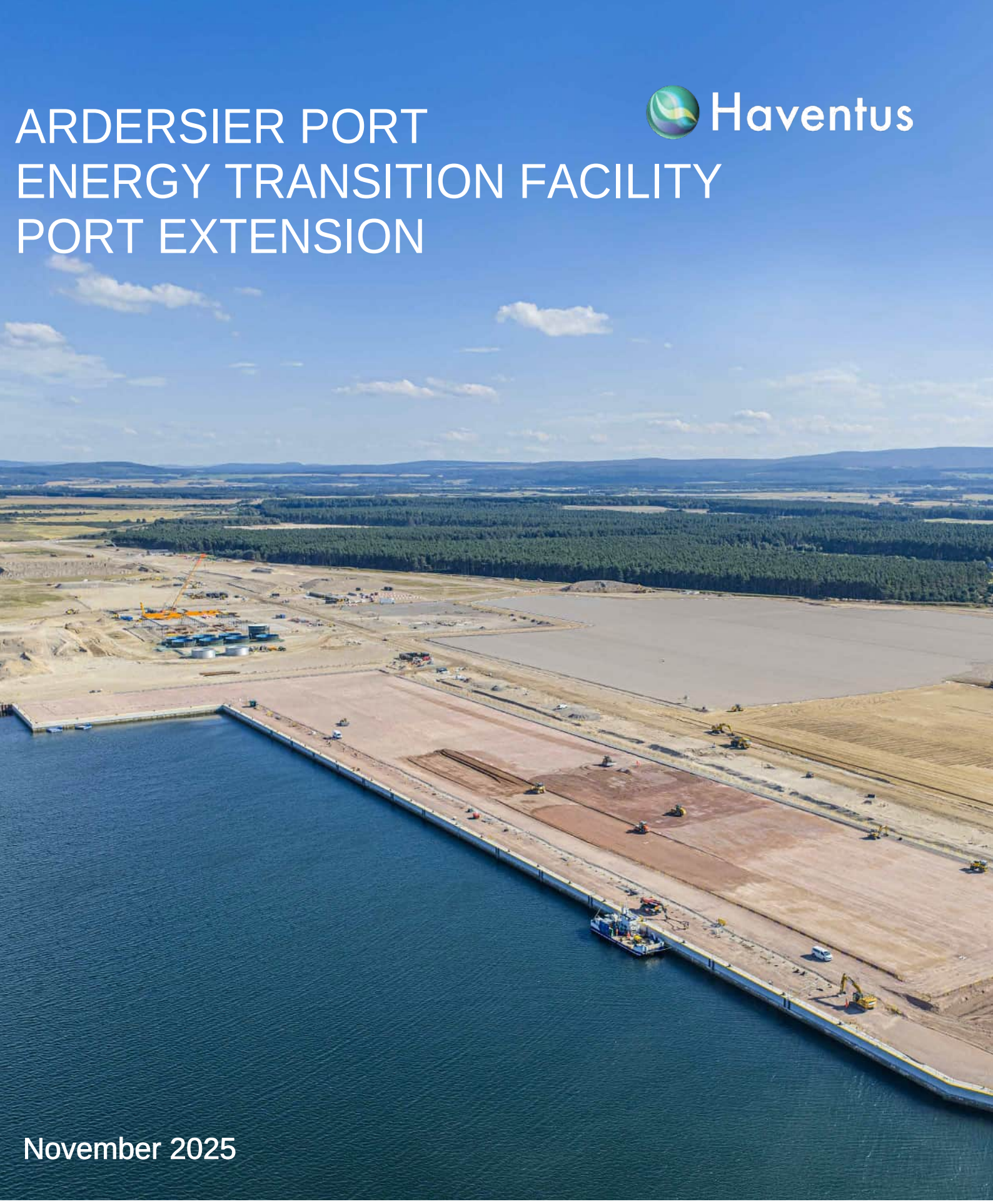
5.0 References

UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at https://www.ukhab.org)

DEFRA (2024). The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology.

ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.14 Habitats, Vegetation and GWDTE

botanæco

Haventus Expansion Area

Habitats, vegetation & GWDTE

Status: Final 1.
Date: 29/08/202
Prepared by: Dr Andy McMullen
Email: [Redacted]
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Please note: • This report is designed for viewing on a screen. It can be printed legibly at A4 although formatting is at A3, the scale for printing if full map resolution is required.
• Pressing the 'Alt' + ' ◂ ' keys will return the page view to a followed hyperlink.

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Appendix 1: Target Notes
Appendix 2: Habitat & vegetation map

Cover picture: Overview of the marshy grassland & scattered trees backing onto gorse scrub, at the eastern end of the site.

Summary

This report describes the results of a habitat-focused survey & assessment of the Haventus Expansion Area (**HEA**) associated with Ardersier Port, a component of the Cromarty Firth Green Freeport, on Whiteness Head, 5.3 km west of Nairn, in Highland.

The **aim** of the report is to describe the habitat baseline & assessment process to identify habitat constraints & opportunities

The HEA extends across 16.9 ha of sand spit at around 4 m to 5 m above sea level, and within 330 m of an estuarine inlet. It is currently succumbing to the spread of gorse scrub, with birch woodland closely succeeding. Current management is apparently limited to the cutting of trackways and to irregular vehicle passes, as well as some light, foot traffic.

Several **statutory designations** are located in proximity to the site, including Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas and a Ramsar site.

The **Carbon & Peatland Map** identifies no Class 1, Class 2 or Class 5 peatland or peat soils.

Ancient Woodland Inventory sites are located at 22 m distance.

Habitat areas: Dense continuous scrub accounts for 11.6 ha (69 %) of the site and there is a moderate, 2.9 ha (17 %) extent of broadleaved (birch) woodland. The other habitats each account for less than 0.5 ha (3 %), including: unimproved, acid, dune & neutral grasslands; drain; dune heath; standing, oligotrophic water; & track.

Only one **notable plant species** has been recorded by the survey: juniper. Additional species & assemblages are of local interest.

No **peatland** is present.

No **deep peat** is present.

Ecological importance of the habitats ranges from Local to Site.

GWDTE are not identified in a site-specific context.

The key habitat **constraints** identified by the survey & assessment are juniper shrubs included within the Scottish Biodiversity List and as a Priority Species in the UK Biodiversity Action Plan.

Habitat-related **mitigation** requires avoidance/conservation, translocation or off-setting for any impacts on juniper.

Additional **biodiversity enhancement**-related options include avoidance/conservation, translocation or off-setting of impacts upon distinctive:

- H11c dry heath (including the area identified by Target Note 6 in Appendix 1).
- M6c-M23b mosaic
- MC9a dune grassland
- W17b birch woodland.

3D representation of the habitats at the Haventus Expansion Area.
(Solid green = broadleaved woodland; hatched green = scrub; orange & pink = acid/neutral flush - marshy grassland flush; orange = grassland; yellow = heath).

1 Introduction

Remit

1.1 This report describes the results of a habitat-focused survey & assessment of the Haventus Expansion Area (**HEA**) associated with Ardersier Port, a component of the Cromarty Firth Green Freeport, on Whiteness Head, 5.3 km west of Nairn, in Highland.

Aim & objectives

1.2 The aim of the report is to describe the habitat baseline & assessment process to identify habitat constraints & opportunities by meeting the following objectives:

- Phase 1 habitat & National Vegetation Classification survey.
- Assessment of habitat importance & sensitivity, including designations, peat/peatland & Groundwater Dependent Terrestrial Ecosystems (GWDTE).

The site

1.3 The HEA extends across 16.9 ha of sand spit at around 4 m to 5 m above sea level, and within 330 m of an estuarine inlet. It is currently succumbing to the spread of gorse scrub, with birch woodland closely succeeding. Current management is apparently limited to the cutting of trackways and to irregular vehicle passes, as well as some light, foot traffic.

2 Approach

2.1 In preparation of the baseline, a desk-based study of environmental information is undertaken, to identify relevant data (on designations, etc), and then a field-based survey. The resulting, desk study & survey data is then assessed to identify sensitivities in relation to guidance & legislation. Details on the methods & sources are provided in the following sections.

Survey boundary & buffers

2.2 The survey area is defined in Map 1 *et seq*. It includes the site boundary & GWDTE only in a 100 m buffer.

Desk study

2.3 A desk study is undertaken to identify habitat designations, including:

- Sitelink[1] to identify nature conservation designations.
- Carbon & Peatland Map[2] to identify 'Class 1' or 'Class 2' peatland, or Class 5 peat soils.
- Ancient Woodland Inventory[3] to identify native woodlands.

Survey

2.4 There are two elements to the survey: a 'Phase 1' habitat survey and a more detailed 'National Vegetation Classification' (NVC) of vegetation within the habitats. The data from these is mapped & described; and supplemented by field assessment of habitat/vegetation condition & groundwater dependency. The methods are described in the following sections.

Phase 1 habitat survey

2.5 Phase 1 habitat survey is undertaken within the site boundary according to the standard method[4] & guidance[5]. As a 'broad-brush' approach, Phase 1 habitat survey is now somewhat outdated by current legislation & initiatives but it still provides a well-established & useful overview. Furthermore, it includes unvegetated habitats not covered by the more detailed National Vegetation Classification described below. In the Habitats & vegetation baseline (below), the vegetation communities are grouped & described under the heading of the corresponding Phase 1 habitat.

[1] SiteLink data, including mapping & site documentation available at https://sitelink.nature.scot/home. Accessed 29/08/2025.

[2] Carbon & Peatland Map details are available at https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/. Accessed 29/08/2025.

[3] *A guide to understanding the Scottish Ancient Woodland Inventory* is available at https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi. Accessed 29/08/2025.

[4] JNCC 2010. *Handbook for phase 1 habitat survey - a technique for environmental audit* and other relevant information available at http://jncc.defra.gov.uk/page-2468. Accessed 29/08/2025.

[5] Chartered Institute of Ecology and Environmental Management 2018. *Guidelines for Ecological Impact Assessment in the UK & Ireland*. Available at https://www.cieem.net/guidance-on-preliminary-ecological-appraisal-gpea-. Accessed 29/08/2025.

National Vegetation Classification

2.6 The National Vegetation Classification (NVC) is more precise than the Phase 1 habitat method; and is necessary for identifying habitats/plant communities of relevance to modern legislation (such as Annex I of the Habitats Directive, or GWDTE of the Water Framework Directive). It is therefore the primary system to which vegetation (& habitat) is related within this report, for the purposes of identification, mapping & description.

2.7 Vegetation is identified, mapped & described according to *British Plant Communities*[6] in accordance with the *NVC Users Handbook*[7]. This involves walking the site on a route determined by topography/viewpoints and the need to sample distinctive areas. Boundaries are mapped onto rectified aerial photographs overlain with contours & other physical features. A single vegetation community, or a mosaic or transition of two or communities, is identified within a boundary, depending upon the scale & patterning of the habitat/vegetation. Where mosaics or transitions are mapped, the percentage cover of each NVC community is stated.

Target notes

2.8 Characteristics of the vegetation in particular locations, and point-features too small to otherwise map, are recorded as 'Target Notes' (in Appendix 1). These notes include a description of the feature/habitat, the coordinates and an illustratory photograph.

Habitat & vegetation description

2.9 In this section, the approach to describing vegetation biodiversity & patterning is described.

Biodiversity: species richness, evenness & distinctiveness

2.10 Biodiversity is defined as the variation in genes, species & interactions in an area. In order to describe the biodiversity of habitats & vegetation, the following measures are used on a three-point scale (high, medium/moderate & low):

- Species richness (or α diversity) is a measure of the number of species
- Evenness (or β diversity) is a measure of how equally the species are distributed.
- Distinctiveness (or γ diversity) is a measure of how much the habitat contributes to biodiversity.

2.11 Species richness relates the number of species and by inference: the number of genes & interactions. Evenness relates how many of the interactions are dominated by small number of species, or a single species, and is often indicative of habitat condition, for example: invasive species (e.g. bracken) create 'uneven' vegetation because of their exclusive dominance. Some habitats are naturally species poor but these are usually distinctive, such as reedbeds, that are dominated by a single grass but are rare in the landscape, and they host notable species. As such, distinctiveness is broadly a measure of naturalness &/or rarity.

2.12 Use of species richness, evenness & distinctiveness as measures of habitat/vegetation biodiversity therefore aids appraisal of habitat/vegetation composition, condition & ecological importance.

Mosaics, transitions & admixtures

2.13 Distinction is made between mosaics & transitions in the mapping & assessment. Mosaics are mapped where two or more habitats or NVC communities are juxtaposed as discrete areas at a scale below the resolution of the mapping (≈1:10,000). For example: acid grassland over water-shedding mounds, among marshy grassland in waterlogged depressions.

2.14 Transitions represent dynamic situations where established habitat(s) &/or NVC communities are being displaced by others. For example: bracken or purple moor-grass invading into grassland or blanket bog. In these transitions, the habitats/communities are blended together, with the invasive species/community diffusely scattered throughout in a distribution that cannot be mapped at an operable scale.

2.15 Very minor areas of one habitat within another, such as small flushes within blanket bog, are considered as admixtures to the dominant type. To maintain the clarity of the mapping, etc., these admixtures are included within the dominant habitat (and not defined as mosaics) because the admixture is usually less than 2 % of the total area. However, their presence & cover is indicated in the labelling of Map 4.

Scale

2.16 Survey is undertaken at a scale of around 1:5,000 to 1:8,000 and the habitat mapping is rendered at a scale of around 1:5,000 on small sites (<100 ha) or around 1:10:000 to 1:1:12,500 on larger sites (as specified on the maps). Small features (less than 2 m to 5 m) are not mapped, or are recorded as points or lines; and/or as Target notes, if they are ecologically significant (e.g. springs, dykes or animal burrows).

Quantification of species abundance

2.17 Plant species abundance within habitats/vegetation is semi-quantified using the DAFOR scale. This scale broadly relates abundance/cover as follows:

- **D**ominant: >51 % cover
- **A**bundant: 30 % to 50 % cover
- **F**requent: 15 % to 30 % cover
- **O**ccasional: 5 % to 15 % cover
- **R**are: <5 % cover.

[6] Rodwell, J.S. 1991-2000. *British plant communities*. 5 Volumes. Cambridge University Press.

[7] Rodwell, J.S. 2006. *NVC Users' Handbook*. Available at http://jncc.defra.gov.uk/page-3724. Accessed 29/08/2025.

Notable species

2.18 Notable species are included in nature conservation designations & listings. The 2016 JNCC spreadsheet of taxa designations[8] defines these species and is the main point of reference in addition to the *Highland Biodiversity Action Plan*[9]. Species are referred to as 'notable' to avoid confusion with the use of 'rare' in the DAFOR scale (see Quantification of species abundance).

Nomenclature

2.19 Standardised vernacular names are used for the vascular plants (ferns, herbs & trees). Scientific names (italicised within the text) are used for the moss, liverwort & lichen species because although vernacular names are now in existence, they are not in general usage. This approach assists discrimination of the plant groups and avoids long, tedious lists of vernacular & scientific names. The standard checklists for the names are employed[10].

Peat depth

2.20 Peat depth is assessed during survey on an *ad hoc* basis, to provide preliminary data on its distribution. The depth is assessed in exposures (such as in drains or eroded faces) or by use of a 1.5 m probe.

Survey accuracy

2.21 Survey accuracy is influenced by a number of factors including the following:

- GPS error.
- Georectification errors in the aerial photography used for base-mapping.
- Gradual transitions between habitats & vegetation that are poorly-defined with a simple line.
- Transitional habitats & vegetation similar to two or more habitats or NVC communities.

2.22 Furthermore, the fit of vegetation to the published NVC communities is often imperfect and the closest approximation is therefore adopted (with explanation in the habitat/vegetation descriptions in the Habitats & vegetation baseline). Surveying in Scotland also has the added limitation that NVC sampling was weighted towards England, so the published descriptions, and even community titles, are not always directly applicable (for example: eponymous species may not be present in Scotland).

Assessment

2.23 Assessment of the baseline is undertaken against local, national & international, legislation & initiatives, to identify priorities for nature conservation & sensitive habitats. The methods described in the following sections have been applied in assessment of the baseline.

Peatland Condition Assessment

2.24 Peatland Condition Assessment[11] is employed in the field to determine the condition of the peatland habitat. This assessment classifies the peatland into four classes:

- Near-Natural
- Modified
- Drained
- Actively Eroding.

2.25 Field-based assessment of a series of key indicators identifies the appropriate class for each area of peatland. These indicators include features such as the *Sphagnum* cover & vegetation condition; evidence of fire frequency & intensity; bare peat; and scrub/tree invasion[12]. Condition indicators relevant to the site are listed in the Peatland Condition Assessment section.

Deep peat

2.26 The peat depth data is used to broadly discriminate shallow peat (<0.5 m deep), shallow deep peat (0.5 m to 1.5 m deep) &/or very deep peat (>1.5 m deep); and its distribution in relation to habitat features.

Ecological importance

2.27 The habitat & species baseline established by the desk study & survey is assessed against the following to identify priorities for protection:

- Peatland & Carbon Map[2]
- Ancient Woodland Inventory[3]
- Highland Biodiversity Action Plan[9]
- Annex I of the EU Habitats Directive[12]
- Scottish Biodiversity List[13].

[8] JNCC spreadsheet of taxa designations & further information available at: http://jncc.defra.gov.uk/page-3408. Accessed 29/08/2025.

[9] Highland Biodiversity Action Plan 2021-2026. Available for download at https://www.highlandenvironmentforum.info/biodiversity/action-plan/. Accessed 29/08/2025.

[10] BSBI *List of British & Irish Vascular Plants & Stoneworts*, for higher plants, available at https://bsbi.org/taxon-lists. For mosses and liverworts, the *Census Catalogue of British and Irish Bryophytes 2021* available at https://www.britishbryologicalsociety.org.uk/publications/census-catalogue/. Accessed 29/08/2025.

[11] NatureScot 2017. *Peatland Condition Assessment*. Available for download from https://www.nature.scot/sites/default/files/2017-10/Guidance-Peatland-Action-Peatland-Condition-Assessment-Guide-A1916874.pdf. Accessed 29/08/2025.

[12] List & descriptions of Habitats Directive Annex I habitats available at http://jncc.defra.gov.uk/Publications/JNCC312/UK_habitat_list.asp. Accessed 29/08/2025.

[13] Further details and download of the Scottish Biodiversity List available at https://www.nature.scot/doc/scottish-biodiversity-list. Accessed 29/08/2025.

2.28 The assessment is undertaken according to the Ecological Impact Assessment guidance[14], which recommends that a level of ecological importance is assigned to features using a geographical context as defined in Table 1.

Table 1: Ecological importance categories.

Importance	Context	Characteristics
International	Europe	• An area of habitat designated as a Ramsar site; Special Area of Conservation &/or Special Protection Area.
National	UK\Scotland	• An area of habitat designated as a Site of Special Scientific Interest. • Habitat area >1% of the national resource.
Regional	Highland	• A vague definition including habitats of more importance than county level but not sufficient for SSSI designation.
County	Moray Firth	• County-designated (e.g. Biodiversity Action Plan) habitats. • Habitat area >1% of the county resource. • Semi-natural, ancient woodland >0.25ha in extent.
Local	Site & 2 km buffer	• Habitats that are unique, or of some other significance, in the local area. • Areas of habitat that contribute to the local ecological resource.
Site	Site only	• Common, often anthropogenic habitats, or dominated by invasives.

Notable species

2.29 Mapping of notable species is constrained by the habitat survey method that requires different search patterns & seasons to those required for effective species survey. A key focus is therefore on the identification of species assemblages that can be efficiently identified & protected to highlight & conserve most, if not all, of the species present on a site. It also allows for the protection of less valued species alongside those that are notable.

2.30 Assemblages are usually located on unproductive areas (e.g. crags or waterlogged basins) where they have been able to escape a legacy of management or development. Furthermore, their location is usually predictable in these areas, and amenable to detection during a habitat survey

Groundwater dependent terrestrial ecosystems

2.31 Potential Groundwater Dependent Terrestrial Ecosystems (GWDTE) were identified during the NVC survey according to Confor[15] & SEPA[16] guidance. Location-specific groundwater dependency is assessed because GWDTE are not always groundwater dependent, so their inappropriate consideration can cause unnecessary constraint. Assessment is based on the physical environment (geology, hydrology & topography) of the potential GWDTE as well as their floristics.

Constraints & mitigation

2.32 Habitat-related constraints are identified from the assessment of Ecological importance and appropriate mitigation is broadly defined to reduce the intensity of potential impacts.

Biodiversity enhancement

2.33 Opportunities for biodiversity enhancement are primarily identified in relation to the Peatland Condition Assessment; assessment of ecological importance; and current, legislative priorities.

Additional background

2.34 Additional background on the approaches employed are available on the Botanæco blog at the following links:

General survey

- Using a mobile device on ecological surveys
- Setting up a speedy, mobile GIS using QField
- Habitat survey kit
- Approaches to survey
- Semi-automating vegetation data entry

Habitats & vegetation

- Conserving relict species assemblages
- A way to describe vegetation
- Fitting Phase 1 habitats & NVC communities to their designations.

Peat & peatlands

- Peat depth survey - a modern approach
- Confusion over peat depth & other mire sediment types
- Peatland Condition Assessment.

GWDTE

- GWDTE: a field guide
- A contribution to the risk-based assessment of GWDTE
- GWDTE 2: A quick guide to GWDTE
- GWDTE I: Go with the flow on survey.

[14] CIEEM 2018. Guidelines for Ecological Impact Assessment in the UK & Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester. Available at https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/. Accessed 29/08/2025.

[15] Confor 2018. Practice guide for forest managers to assess and protect Groundwater Dependent Terrestrial Ecosystems when preparing woodland creation proposals. Available at https://www.confor.org.uk/media/246950/practice-guide-on-ground-water-dependent-terrestrial-ecosystems.pdf. Accessed 29/08/2025.

[16] Land Use Planning System SEPA Guidance Note 31. Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Available at https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf. Accessed 29/08/2025.

Map 1:
Physical features.

Haventus Expansion Area

Physical features

Legend

- Expansion Area

Physical features

- Point height (m)
- Contour (10 m)
- Building
- Foreshore
- Primary Road
- B Road
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse
- Woodland

Scale: 1:30,000 at A3

Map contains:
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3 Baseline

3.1 In this section, the habitat baseline of the site is described in relation to its general characteristics, designations, habitats, vegetation communities & notable plant species.

General description

3.2 The site of the ADA is lightly undulating, with an amplitude of little over 1 m, and relatively level (see Map 1). Topographic drainage is therefore limited but the sandy soil is otherwise free-draining. In addition, drains cross the site and are concentred in its southeast where there is a pond and peripheral waterlogging. Gorse scrub (with broom) is extensive; there is a moderate extent of birch woodland in the south; and there are minor areas of acid grassland, coastal grassland, dune heath, marshy grassland, neutral grassland & open water.

Designations

3.3 In this section, statutory & non-statutory nature conservation designations associated with the site are identified. The distribution of designated habitats & sites is illustrated in Map 2 & Map 3 (note that for clarity, woodland is not illustrated in these and subsequent maps).

Statutory designations

3.4 Statutory nature conservations designations provide a legal basis to the protection of certain sites and their specified features. Their distribution is illustrated in Map 2 & designated features listed in Table 2.

3.5 Whiteness Head Site of Special Scientific Interest (SSSI) and the Inner Moray Firth Special Area of Conservation (SAC) & Special Protection Area (SPA) are located within 0.02 km distance, to the northeast. The SSSI is designated for its coastal habitats & processes; and bar-tailed godwit. At 0.75 km distance, the Moray Firth SAC & SPA are respectively designated for sandbanks & dolphin; and for a range of coastal bird species. The Ardersier Glacial Deposits SSSI is designated for geomorphological features, at a distance of 2.9 km; and at 3.5 km distance, the Kildrummie Kames SSSI is designated for wetland habitat & juniper scrub. There is therefore a wide range of coastal bird & habitat; land form; and wetland & scrub features in the vicinity of the site.

Table 2: Statutory designations, their location & qualifying features.

Site	Designation	Distance & orientation	Qualifying features	
Whiteness Head	SSSI	0.017 km, northeast	• Coastal geomorphology • Bar-tailed godwit • Knot • Sandflats	• Saltmarsh • Sand dunes • Shingle
Moray Firth	SAC	0.75 km, northeast	• Subtidal sandbanks	• Bottlenose dolphin
	SPA	0.75 km, northeast	• Common eider • Common goldeneye • Common scoter • European shag • Great northern diver • Greater scaup	• Long-tailed duck • Red-breasted merganser • Red-throated diver • Slavonian grebe • Velvet scoter
Inner Moray Firth	SPA	0.017 km, northeast	• Bar-tailed godwit • Common tern • Cormorant • Curlew • Goldeneye • Goosander • Greylag goose • Osprey	• Oystercatcher • Red-breasted merganser • Redshank • Scaup • Teal • Waterfowl assemblage • Wigeon
	Ramsar	0.017 km, northeast	• Mudflat • Sandflat • Saltmarsh • Sand dune • Shingle • Bar-tailed godwit • Common tern • Cormorant • Curlew • Goldeneye	• Goosander • Greylag goose • Osprey • Oystercatcher • Red-breasted merganser • Redshank • Scaup • Teal • Wigeon
Ardersier Glacial Deposits	SSSI	2.9 km, west	• Quaternary geology & geomorphology	
Kildrummie Kames	SSSI	3.1 km, south	• Open water transition fen	• Eutrophic loch • Juniper scrub

Non-statutory designations

3.6 Non-statutory designations identify areas of natural heritage importance to assist planning & management decisions but they do not have the legal basis of statutory designations. Non-statutory designations within & around the site are illustrated in Map 3, and are described in the following sections.

Carbon & Peatland Map

3.7 The Carbon & Peatland Map[2] predicts that there is nationally-important, Class 1 & Class 2 peatland or Class 5 peat soils associated with the site.

Ancient Woodland Inventory

3.8 No Ancient Woodland[3] is directly associated with the site but an area, known as Carse Wood, that is 'Long-Established (of plantation origin), is located 22 m to the south, across a minor road.

Habitats & vegetation

3.1 The conditions & results of the field survey are described in this section in relation to the ecology & floristics of the habitats & vegetation communities. Statistics on the absolute (ha) & relative (%) habitat & vegetation cover are provided in Table 3. Habitat distribution is illustrated in Map 4 & Map 5. Map 4 includes Target Notes and labels for the NVC communities within the habitats.

Survey

3.2 Survey was undertaken on the 28th of August, by Dr Andy McMullen, Principal Botanist at Botanæco. Conditions on this day were ideal for survey: bright but overcast; with low wind speeds; and no precipitation. Accessibility across the site was complicated by dense gorse, but routes through most areas were available and facilitated by recently-mown corridors through the central & marginal areas of scrub.

Habitat areas

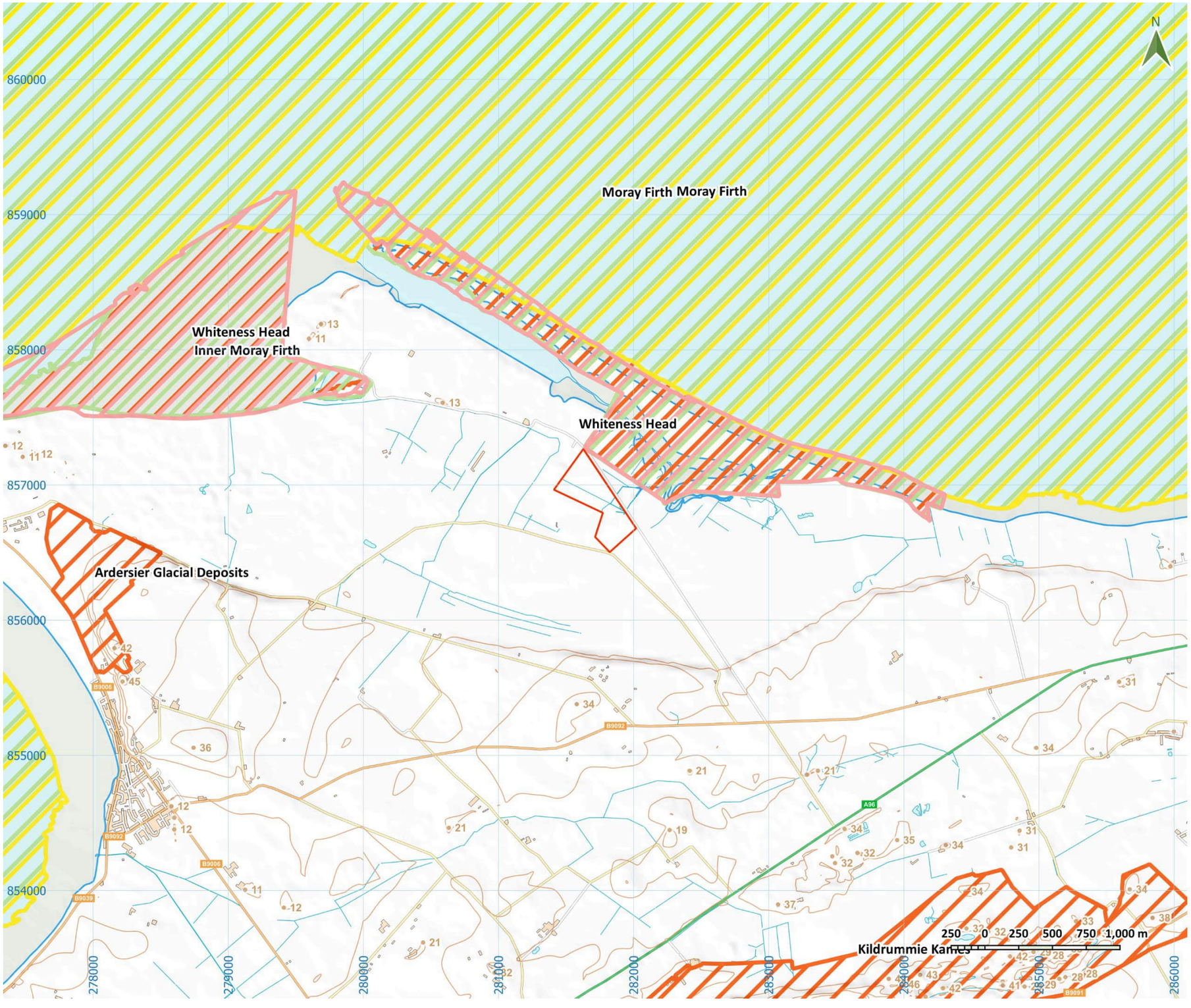
3.3 Habitat areas are summarily described in this section; and there are more detailed, individual accounts in the following section (Habitat & vegetation descriptions).

3.4 Dense continuous scrub accounts for 11.6 ha (69 %) of the site and there is a moderate, 2.9 ha (17 %) extent of broadleaved (birch) woodland. The other habitats each account for less than 0.5 ha (3 %), including: unimproved, acid, dune & neutral grasslands; drain; dune heath; standing, oligotrophic water; & track.

Table 3: List of corresponding Phase 1 habitats & National Vegetation Classification plant communities, and mosaics; and their absolute & relative areas.

Phase 1 habitat code & title	Area		National Vegetation Classification code & title	Area	
	Hectares	Percent		Hectares	Percent
A1.1.1 Broadleaved woodland - semi-natural	**2.85**	**16.9**	**W17b** *Quercus petraea-Betula pubescens-Dicranum majus* woodland, typical sub-community	**2.85**	**16.9**
A2.1 Scrub - dense/continuous	**11.61**	68.7	**W23a** *Ulex europaeus-Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community	**11.61**	68.7
B1.1 Acid grassland - unimproved	**0.53**	3.1	**U4a** *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community	**0.53**	3.1
B2.1 Neutral grassland - unimproved	**0.02**	0.1	**MG10a** *Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community	**0.02**	0.1
B5 Marsh/marshy grassland	**0.26**	1.5	**M23b** *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus effusus* sub-community	**0.26**	1.5
G1.3 Standing water - oligotrophic	**0.02**	0.1	n.a.	**0.02**	0.1
H6.5 Dune grassland	**0.6**	3.6	**MC9a** *Festuca rubra-Holcus lanatus* maritime grassland, *Plantago maritima* sub-community	**0.6**	3.6
H6.6 Dune heath	**0.47**	2.8	**H11c** *Calluna vulgaris-Carex arenaria* heath, species-poor sub-community	**0.47**	2.8
Drain	**0.03**	0.2	n.a.	**0.03**	0.2
Track	**0.5**	3	Track	**0.5**	3

Map 2:
Statutory designations.



Haventus Expansion Area

Statutory designations

Legend

- Expansion Area

Statutory designations

- Ramsar
- Special Area of Conservation
- Special Protection Area
- Site of Special Scientific Interest

Physical features

- Point height (m)
- Contour (10 m)
- Building
- Foreshore
- Primary Road
- B Road
- Minor Road
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Scale: 1:30,000 at A3

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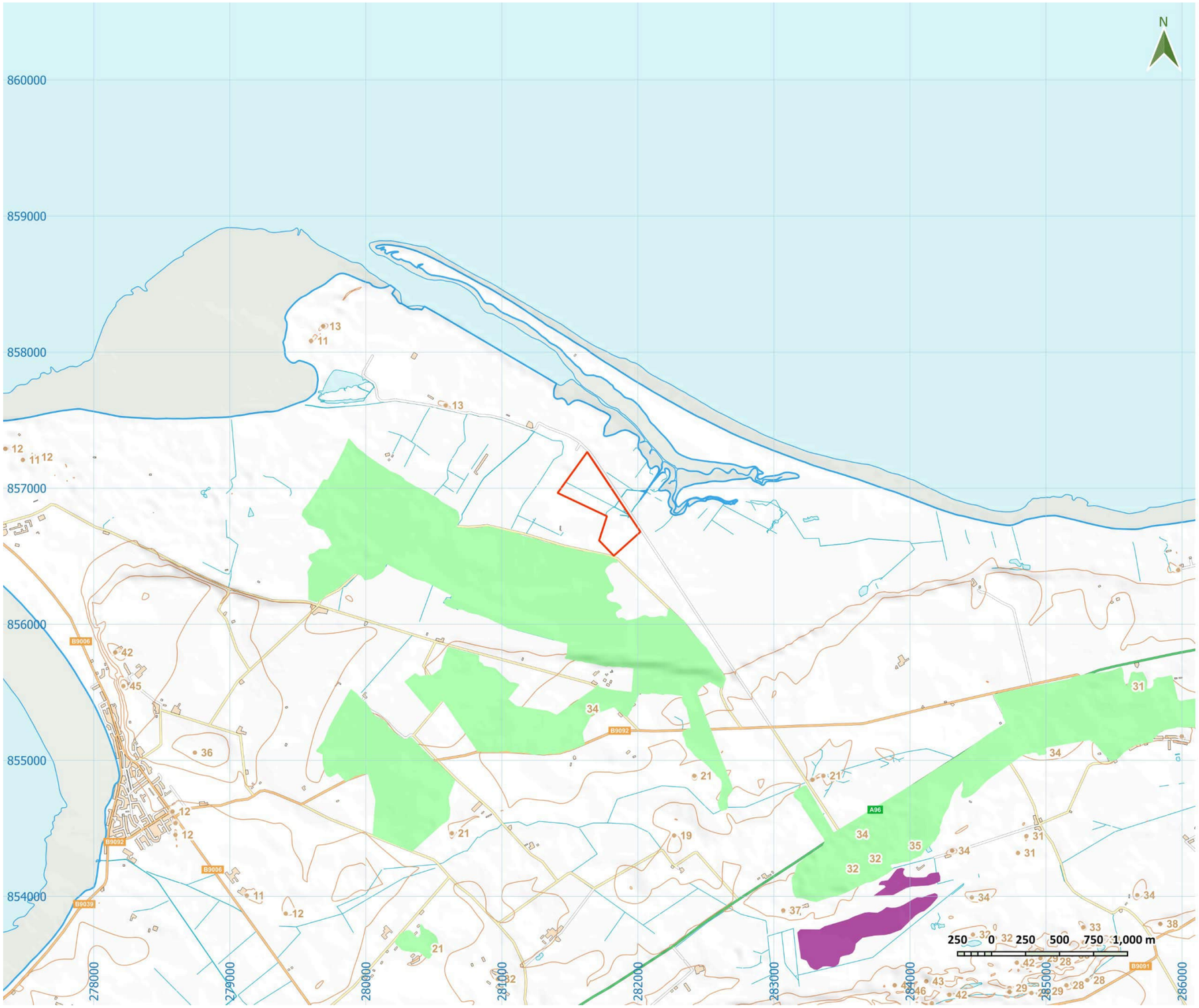
Map 3:
Non-statutory designations.



Haventus Expansion Area

Non-statutory designations

Legend

- Expansion Area

Non-statutory designations

Carbon & Peatland Map
- Class 1

Ancient Woodland Inventory
- Long-Established (of plantation origin)

Physical features
- Point height (m)
- Contour (10 m)
- Building
- Foreshore
- Primary Road
- B Road
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Scale: 1:30,000 at A3

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Map 4:
Phase 1 habitats.

Haventus Expansion Area

Phase 1 habitats

Legend

- Expansion Area
- Target notes

Phase 1 habitats

- A1.1.1 - Broadleaved woodland - semi-natural
- A2.1 - Scrub - dense/continuous
- B1.1 - Acid grassland - unimproved
- B2.1 - Neutral grassland - unimproved
- B5-E2.1 mosaic
- G1.3 - Standing water - oligotrophic
- H6.6 - Dune heath
- H8.4 - Coastal grassland
- Track
- Scattered trees & major shrubs

Physical features

- Building
- Foreshore
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Scale: 1:3,500 at A3

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Map contains:
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Map 5:
3D Phase 1 habitats.

Haventus Expansion Area

3D Phase 1 habitats

Legend

- Expansion Area

Phase 1 habitats

- A1.1.1 - Broadleaved woodland - semi-natural
- A2.1 - Scrub - dense/continuous
- B1.1 - Acid grassland - unimproved
- B2.1 - Neutral grassland - unimproved
- B5-E2.1 mosaic
- G1.3 - Standing water - oligotrophic
- H6.6 - Dune heath
- H8.4 - Coastal grassland
- Track
- Scattered trees & major shrubs

Physical features

- Building
- Foreshore
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Not to scale.

Habitat & vegetation descriptions

3.5 Habitats & their constituent vegetation communities are described in this section in relation to their distribution, floristic composition, ecology, condition & management. Target Notes in Appendix 1 are referenced where applicable.

A1.1.1 Broadleaved woodland - semi-natural

3.6 Broadleaved woodland has a canopy cover greater than 30% of deciduous trees more than 5 m high when mature. Semi-natural woodland includes areas that do not obviously originate from planting. The canopy can include non-natives (such as sycamore). A single NVC community is present as well as scattered trees & major shrubs.

W17b Quercus petraea-Betula pubescens-Dicranum majus woodland, typical sub-community

3.7 A single, moderately extensive (2.9 ha) area of W17b oak-birch-moss woodland is located in the south. Its densely-packed, even-aged/sized canopy of birches includes rare goat willow & rowan; and overlies an understory of gorse. The gorse is senescent in the shade of the birch canopy and this shade also impacts the field layer.

3.8 In the variable field layer, there is abundant *Rhytidiadelphus triquetrus* & wavy hair-grass; with frequent to occasional: broad buckler-fern, common bent, common sedge, common soft-brome, heath bedstraw, *Hylocomium splendens*, *Polytrichum commune/formosum*, *Scleropodium purum* & tufted hair-grass. Stumps & dead wood on the ground have a cover of abundant *Isothecium myosuroides* and more occasional *Dicranum majus*.

3.9 The low species richness, evenness & distinctiveness; mix of common, generalist species; even age & size of the birches; and the senescent gorse understory collectively relate the recent, secondary origins of this area of woodland, within what was formerly an area of open scrub. See also, Target Note 24 in Appendix 1

Scattered trees & major shrubs

3.10 Away from the area of W17b birch woodland, there is a scatter of birches and more rarely, grey or goat willow, & Scots pine. These scattered singletons & small groups of trees & 'major shrubs' (to distinguish the willows from broom & gorse) are represented by points, in Map 4 & Map 5. All of these trees are recent colonists into acid grassland, heath or gorse scrub, so their field layer is very variable, ranging from the 'U4a grasses' & broad buckler-fern; to persistent heather & heath; or senescent gorse (see also, Target Note 16 in Appendix 1).

3.11 A small group of scattered birch, gorse & Scots pine saplings is senescent and possibly indicative of recent hydrological or other change(s) - see Target Note 17 in Appendix 1.

A2.1 Scrub - dense/continuous

3.12 Scrub is vegetation dominated by native shrubs, usually less than 5 m tall, and occasionally with a few scattered trees. It can be continuous or scattered.

W23a *Ulex europaeus-Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community

3.13 W23a gorse-bramble scrub, sweet vernal grass sub-community vegetation is widespread, across 12 ha (69 %). It is co-dominated by broom & gorse; and there are numerous birch saplings establishing, as well as more rare Scots pine & willow. The field layer is generally comparable to the U4a acid grassland described below, but can also include elements of the other grassland & heath habitats into which the shrubs have recently colonised. At its extreme, the field layer is completely displaced by the shade & litter accumulations of mature shrubs (see Target Note 4 in Appendix 1, for example).

3.14 Although the gorse scrub is species-poor, uneven & indistinctive, it does provide a range of resources, such as flowers for insects or nest sites for birds. However, its medium-term persistence is unlikely, due to the ongoing spread of birches especially. These will eventually shade & suppress the light-demanding gorse & broom and create a woodland habitat.

B1.1 Acid grassland - unimproved

3.15 Unimproved acid grassland is usually associated with unenclosed hill-grazing on acid soils. It is generally species-poor and frequently grades into wet or dry dwarf shrub heath.

U4a *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community

3.16 Away from the most coastal parts of the site, across slightly elevated, better-draining surfaces, there is a U4a fescue-bent-bedstraw grassland that extends below the extensive scrub & persists in occasional openings. Within the species-poor, moderately even & indistinctive sward, common bent is abundant; with frequent Yorkshire fog; and occasional: bramble, broad buckler-fern, common sedge, heath bedstraw, *Hylocomium splendens*, *Pleurozium schreberi*, sand sedge, soft-rush, tormentil & wavy hair-grass. There are also patchy areas of heath; frequent broom & gorse saplings; and occasional birch saplings. See also, Target Notes 2 & 21 in Appendix 1.

B2.1 Neutral grassland - unimproved

3.17 Neutral grassland encompasses a wide range of grass-dominated communities occurring on mesic, neutral soils. Unimproved areas are not associated with management (such as fertiliser).

MG10a *Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community

3.18 A single minor area of rush dominance within the MC9a coastal grassland is mapped as the MG10a Yorkshire fog - rush, typical sub-community. Within it, dense tussocks of soft-rush are dominant over a species-poor, uneven & indistinctive field layer of occasional broad-leaved dock, sorrel & Yorkshire fog.

B5 Marsh/marshy grassland - E2.1 acid/neutral flush mosaic

3.19 The B5 marshy grassland - E2.1 acid/neutral flush mosaic is used to map an area of soft-rush dominance over an unproductive field layer of herbs (B5 marshy grassland) or mosses (E2.1 acid/neutral flush).

M6c - M23b mosaic

3.20 Within the M6c star sedge - bog-moss - M23b rush-bedstraw, soft-rush sub-community mosaic there is a dominant, tall, rank sward of soft-rush within the M23b areas; and a more open, diffuse sward across the M6c vegetation. The moss *Polytrichum commune* is dominant in the M6c field layer. Its presence usually relates physical disruption of the more typical bog-mosses within this community, such as though trampling by grazing animals. Otherwise, within the M23b vegetation, there is frequent to occasional: common bent, common sedge, heather, heath wood-rush, marsh pennywort, *Pleurozium schreberi*, sand sedge, sorrel, sweet vernal grass, velvet bent & Yorkshire fog. There are also rare grey willow saplings; and patches of *Sphagnum fallax* & *Sphagnum fimbriatum* in the obscured drain that parallels the adjacent track.

3.21 This moderately species-rich, even & distinctive vegetation is located in a mesic to waterlogged, shallow depression linked to a drain. Its persistence into the medium term, is unlikely doe to the spread of willow scrub. This is currently at an early stage of succession. See also, Target Note 7 in Appendix 1.

G1.3 Standing water - oligotrophic

3.22 Standing water includes lakes, reservoirs, pools, flooded gravel pits, ponds, water-filled ditches, canals and brackish lagoons. Oligotrophic water is low in nutrients.

3.23 An oligotrophic pond, with some peat-staining, is located on the eastern boundary. Along its margins, there is overhanging gorse, except to the south, where there is abundant creeping bent; a minor area of common spike-rush; & rare marsh pennywort. On the water surface, there are abundant common pond skaters & frequent whirligig beetles. A male common darter was active nearby, during the survey. See also, Target Note 15 in Appendix 1.

H6.5 Dune grassland

3.24 Dune grassland occurs on consolidated & flattened dunes. Marram grass is rare.

MC9a *Festuca rubra-Holcus lanatus* maritime grassland, *Plantago maritima* sub-community

3.25 The MC9a red fescue - Yorkshire fog maritime grassland, sea plantain sub-community is species-poor, uneven & indistinctive because of the dominance of red fescue; or *Pleurozium schreberi*, where the fescue sward is more open. There is also occasional autumn hawkbit, common bent, common sedge, compressed meadow-grass, *Peltigera* sp. (a lichen), rosebay willowherb, sand sedge, silverweed & white clover; and rare crowberry, marsh arrow-grass & sneezewort. See also, Target Notes 11 & 14 in Appendix 1.

H6.6 Dune heath

3.26 Dune heath occurs on consolidated & flattened dunes. Heather is usually dominant with bell heather &/or cross-leafed heath; sand sedge &/or lichens. Juniper may also be present.

H11c *Calluna vulgaris-Carex arenaria* heath, species-poor sub-community

3.27 An indistinctive form of the H11c heather - sand sedge heath, species-poor sub-community is present. Its reduction to minor, scattered extents, shaded by spreading, shrubs & trees; and potentially, historical impacts too, such as grazing; have presumably resulted in its current, low levels of species-richness, evenness & distinction.

3.28 Within the H11c canopy, there is dominant to frequent heather; and frequent to occasional broad buckler-fern, common sedge, crowberry, *Hylocomium splendens*, *Pleurozium schreberi*, soft-rush, tormentil &/or wavy hair-grass. Broom, birch, gorse &/or Scots pine seedlings & saplings are also frequent to occasional, and indicative of the fate of the dune heath, in the short to medium term, as scrub continues to expand. See also, Target Notes 8, 22 & 23, in Appendix 1.

3.29 A minor, isolated area of wet-heath like H11c is recorded by Target Note 6 (in Appendix 1), across *c.* 10 m^2. Within it, there is abundant cross-leafed heath, crowberry & heather; and frequent: common sedge, *Pleurozium schreberi*, *Polytrichum commune* & tormentil.

Drain

3.30 Minor areas of drain located around the pond are associated with dense creeping bent or soft-rush; or bare mud where water levels are presumably variable, and stressful to plant-growth. See also, Target Notes 13, 18 & 19, in Appendix 1.

Track

3.31 Narrow sections of track (2 m wide) have been maintained by irregular vehicle passes and light foot-traffic. Wider sections, around 6 m wide, have been cut recently, into broom & gorse scrub. See also, Target Notes 1, 4 & 9, in Appendix 1.

Notable flora

3.32 It should be noted that this report is of a habitat & vegetation survey, not a floristic survey focused upon the detection of notable species. Floristic survey requires different search methods, patterns & timings; as well as an appropriate expert for each targeted group (e.g. vascular plants, bryophytes, lichens &/or fungi). However, in the course of habitat & vegetation survey, notable species are detected incidentally. These non-comprehensive records are provided & described in this section and their distribution illustrated in Map 6.

3.33 Only one notable plant species has been recorded by the survey: **juniper**. This shrub is listed in the Scottish Biodiversity List[13]; as a UK Biodiversity Action Plan Priority Species; and as a species of Least Concern in the IUCN Red List[17]. It is located in Map 6 and by Target Note 10 in Appendix 1.

3.34 In addition, the following two species are highlighted for their interest:

- **Oxford ragwort** is not a widespread species in Highland but is surprisingly frequent along the tracks. This observation suggests that it may have been inadvertently introduced to these areas. See also Map 6 for the relevant track sections & Target Note 12 in Appendix 1.
- **Stinkhorn** fungus is present along one of the recently-cut tracks through the scrub. It is located by Target Note 3 in Appendix 1.

3.35 The species-poor, **H11c dune heath assemblage** is also of some note for its rarity in the wider area, especially for the presence & local abundance of crowberry & sand sedge. These species retain some of the original, coastal distinction of the wider area. Although it is a distinctive habitat, the MC9a dune grassland does not include any notable species.

[17] IUCN Red List details are available at https://www.iucnredlist.org/about/background-history. Accessed 29/08/2025.

Map 6:
Notable species.

Haventus Expansion Area

Notable species

Legend

- Expansion Area

Notable species

- Juniper
- Oxford ragwort
- H11c dune heath assemblage
- M6c-M23b wetland assemblage

Physical features

- Building
- Foreshore
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Scale: 1:3,500 at A3

botanæco

4 Assessment

4.1 In this section, the baseline is assessed against legislation, listings &/or initiatives to identify:

- Peatland condition
- Deep peat
- Ecological importance
- Groundwater dependency
- Notable species
- Constraints & mitigation
- Biodiversity enhancements.

Peatland Condition Assessment

4.2 No Peatland Condition Assessment has been undertaken because there is no peatland.

Deep peat

4.3 No deep peat is present, or related habitat or conditions that would result in its formation. Otherwise, a superficial, peaty soil (to around 0.15 m depth) underlies the M23b marshy grassland that is located in a shallow, waterlogged depression. The sandy soil underlying the rest of the site evidently promotes better drainage.

Ecological importance

4.4 The ecological importance of the habitats and their constituent NVC communities is assessed in Table 6 and illustrated in Map 8.

4.5 The recently-established, W17b broadleaved woodland; and the persistent, MC9a dune grassland & H11c dune heath; M6c-M23b acid/neutral flush - marshy grassland mosaic; & open water; are assessed to be of Local importance, because of the presence/persistence of semi-natural characteristics (such as sub-shrub or tree canopy &/or species assemblages); and inclusion in various listings &/or legislation. Low levels of distinction, and the minor extents of habitat, limit valuation at a higher level.

4.6 Low levels of species-richness, evenness & distinction limit the valuation of the U4a acid grassland; MG10a neutral grassland & W23a scrub to Site importance. Furthermore, although it does provide a range of resources to wildlife, the W23a gorse scrub is behaving invasively, to the detriment of the open, grassland & heath habitats. However, it is, in turn, displaced by the spreading birch woodland, so the gorse scrub can be seen as an intermediate successional stage, if management is not undertaken to maintain the open, dune grassland & heath habitats.

Groundwater dependency

4.7 British Geological Society hydrogeological mapping identifies that the geology underlying the site is Upper Old Red Sandstone that has the character of a "low productivity aquifer" where "flow is virtually all through fractures and other discontinuities"[18]. However, it remains a "regionally important multi-layered aquifer, with moderate yields of up to 5 L/s and, to the south of Moray Firth, up to 15 L/s". There is therefore potential for the presence of Groundwater Dependent Terrestrial Ecosystems (GWDTE). GWDTE are assessed in Table 5 and their guidance & site-specific, groundwater-dependency distribution is illustrated in Map 9 & Map 10..

4.8 Although the M6c-M23b acid/neutral flush - marshy grassland mosaic & MG10a neutral grassland are identified in the guidance as being of respectively High or Moderate groundwater-dependency, they are not assessed to be groundwater-dependent within the context ofg the site. This conclusion is based on the following observations:

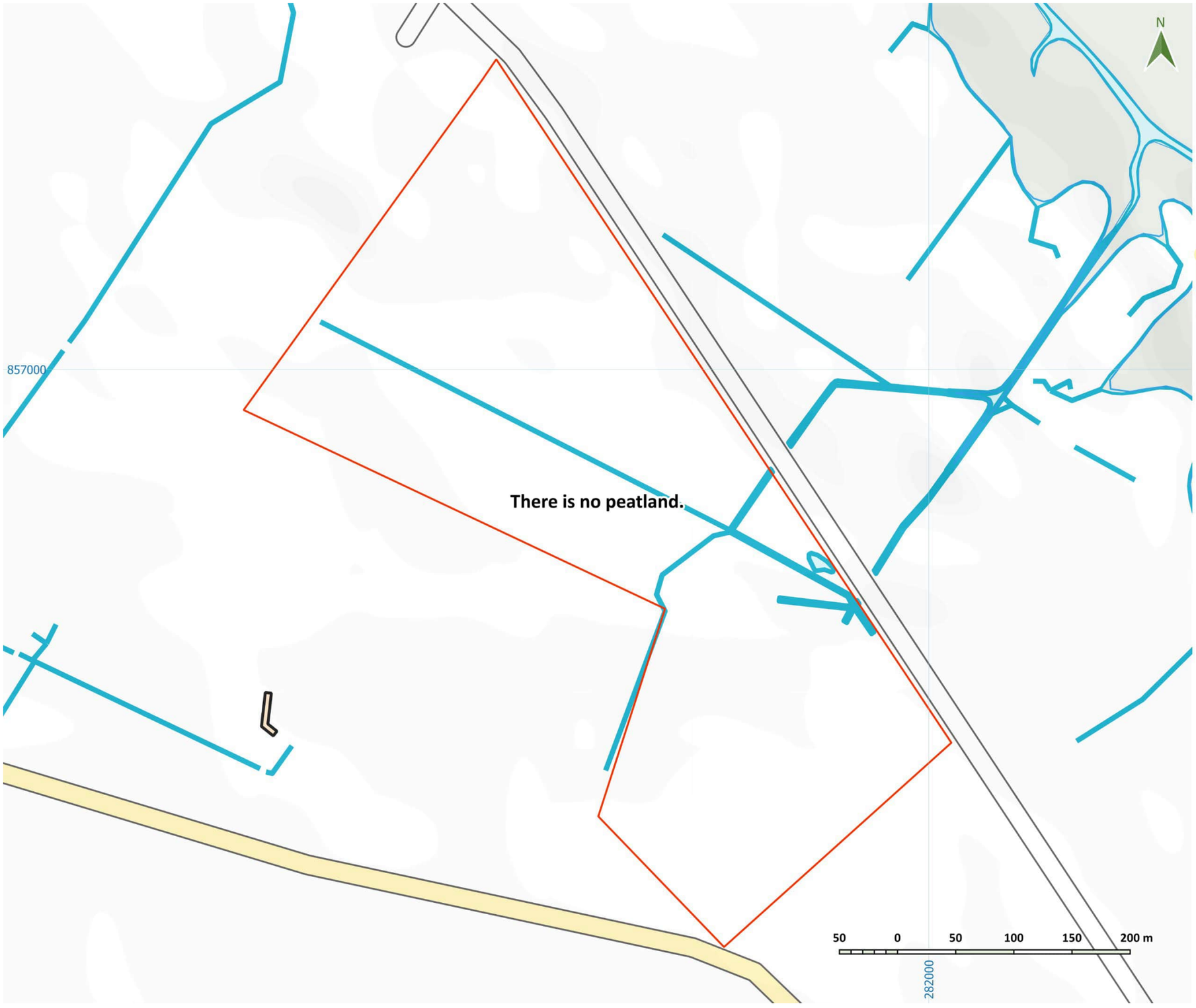
- Only a limited, aquifer is potentially present in the vicinity, due to the low topographic rise, landward, away from the site (that limits groundwater storage & pressure).
- Location of the potential GWDTE in shallow depressions (and the M6c-M23a alongside a drain) is strongly suggestive of surface water (rather than groundwater).
- There is no obvious groundwater discharge or chemical-modification (e.g. base-enrichment).

4.9 Consequently, the potential GWDTE are assessed to be surface water dependent, although groundwater *may* assist maintenance of a relatively high water table, as revealed by the pond & M6c-M23a mosaic; and to a lesser extent: the MG10a neutral grassland.

Notable species

4.10 The only notable species, in terms of conservation initiatives or legislation, is a single area with around six juniper shrubs (located in Map 6 and see Target Note 10 in Appendix 1). Otherwise, there is some interest in the frequency of Oxford ragwort, in an area where it is uncommon; the presence of stinkhorn fungus; and the species-poor, H11c & M6-M23b mosaic assemblages. Cross-leafed heath is isolated to the area of H11c dune heath identified by Target Note 6 in Appendix 1.

[18] British Geological Survey 1:625 000 hydrogeology mapping is at https://www.bgs.ac.uk/datasets/hydrogeology-625k/. Accessed 29/08/2025.



Map 7:
Peatland Condition Assessment.

Haventus Expansion Area

Peatland Condition Assessment

Legend

- Expansion Area

Physical features

- Building
- Foreshore
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Scale: 1:3,500 at A3

botanæco

Map 8:
Ecological importance.

Haventus Expansion Area

Ecological importance

Legend

Expansion Area

Conservation importance

Local

Site

Physical features

Building

Foreshore

Minor Road

Waterbody

High Water Mark

Low Water Mark

Tidal water

Watercourse

Scale: 1:3,500 at A3

botanæco

Map contains:

Constraint

4.11 The key habitat constraints identified by the survey & assessment are the following:

- Juniper shrubs included within the Scottish Biodiversity List and as a Priority Species in the UK Biodiversity Action Plan.

Mitigation

4.12 Habitat-related mitigation requires:

- Avoidance/conservation, translocation or off-setting for any impacts on juniper.

Biodiversity enhancement options

4.13 Additional biodiversity-related options include:

- Avoidance/conservation, translocation or off-setting of impacts upon distinctive:
  - H11c dry heath (including the area identified by Target Note 6 in Appendix 1).
  - M6c-M23b mosaic
  - MC9a dune grassland
  - W17b birch woodland.

Table 4: Assessment of ecological importance.

Phase 1 habitat code & title	National Vegetation Classification code & title	Notes	Importance
A1.1.1 Broadleaved woodland - semi-natural	**W17b** *Quercus petraea-Betula pubescens-Dicranum majus* woodland, typical sub-community	• Moderately extensive, species-poor, uneven & indistinctive habitat dominated by a small number of species. • Included within the Highland Local Biodiversity Action Plan & Scottish Biodiversity List. • Habitat area not known in Highland.	Local
A2.1 Scrub - dense/continuous	**W23** *Ulex europaeus-Rubus fruticosus* scrub	• Species-poor, uneven & indistinctive vegetation, that is behaving invasively to the detriment of other habitats. • Not included within the Highland Biodiversity Action Plan, Scottish Biodiversity List or Habitats Directive. • Habitat area not known in Highland.	Site
B1.1 Acid grassland - unimproved	**U4a** *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community	• Species-poor, uneven, and generally indistinctive vegetation. • Secondary habitat derived from heath & other habitats through pastoral management. • Included within the Highland Biodiversity Action Plan as a target for biodiversity enhancement. • Extent in Highland not known.	Site
B2.2 Neutral grassland - semi-improved	**MG10a** *Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community	• Single, minor area of very low species-richness, evenness & distinctiveness. • Rather rank, secondary habitat dominated by a rank growth of rushes. • Not included in the Highland Local Biodiversity Action Plan or Scottish Biodiversity List. • Extent in Highland not known.	Site
B5 Marsh/marshy grassland	**M23b** *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus effusus* sub-community	• Single, minor area of moderate species-richness, evenness & distinctiveness. • Semi-natural characteristics evident. • Included within the Scottish Biodiversity & Highland Biodiversity Action Plan. • Extent in Highland not known.	Local
G1.3 Standing water - oligotrophic	n.a.	• Single, minor area associated with distinctive, aquatic invertebrates, • Included within the Scottish Biodiversity List & Highland Biodiversity Action Plan.	Local
H6.5 Dune grassland	**MC9a** *Festuca rubra-Holcus lanatus* maritime grassland, *Plantago maritima* sub-community	• Species-poor, uneven & moderately distinctive vegetation dominated by red fescue &/or moss (*Pleurozium schreberi*). • Appears to be resistant to scrub encroachment and is likely to persist into the medium to long-term. • Included within the Highland Biodiversity Action Plan, Scottish Biodiversity List & Habitats Directive. • Extent in Highland not known.	Local
H6.6 Dune heath	**H11c** *Calluna vulgaris-Carex arenaria* heath, species-poor sub-community	• Minor, isolated areas of low to moderate species-richness, evenness & distinctiveness. • Medium to long-term persistence threatened by scrub encroachment. • Included within the Highland Biodiversity Action Plan, Scottish Biodiversity List & Habitats Directive. • Extent in Highland not known.	Local

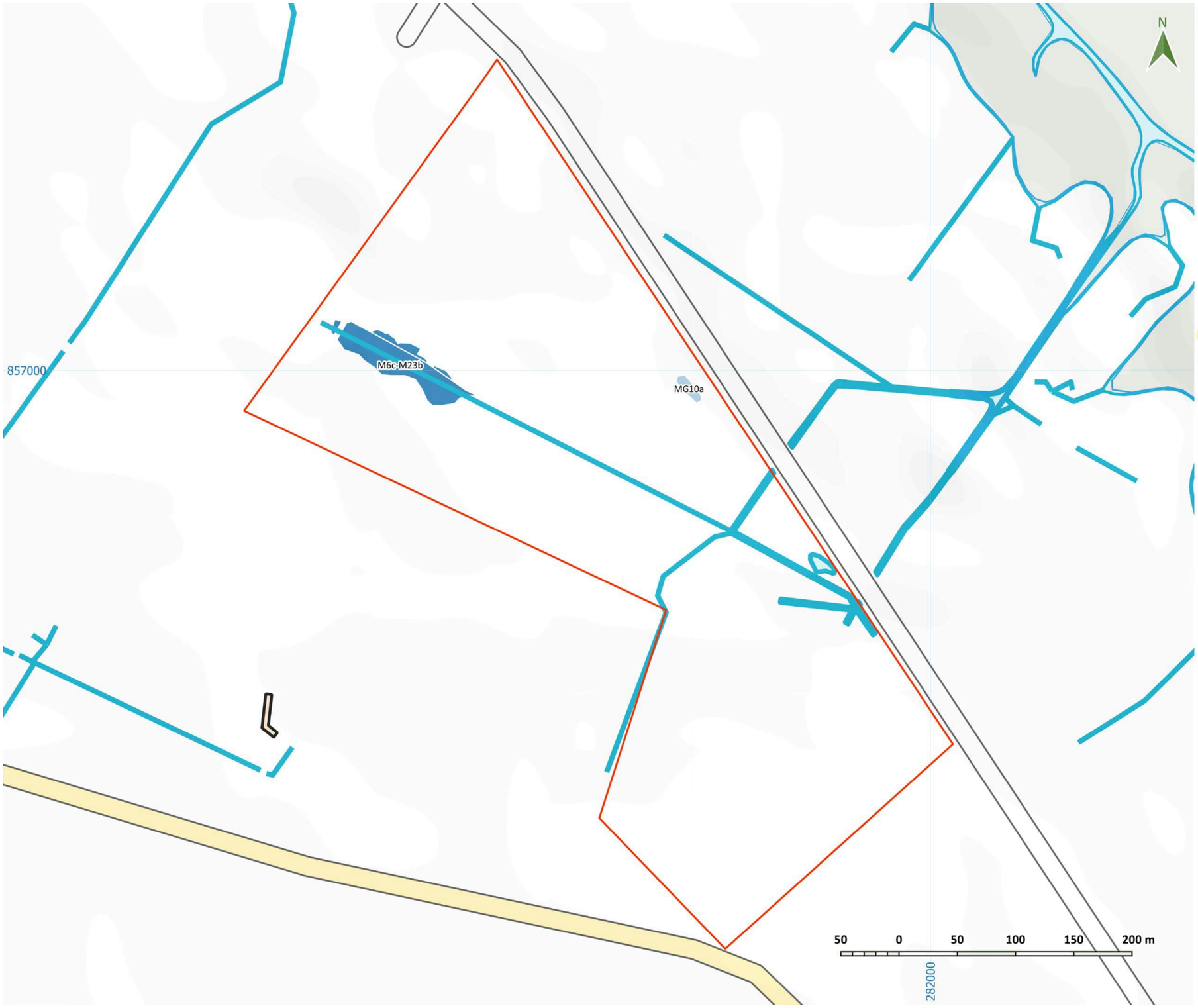
Table 5: Assessment of groundwater dependency.

Phase 1 habitat code & title	National Vegetation Classification code & title	Notes	Groundwater dependency	
			Guidance	Site-specific
B2.2 Neutral grassland - semi-improved	**MG10a** *Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community	• Only a limited, aquifer is potentially present in the vicinity, due to the low topographic rise, landward, away from the site (that limits groundwater storage & pressure). • Location of the potential GWDTE in shallow depressions (and the M6c-M23a alongside a drain) is strongly suggestive of surface water (rather than groundwater). • There is no obvious groundwater discharge or chemical-modification (e.g. base-enrichment).	Moderate	Low
B5-E2.1 mosaic	**M6c-M23b** mosaic		High	Low

Map 9:
Guidance groundwater dependency.

Haventus Expansion Area

GWDTE I: Guidance



Legend

- Expansion Area

Groundwater dependency

- High
- Moderate

Physical features

- Building
- Foreshore
- Waterbody
- Minor Road
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

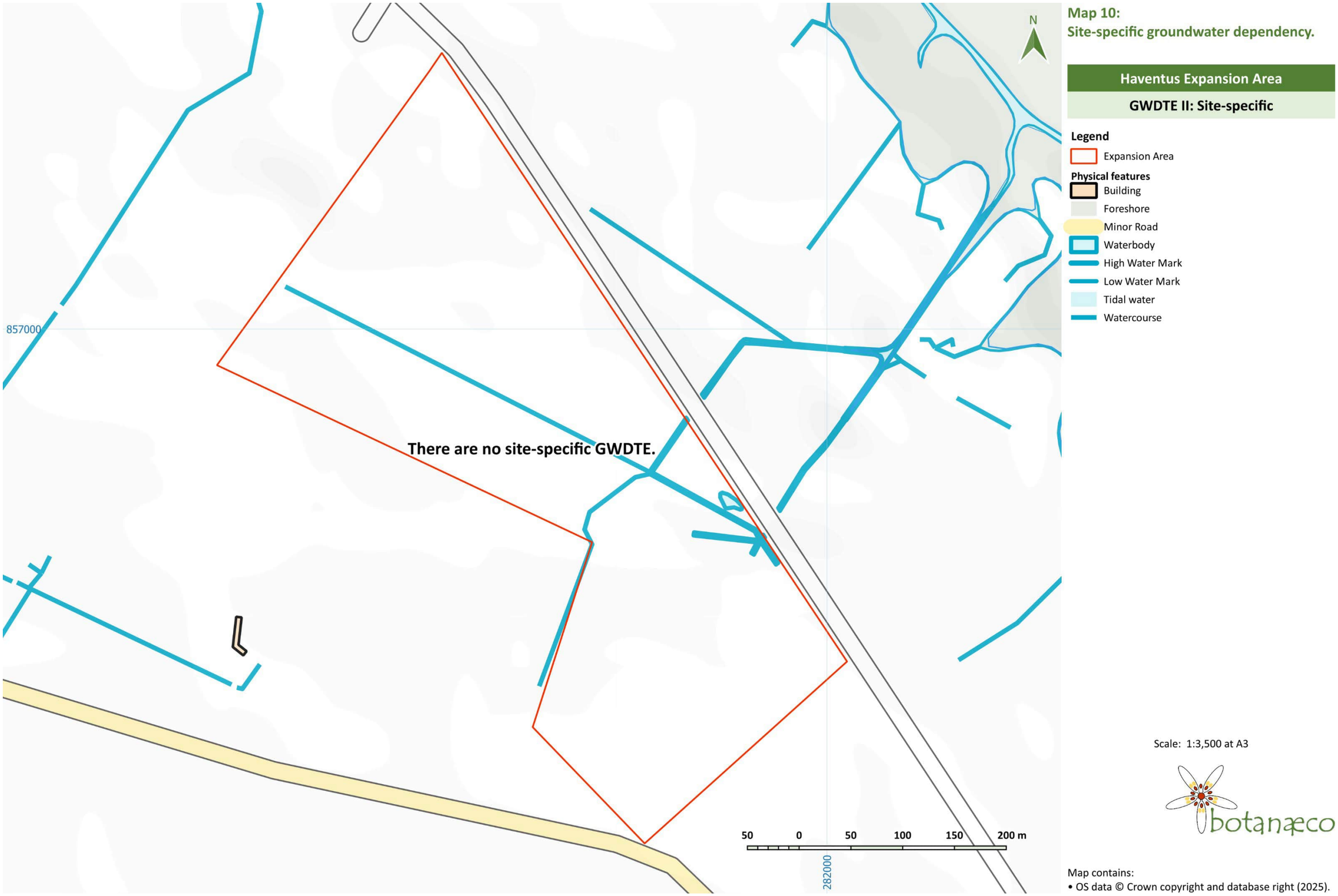
Scale: 1:3,500 at A3

Map contains:
• OS data © Crown copyright and database right (2025).

Map 10:
Site-specific groundwater dependency.

Haventus Expansion Area

GWDTE II: Site-specific



Legend

- Expansion Area

Physical features

- Building
- Foreshore
- Minor Road
- Waterbody
- High Water Mark
- Low Water Mark
- Tidal water
- Watercourse

Scale: 1:3,500 at A3

5 Conclusions

5.1 Several **statutory designations** are located in proximity to the site, including Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas and a Ramsar site.

5.2 The **Carbon & Peatland Map** identifies no Class 1, Class 2 or Class 5 peatland or peat soils.

5.3 **Ancient Woodland Inventory** sites are located at 22 m distance.

5.4 **Habitat areas**: Dense continuous scrub accounts for 11.6 ha (69 %) of the site and there is a moderate, 2.9 ha (17 %) extent of broadleaved (birch) woodland. The other habitats each account for less than 0.5 ha (3 %), including: unimproved, acid, dune & neutral grasslands; drain; dune heath; standing, oligotrophic water; & track.

5.5 Only one **notable plant species** has been recorded by the survey: juniper. Additional species & assemblages are of local interest.

5.6 No **peatland** is present.

5.7 No **deep peat** is present.

5.8 **Ecological importance** of the habitats ranges from Local to Site.

5.9 **GWDTE** are not identified in a site-specific context.

5.10 The key habitat **constraints** identified by the survey & assessment are juniper shrubs included within the Scottish Biodiversity List and as a Priority Species in the UK Biodiversity Action Plan.

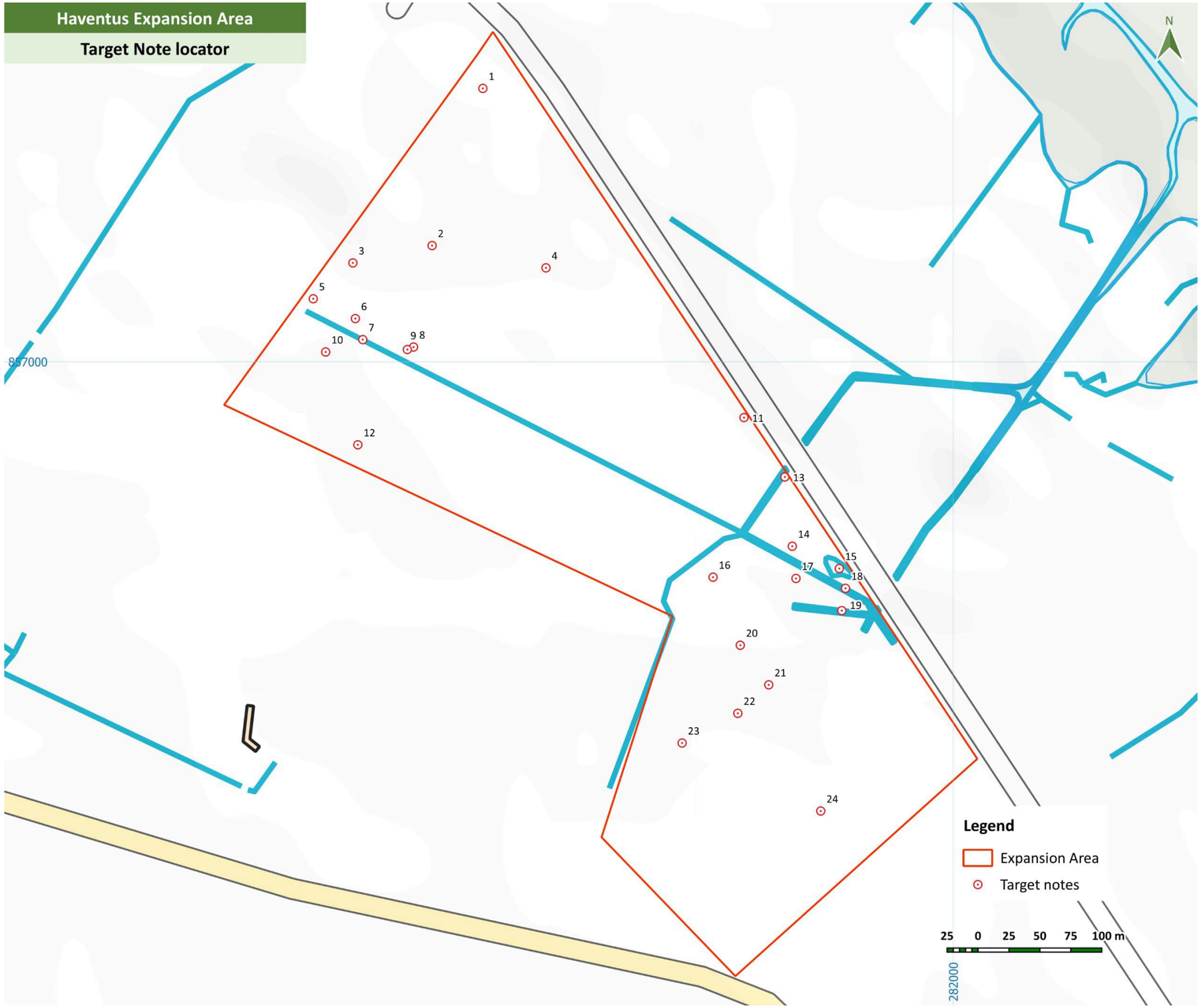
5.11 Habitat-related **mitigation** requires avoidance/conservation, translocation or off-setting for any impacts on juniper.

5.12 Additional **biodiversity enhancement**-related options include avoidance/conservation, translocation or off-setting of impacts upon distinctive:

- H11c dry heath (including the area identified by Target Note 6 in Appendix 1).
- M6c-M23b mosaic
- MC9a dune grassland
- W17b birch woodland.

Appendix 1

Target Notes


Haventus Expansion Area
Target Note locator
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Legend
Expansion Area
Target notes
25 0 25 50 75 100 m

Target No. & co-ords.	Description	Photograph
1 281620 857221	**Track** This representative area of the *c.* 6 m wide, wide, recently cut tracks, has a variable cover of bramble; broom & gorse saplings; common bent; & tormentil; and Yorkshire fog is generally dominant. Thread rush is abundant in the wheel ruts of wet sections, especially those adjacent to M23b marshy grassland.	
2 281579 857094	**U4a acid grassland** This area of U4a acid grassland has dominant to abundant Yorkshire fog and abundant to frequent common bent. There is also frequent to occasional: broad buckler-fern, common sedge, heath bedstraw, *Hylocomium splendens*, mat-grass, *Pleurozium schreberi*, sand sedge, sweet vernal grass & wavy hair-grass.	
3 281515 857080	**Stinkhorn** Two stinkhorn fruiting bodies are located here.	
4 281671 857076	**Gorse clearance** Clearance of mature gorse here reveals bare ground below the former shrubs.	
5 281483 857051	**W23a gorse scrub** The W23a scrub vegetation is co-dominated by broom & gorse, with an apparently increasing cover of birches & rare Scots pine.	
6 281517 857035	**H11c wet heath** Across *c.* 10 $m^{2,}$ there is a wet heath-like area of H11c vegetation that has abundant cross-leafed heath, crowberry & heather and frequent common sedge, *Pleurozium schreberi*, *Polytrichum commune* & tormentil.	
7 281523 857018	**M6c-M23b acid/neutral flush - marshy grassland mosaic** In this variable area of M6c-M23b acid/neutral flush - marshy grassland mosaic the dominant soft-rush forms a rank, to more open, sward. Its dominance is patchily displaced by abundant Polytrichum commune, so the vegetation is M6c-like. Otherwise, there is frequent to occasional: common bent, common sedge, heather, heath wood-rush, marsh pennywort, *Pleurozium schreberi*, sand sedge, sorrel, sweet vernal grass, velvet bent & Yorkshire fog. There are also rare grey willow saplings and patches of *Sphagnum fallax* & *Sphagnum fimbriatum* in the obscured drain that parallels the adjacent track.	
8 281564 857012	**H11c coastal heath** This area of H11c coastal heath has abundant crowberry & heather; and occasional broad buckler-fern, common sedge, *Hylocomium splendens* & soft-rush.	

Target No. & co-ords.	Description	Photograph
9 281559 857010	**Track** The track is somewhat waterlogged here. Thread rush lines the ruts and soft-rush is frequent along the centre-line.	
10 281493 857008	**Juniper** Approximately half a dozen, mature junipers are concentrated here.	
11 281831 856955	**MC9a coastal grassland** Red fescue is dominant and exclusively so across much of the MC9a area, with patchily dense accumulations of its litter. In addition, there is frequent to occasional: autumn hawkbit, common bent, compressed meadow-grass, *Peltigera* sp. (a lichen), *Pleurozium schreberi*, *Rhytidiadelphus squarrosus* & white clover. Marsh arrow-grass occurs rarely.	
12 281519 856933	**Oxford ragwort** Oxford ragwort is occasional along tracks. It is not a common plant in NE Scotland and may have been recently introduced.	
13 281864 856907	**Drain** In this section of drain, creeping bent is exclusively dominant and there is a small (1 m2) area of hastate-leaved orache at the drain end, at its union with a culvert.	

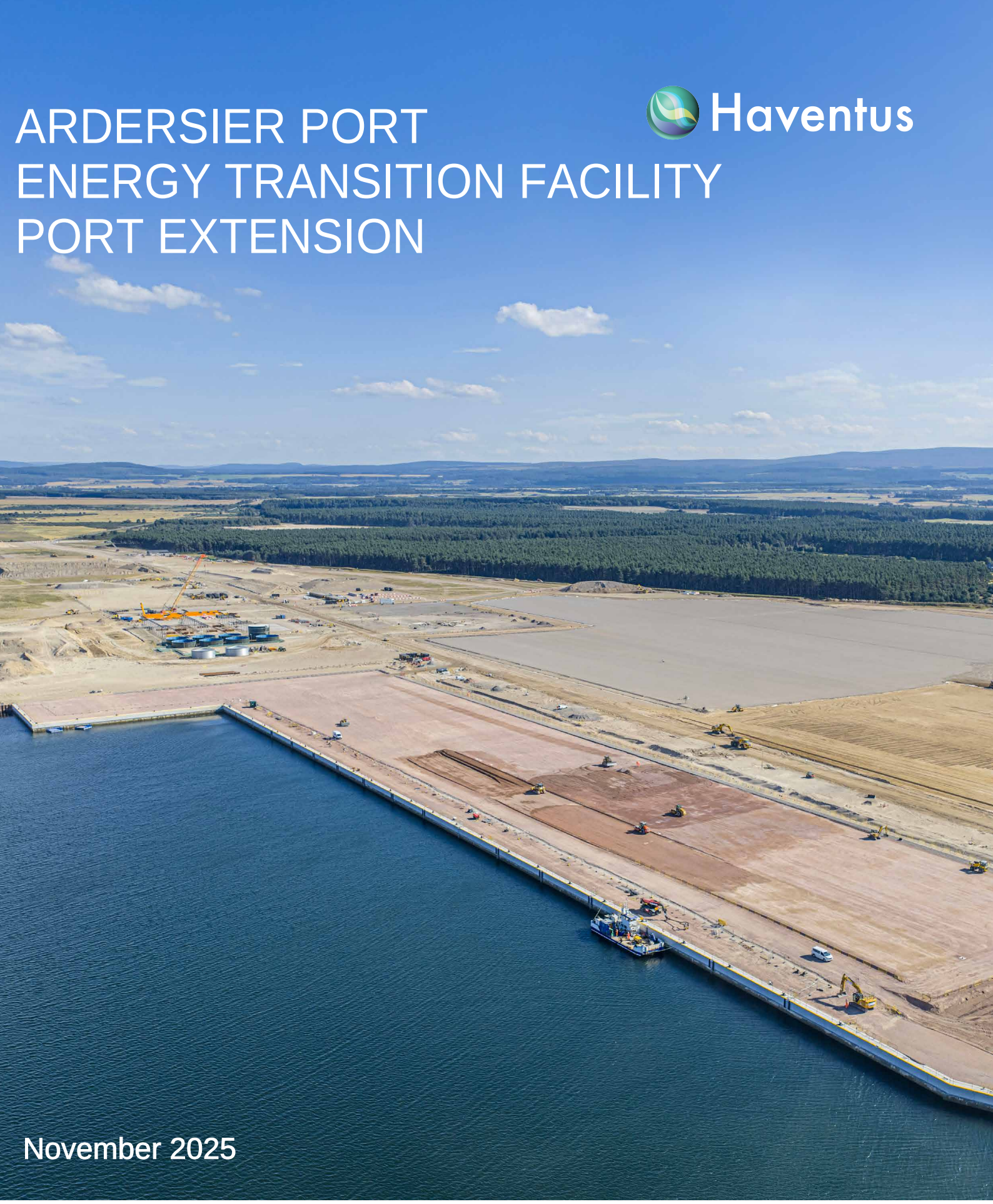
Target No. & co-ords.	Description	Photograph
14 281870 856851	**MC9a coastal grassland** This area of MC9a coastal grassland is equivalent to that described by Target Note 11, but there are very rank areas dominated by red fescue, and accumulations of its leaf litter. There is also occasional tufted vetch, broom saplings, common bent, common sedge, rosebay willowherb, sand sedge & silverweed; and rare crowberry & sneezewort.	
15 281908 856833	**Pond** Oligotrophic pond with some peat-staining. In the margins, there is overhanging gorse, except to the south, where there is abundant creeping bent; a minor area of common spike-rush; & rare marsh pennywort. On the water surface, there is abundant common pond skaters & frequent whirligig beetles. A common darter male was active nearby, during the survey.	
16 281806 856826	**Birch scrub** Birch scrub is developing here, over U4 acid grassland & H11c heath. Consequently, the field layer is very variable, ranging from the 'U4a grasses' & broad buckler-fern; to persistent heather & heath; or senescent gorse.	
17 281873 856825	**Senescent shrubs & trees** Senescent birch, gorse & Scots pine here may suggest a recent hydrological change.	
18 281913 856817	**Drain** This section of drain is unvegetated or choked with creeping bent.	

Target No. & co-ords.	Description	Photograph
19 281910 856799	**Drain** This drain is choked with creeping bent or soft-rush, with occasional Oxford ragwort & crisped dock.	
20 281828 856771	**Moribund heather** The heather here is moribund. The loss of leaves suggests heather beetle but frost damage is also possible as there is no foxy-red colouration persistent on the weathered stems (the former is a characteristic of the beetle's damage).	
21 281851 856739	**U4a acid grassland** In this representative area of U4a acid grassland, common bent is abundant; with frequent Yorkshire fog; and occasional: bramble, broad buckler-fern, common sedge, heath bedstraw, *Hylocomium splendens*, *Pleurozium schreberi*, soft-rush, tormentil & wavy hair-grass. There are also patchy areas of heath; frequent broom & gorse saplings; and occasional birch saplings.	
22 281826 856716	**H11c coastal heath** This area of H11c coastal heath is comparable to that recorded by Target Note 23 but is much more heavily colonised by broom, birch, gorse & Scots pine seedlings & saplings, in decreasing order of abundance.	
23 281781 856692	**H11c coastal heath** Heather is dominant in this area of H11c coastal heath, with abundant *Hylocomium splendens*; occasional common sedge, cross-leafed heath, crowberry, *Pleurozium schreberi*, soft-rush, tormentil & wavy hair-grass. A recently-established track passes through the centre.	

Target No. & co-ords.	Description	Photograph
24 281893 856637	**W17b birch woodland** Birch is dominant in the tall (*c.* 10 m to 12 m), even-aged & sized canopy of this woodland. There is also rare goat willow and a scattered understory of moribund gorse. In the variable field layer, there is abundant Rhytidiadelphus triquetrus & wavy hair-grass; with frequent to occasional: broad buckler-fern, common bent, common sedge, common soft-brome, heath bedstraw, *Hylocomium splendens*, *Polytrichum commune*, *Scleropodium purum* & tufted hair-grass. Stumps & dead wood on the ground have a cover of abundant *Isothecium myosuroides* and more occasional *Dicranum majus*.	

ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION

Haventus



November 2025

Appendix 12.15 National Vegetation Classification

Haventus Ardersier Port

Technical Appendix: National Vegetation Classification

JULY 2025 FOR HAVENTUS

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1.0 Background

This survey was commissioned by HED Ltd of Dingwall in early 2025, continuing from a survey carried out in summer 2024.

Four further areas were surveyed:

- **Site 3**: the un-named 'lagoon' in the west of the site almost adjacent to Fort George Ministry of defence land – this area includes a small sandy spit to the west;
- **Site 4**: the narrow spit of land that extends west-northwest from Delnies to Whiteness Head;
- **Site 5**: narrow strips of made ground on both sides of the straight road between the site entrance and the site offices;
- **Site 6**: the woodland enclave some 500m west of the site offices.

A follow-up survey was carried out on the gorse-infested dune slack surveyed in 2024 named **Site 2** in last year's report. *Pinus sylvestris* forestry (**Site 1** in last year's report) was not looked at again. Results from the previous NVC survey at Site 1 and Site 2 are provided in Section 3.1, see also HED Ltd (2024).

2.0 Methodology

2.1 NVC Methodology

The survey was carried out by walking through the sites while mapping vegetation (and vegetation communities) onto georeferenced aerial photography. The survey was carried out in early June 2025 in fine weather.

2.2 Limitations

Seasonal constraints on plant identification were assessed after the survey to have been small apart from late growth and flowering of some species on the spit.

Access to the sites was unconstrained apart from the wet core of the lagoon which was inaccessible due to depth of water.

3.0 Results

3.1 NVC Site Descriptions 2024

3.1.1. Site 1: Plantation Woodland (formerly Landholdings of the Company Trust)

The only plant of note is the nationally scarce *Goodyera repens*. It occurs throughout the *Pinus* plantation and would likely become yet more abundant if the trees were managed sympathetically.

W10d woodland with a coniferous canopy is of limited inherent interest, although with sympathetic management (irregular thinning and deliberate creation of standing and fallen deadwood), the woodland would become a more useful habitat for invertebrates, then mammals and birds.

Table 1: Results from 2024 NVC Survey at Site 1 Plantation Woodland (formerly Landholdings of the Company Trust)

NVC	NVC Label	Phase1	Ph1 Code	Notes
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d with much Goodyera repens & many mature SP.
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Very grassy & species-poor field layer, close to W10d; likely open to sheep or cattle more recently than elsewhere; occasional Goodyera repens
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Ditch with dense Ulex europaeus scrub
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens

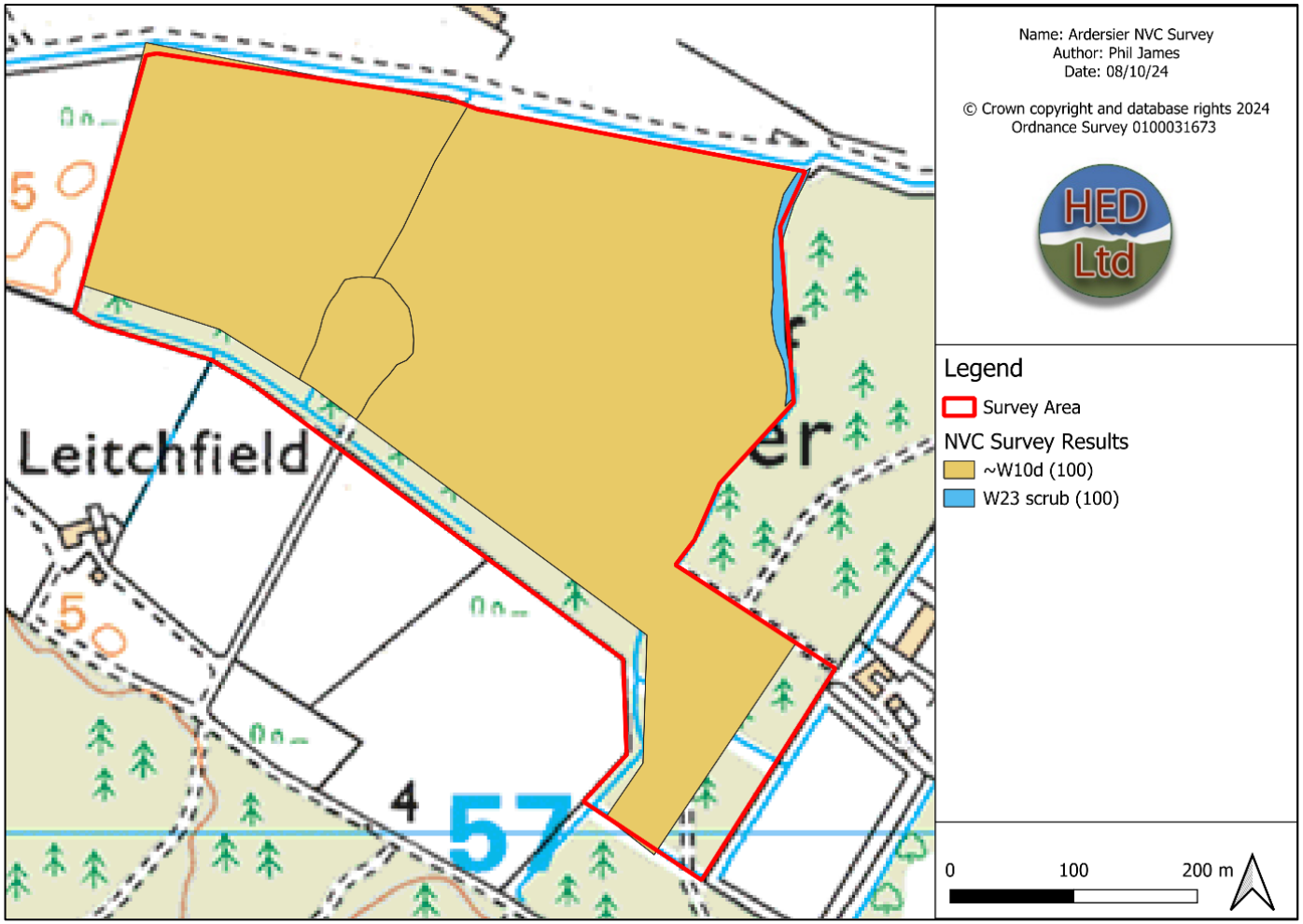

Figure 1: Results from NVC Survey 2024 at Site 1 Plantation Woodland (formerly Landholdings of the Companies Trust)

3.1.2. Site 1: Plantation Woodland (formerly The Dowager Countess Cawdor)

The survey area consists predominantly of a plantation of evenly spaced *P. sylvestris* that would appear to have been thinned once, with many mossy stumps showing.

The field layer is generally grassy without being rank, with variably abundant and diverse mosses, small herbaceous species, sparse dwarf-shrubs and occasional browsed tree regeneration. The most notable plant is the locally frequent pinewood specialist orchid, *Goodyera repens* – this occurs under nearly all parts of the *Pinus* canopy (see Appendix 4). Flowering spikes are relatively infrequent, suggesting that a further thinning of the *Pinus* canopy would optimize light conditions and allow it to spread by seed as well as by rhizome.

Despite the *Pinus* canopy, the floristic data do not give a good match to **W18** *Pinus sylvestris – Hylocomium splendens* woodland. All **W18** sub-communities have at least frequent ericaceous species, and here neither *Calluna* or *Vaccinium* spp. are more than occasional whereas grasses (notably *Agrostis capillaris*, *Holcus mollis* and *Anthoxanthum odoratum*) as well as several herbaceous species not normally found in **W18** were found to be common. Throughout the British lowlands, woods that have been converted to conifer plantations and newly planted conifer plantations that are thinned show a field layer much more akin to **W10d** *Quercus robur – Pteridium aquilinum – Rubus fruticosus* woodland, *Holcus lanatus* sub-community; this is what is found here.

Along unplanted strips (a power line wayleave and ditches), *Ulex* has come to dominate, at least until flailed to allow access. The field layer under *Ulex* is grassy and rather sparse and just about allows classification as **W23** *Ulex europaeus – Rubus fruticosus* scrub.

No Invasive Non-native Species (INNS) were observed within the survey area.

Table 2: Results from 2024 NVC Survey at Site 1 Plantation Woodland (formerly The Dowager Countess Cawdor)

NVC	NVC Label	Phase1	Ph1 Code	Notes
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens
n/a	n/a	n/a	n/a	Flailed scrub & young trees
n/a	n/a	Ephemeral vegetation	J1.3	Sparse cover of grasses and Potentilla anserina
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Dense Ulex europaeus
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Dense Ulex europaeus
n/a	n/a	Coniferous plantation	A1.2.2	Windblown Pinus contorta & much Betula spp. regen
n/a	n/a	Coniferous plantation	A1.2.2	Pinus contorta with sparse field layer
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens; trees slightly larger, and Goodyera more abundant than elsewhere
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Ulex europaeus with birch regen, Calluna and mosses; not recently cleared
n/a	n/a	Semi-natural broadleaved woodland	A1.1.1	Betula spp., Salix aurita, SS & Pinus contorta at edge of wayleave
n/a	n/a	Coniferous plantation	A1.2.2	Unthinned SS poles with very sparse field layer
n/a	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Some windblown SP with Betula spp. poles and ER in gaps

~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens

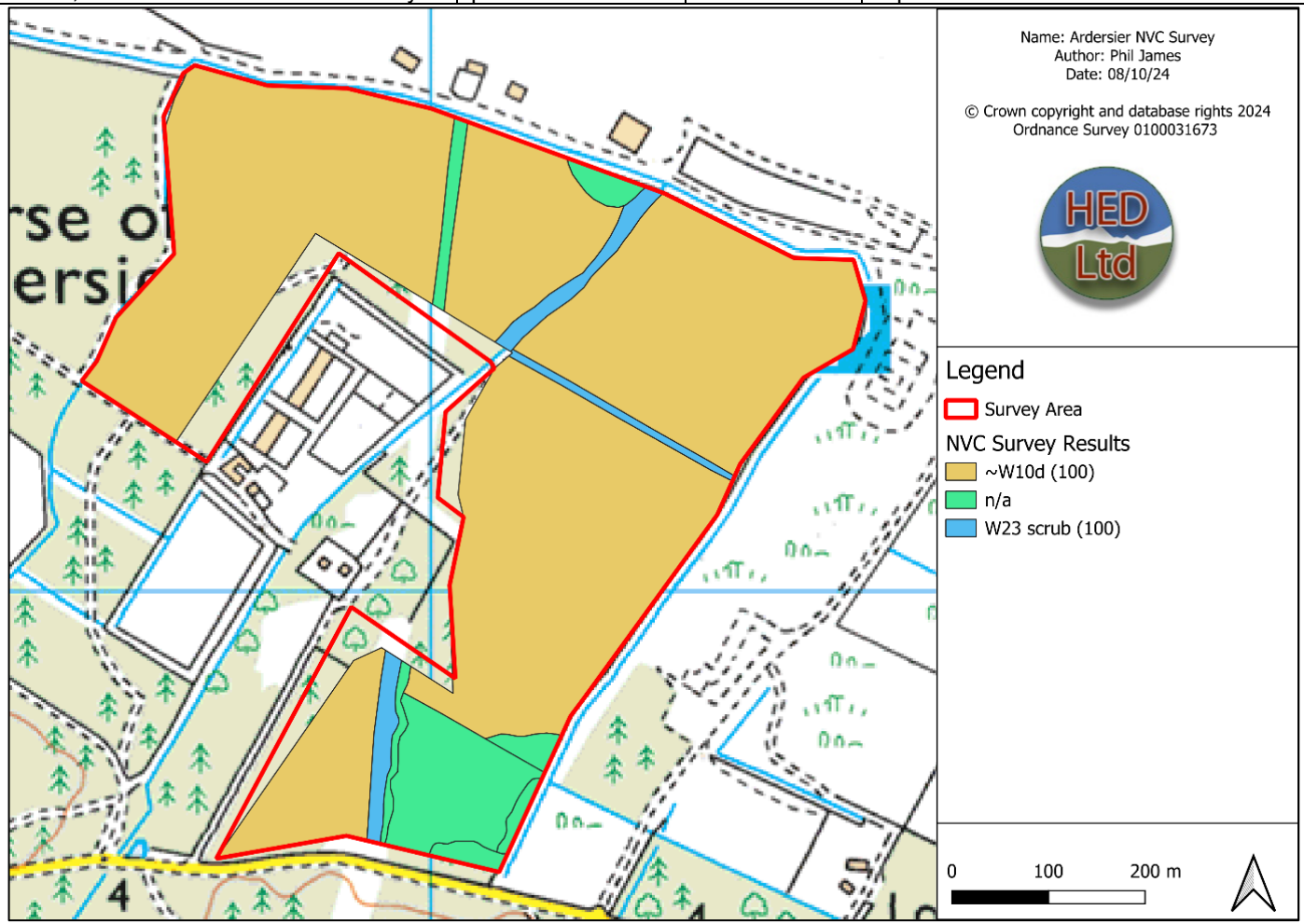

Figure 2: Results from NVC Survey 2024 at Site 1 Plantation Woodland (formerly The Dowager Countess Cawdor)

3.2 NVC Site Descriptions 2025

Of the plant communities surveyed this year, out with Site 3, there were no ground water dependent terrestrial ecosystems recorded. However, at Site 3, it is likely that most woodland is groundwater dependant, and without surveying the wet centre of this site, no assessment of dependency can be made here. See SEPA (2024) for guidance on assessing the impacts of development on groundwater abstractions.

3.2.1 Site 2: Dune-slack

The purpose of re-surveying this area this year at an earlier stage of the growing season was to identify any further plants that might have been missed in 2024. This was attempted but due to the very dry spring and early summer, the vegetation had a very bedraggled appearance, and by looking at the ditches, it was clear that the water table is much lower than in summer 2024. No botanical data was added to that gathered in 2024.

Table 3: Results from 2024 NVC Survey at Site 2 dune-slack (formerly The Cawdor Maintenance Trust)

NVC	NVC Label	Phase1	Ph1 Code	Notes
n/a	n/a	Open water, periodically brackish	G1.6	Salinity likely to fluctuate tidally and seasonally.
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Dominated by Cytisus scaoparius & Ulex europaeus
SD17d dune slack (100)	SD17c Potentilla anserina - Carex nigra dune-slack community, Hydrocotyle vulgaris - Ranunculus flammula sub-community	Dune slack	H6.4	Tussocky, moderately spp.-rich sward with halophytes
n/a	n/a	n/a	n/a	Inaccessible, unsurveyed due to dense scrub, mainly Ulex europaeus
M23b rush-pasture > W4b woodland	W4b Betula pubescens - Molinia caerulea woodland, J. effusus sub-community, M23b J. effusus/acutiflorus - Galium palustre rush-pasture, J. effusus sub-community	Marshy grassland, scattered scrub + trees	B5, A2.2, A3.3	Dominated by J. effusus with increasing cover of scrub and young trees

M23b rush-pasture > W4b woodland	W4b Betula pubescens - Molinia caerulea woodland, J. effusus sub-community, M23b J. effusus/acutiflorus - Galium palustre rush-pasture, J. effusus sub-community	Marshy grassland, scattered scrub + trees	B5, A2.2, A3.3	Dominated by J. effusus, in parts with increasing cover of scrub and young trees
M23b rush-pasture > W4b woodland	W4b Betula pubescens - Molinia caerulea woodland, J. effusus sub-community, M23b J. effusus/acutiflorus - Galium palustre rush-pasture, J. effusus sub-community	Marshy grassland, scattered scrub + trees	B5, A2.2, A3.3	Dominated by J. effusus, in parts with increasing cover of scrub and young trees
M23b rush-pasture, H11c heath, SD17d dune slack	M23b J. effusus - Galium palustre rush-pasture, J. effusus sub-community, H11c C. vulgaris - Carex arenaria heath, spp.-poor sub-community & SD17c Potentilla anserina - Carex nigra dune-slack, Hydrocotyle vulgaris - Ranunculus flammula sub-community	Marshy grassland, dune heath, dune slack	B5, H6.6, H6.4	Mosaic of Juncus- and Calluna-dominated vegetation with small marshy patches
H11c heath, SD17c dune slack	H11c Calluna vulgaris - Carex arenaria heath, spp.-poor sub-community & SD17c Potentilla anserina - Carex nigra dune-slack, Hydrocotyle vulgaris - Ranunculus flammula sub-community	Dune heath, dune slack + scattered trees, scrub	H6.6, H6.4, A2.2, A3.3	Mainly Calluna-dominated heath with a few small marshy hollows; frequent Ulex, SP, Betula spp., occasional Cytisus scoparius & Salix aurita
SD17d dune slack (100)	SD17c Potentilla anserina - Carex nigra dune-slack community, Hydrocotyle vulgaris - Ranunculus flammula sub-community	Dune slack	H6.4	Tussocky, moderately spp.-rich sward with halophytes

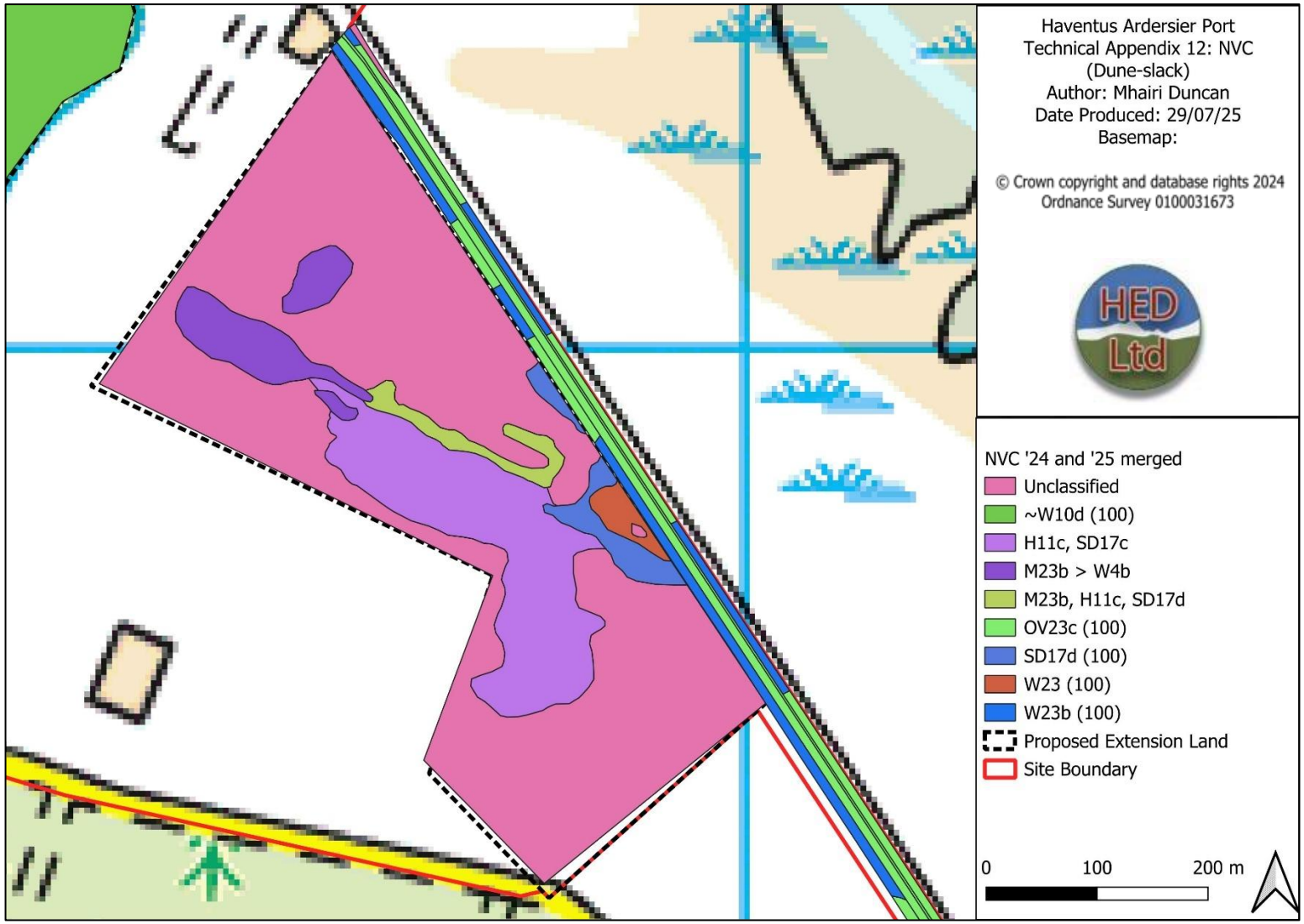

Figure 3: Map Showing NVC Survey Results (Dune-slack 2025)

3.2.2 Site 3: Lagoon

The nominal survey area here is around 20ha, all of which is below 5m asl and includes woodland, wetland, open water and saltmarsh that were not surveyed due to lack of safe access. Woodland, scrub, neutral and acid grasslands, dune grassland, open dune vegetation, strandline vegetation, swamp and ephemeral vegetation were recorded. Some vegetation stands recorded were not classified to NVC and some others were a less than good fit to the classification, due to the recent origin of the vegetation here.

A few small specimens of *Centaurium littorale* were found on the stone road on the south side of the bund (three plants at NH8004657614 and one plant at NH8001857614). *C. littorale* is scarce, i.e., recorded in between 16 and 100 10km squares in the UK between about 1970 and 1990 (Stewart D. *et al*, 1994). The coast between Ardersier and Forres (and more generally the Moray Firth coast) appears to be one of its strongholds, although the great majority of recent records are from the west coasts of England, Wales and Scotland.

A few scattered specimens of *Dactylorhiza incarnata* were recorded near the west shore of the lagoon.

Trees and plant communities recorded correlate with the recent origin of the site, i.e., trees are mostly of small stature and there is no correlation with recognised NVC woodland types. The lagoon and surrounding earthworks were reportedly created in the 1970s or 1980s. The largest woodland stand is less than 0.2ha in size on the north-west side of the lagoon, with a mixture of *Betula pubescens* and *Salix* spp., likely the hybrid *S. cinerea* x *S. aurita* = *S. multinervis*. There are extensive stands of W23 scrub dominated largely by *Ulex europaeus*, notably along the bund that runs most of the way round the lagoon; in places, small trees are starting to appear, suggesting that in time, the scrub will succeed to woodland.

Open water fringes are dominated by mixtures of *Carex rostrata* (S9 *Carex rostrata* swamp) and *Typha latifolia* (S12d *Typha latifolia* swamp, *Carex rostrata* sub-community) which are both quite species-poor. Along the western fringe, between swamp and scrub/woodland, is a stand of MG9a *Holcus lanatus - Deschampsia cespitosus* grassland, *Poa trivialis* sub-community (with a few *D. incarnata*).

To the north-west of the lagoon and beyond the bund is a mosaic of vegetation types including small stands of U1d *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland, *Anthoxanthum odoratum - Lotus corniculatus* sub-community, a small stand of species-poor neutral grassland dominated by *Deschampsia cespitosa* (not classified to NVC), H11a *Calluna vulgaris - Carex arenaria* heath, *Erica cinerea* sub-community and SD4 *Elymus farctus* ssp. *boreali-atlanticus* foredune community. Alongside the stone track to the west of the lagoon and

above the spring tide high water line are strips of SD9a *Ammophila arenaria - Arrhenatherum elatius* dune grassland, Typical sub-community and SD6g *Ammophila arenaria* mobile dune, *Carex arenaria* sub-community. On the small spit to the west are mosaics of SD2 *Honkenya peploides - Cakile maritima* strandline community and SD6f *Ammophila arenaria* mobile dune community, *Poa pratensis* sub-community; SD2 strandline community is also found sparsely on the surrounding shingle. Note the presence of U1d acid grassland is unusual in Scotland but is here due to the very dry climate in the southern Moray Firth coastal strip which typically has very low rainfall in early season.

Table 4: Results from NVC Survey at Site 3 (Lagoon)

NVC	NVC Label	Phase1	Ph1 Code	Notes
SD2 / SD6c (20/80)	SD2 Honkenya peploides - Cakile maritima strandline community / SD6f Ammophila arenaria mobile dune community, Poa pratensis sub-community (20/80)	Strandline vegetation / open dune	H5 / H6.8 (20/80)	
BS & SD2	Mobile sand / SD2 Honkenya peploides - Cakile maritima strandline community	Shingle & strandline vegetation	H3 & H5	
-	Unclassified	Saltmarsh	H2 (100)	
made ground	-	Bare ground	J4 (100)	dredged material
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
-	-	Scrub	A2.1 (100)	Rosa spp.
-	-	-	-	unsurveyed
-	-	Scrub	A2.1 (100)	Rosa spp.
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
SD9a (100)	SD9a Ammophila arenaria - Arrhenatherum elatius dune grassland, Typical sub-community	Dune grassland	H6 (100)	
SD9a (100)	SD9a Ammophila arenaria - Arrhenatherum elatius dune grassland, Typical sub-community	Dune grassland	H6 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	Occasional young Pinus sylvestris
SD6g (100)	SD6g Ammophila arenaria mobile dune, Carex arenaria sub-community	Open dune	H6.8 (100)	

U4a (100)	U4a Festuca ovina - Agrostis capillaris - Galium saxatile grassland, Typical sub-community	Unimproved acid grassland	B1.1 (100)	
-	Standing water	Open water	G1 (100)	
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
-	Unclassified	Scattered scrub, ephemeral vegetation	A2.2, J1.3	Ulex & Cytisus
-	-	Bare ground	J4 (100)	<1% vegetated
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub, scattered trees	A2.1 (100) + A3.1	scattered Betula spp.
SD4 (100)	SD4 Elymus farctus ssp. boreali-atlanticus foredune community	Strandline vegetation	H5 (100)	
U1d (100)	U1d Festuca ovina - Agrostis capillaris - Rumex acetosella grassland, Anthoxanthum odoratum - Lotus corniculatus sub-community	Unimproved acid grassland	B1.1 (100)	
H11a (100)	H11a Calluna vulgaris - Carex arenaria heath, Erica cinerea sub-community	Dry dwarf shrub heath	D1.1 (100)	includes occasional Dactylorhiza incarnata
MGxx (100)	Unclassified	Unimproved neutral grassland	B2.1 (100)	species-poor dominated by Deschampsia cespitosa
W23 + H11c	W23 Ulex europaeus - Rubus fruticosus scrub / H11c Calluna vulgaris - Carex arenaria heath, spp.-poor sub-community (20/80)	Scrub, dry dwarf shrub heath, scattered conifers	A2.1, A3.2, D1.1	Ulex & Cytisus with some young SP
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer

-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Young wet woodland with sparse field layer; Betula & Salix spp.
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Young wet woodland with sparse field layer; Betula & Salix cinerea x aurita.
-	-	Bare ground	J4 (100)	<1% vegetated
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
S12d (100)	S12d Typha latifolia swamp, Carex rostrata sub-community	Swamp	F1 (100)	
MG9a (100)	MG9a Holcus lanatus - Deschampsia cespitosus grassland, Poa trivialis sub-community	Unimproved neutral grassland	B2.1 (100)	includes occasional Dactylorhiza incarnata
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
SD12a (100)	SD12a Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland, Anthoxanthum odoratum sub-community	Dune grassland	H6 (100)	
MG9a (100)	MG9a Holcus lanatus - Deschampsia cespitosus grassland, Poa trivialis sub-community	Unimproved neutral grassland	B2.1 (100)	includes occasional Dactylorhiza incarnata
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix

W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	with occasional Cytisus & Salix aurita
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
-	Unclassified	Other habitat	J5 (100)	rough grassy bank cleared of scrub
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix
S12a (100)	S12a Typha latifolia swamp, T. latifolia sub-community	Swamp	F1 (100)	
-	-	Standing water - seasonal	G1 (100)	
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
U4b (100)	U4a Festuca ovina - Agrostis capillaris - Galium saxatile grassland, Holcus lanatus - Trifolium repens sub-community	Semi-improved acid grassland	B1.2 (100)	
Wxx (100)	Unclassified	Planted broadleaved woodland	A1.1.2 (100)	Acer pseudoplatanus
-	Unclassified	Ephemeral vegetation	J1.3 (100)	
U4a (100)	U4a Festuca ovina - Agrostis capillaris - Galium saxatile grassland, Typical sub-community	Unimproved acid grassland	B1.1 (100)	
S12a (100)	S12a Typha latifolia swamp, T. latifolia sub-community	Swamp	F1 (100)	
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Young wet woodland with sparse field layer; Alnus glutinosa & Salix cinerea.

W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
S12a (100)	S12a Typha latifolia swamp, T. latifolia sub-community	Swamp	F1 (100)	
S9 (100)	S9 Carex rostrata swamp - sub-community not determined	Swamp	F1 (100)	not surveyed in detail - viewed through binoculars only
BS & SD2	Mobile sand / SD2 Honkenya peploides - Cakile maritima strandline community	Shingle & strandline vegetation	H3 & H5	
road	-	Bare ground	J4 (100)	occasional Centaurium littorale in east

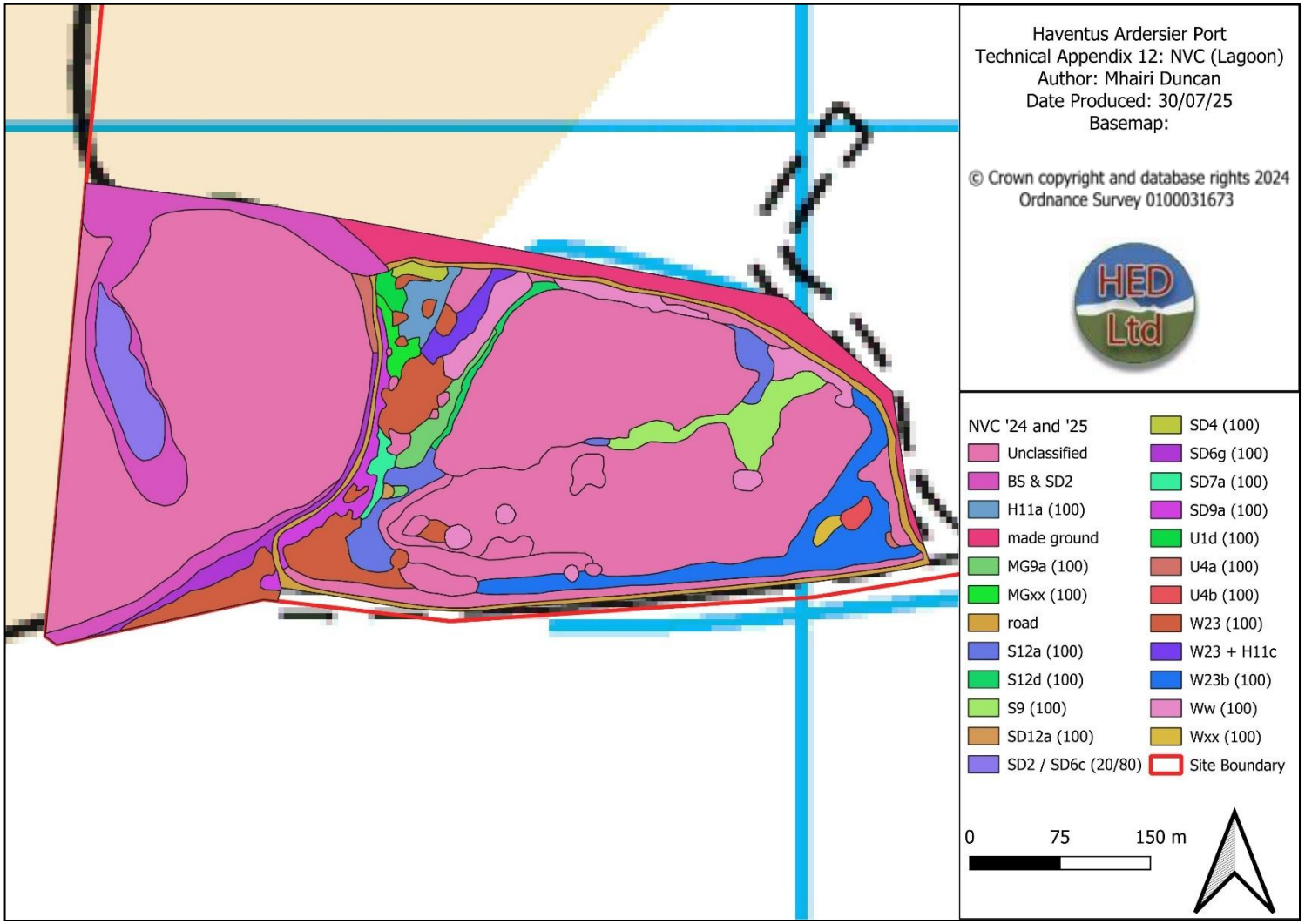

Figure 4: Map Showing NVC Survey Results (Lagoon)

3.2.3 Site 4: Whiteness Head

The surveyed area here is around 25ha in a strip no more than 200m wide at the east end and dwindling to less than 50m of shingle at the west end. The site is all barely above sea level.

Some mapping difficulties were encountered at the west end where the land has been altered by recent works, and there were some seasonal issues with identification of monocot species.

The bulk of the vegetation is either SD12 *Carex arenaria - Festuca ovina - Agrostis capillaris* dune grassland (no clear sub-community) especially in the east, tending towards SD7a *Ammophila arenaria - Festuca rubra* semi-fixed dune community, Typical sub-community further west; there are smaller stands of SD9a *Ammophila arenaria - Arrhenatherum elatius* dune grassland, Typical sub-community and SD8b *Festuca rubra - Galium verum* fixed dune grassland, *Luzula campestris* sub-community and scattered throughout are evidently expanding stands of W23b *Ulex europaeus - Rubus fruticosus* scrub, *Rumex acetosella* sub-community. One small stand of H11c *Calluna vulgaris - Carex arenaria* heath, spp.-poor sub-community near the east end and two stands of strikingly extensive *Rosa* spp. were recorded. On the eroding remains of a 4m high small dune were noted a few *Juniperus communis* shrubs associated with ferns including Dryopteris dilatata and *Polypodium vulgare*.

On the north side of the vegetated strip, there is a naturally terraced bank of shingle with small, fragmentary stands of SD2 *Honkenya peploides - Cakile maritima* strandline community; this side is slowly growing by accretion.

The south side is eroding so there is far less strandline vegetation.

Table 5: Results from NVC Survey at Site 4 (Whiteness Head)

NVC	NVC Label	Phase1	Ph1 Code	Notes
Blown sand	-	Intertidal sand	H1.2 (100)	
shingle / SD2 (100/-)	shingle / SD2 Honkenya peploides - Cakile maritima strandline community	Shingle + strandline vegetation	H3 / H5 (100/-)	
-	unclassified	Saltmarsh, shingle	H2.3 (100)	Scattered Atriplex
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD9a (100)	SD9a Ammophila arenaria - Arrhenatherum elatius dune grassland, Typical sub-community	Dune grassland	H6.5 (100)	
SD12 (100)	SD12 Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland	Dune grassland	H6.5 (100)	
SD12 (100)	SD12 Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland	Dune grassland	H6.5 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
H11c (100)	H11c Calluna vulgaris - Carex arenaria heath, spp.-poor sub-community	Dune heath	H6.6 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SM9 (100)	SM9 Suaeda maritima saltmarsh community	Saltmarsh	H2.6 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	mainly Cytisus
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	mainly Cytisus
-	-	Building	J3.6	

-	unclassified	Semi-improved acid grassland	B1.2 (100)	
-	unclassified	Scrub	A2.1 (100)	Rosa spp.
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD8b (100)	SD8b Festuca rubra - Galium verum fixed dune grassland, Luzula campestris sub-community	Dune grassland	H6.5 (100)	
-	unclassified	Scrub	A2.1 (100)	Rosa spp.
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	Juniperus, Polypodium & Dryopteris on old dune
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	

SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
SD12b (100)	SD12b Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland, Holcus lanatus sub-community	Dune grassland	H6.5 (100)	
SD12b (100)	SD12b Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland, Holcus lanatus sub-community	Dune grassland	H6.5 (100)	
-	unclassified	Dune slack	H6.4 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
-	unclassified	Bare ground	J4 (100)	mostly recently disturbed, made ground

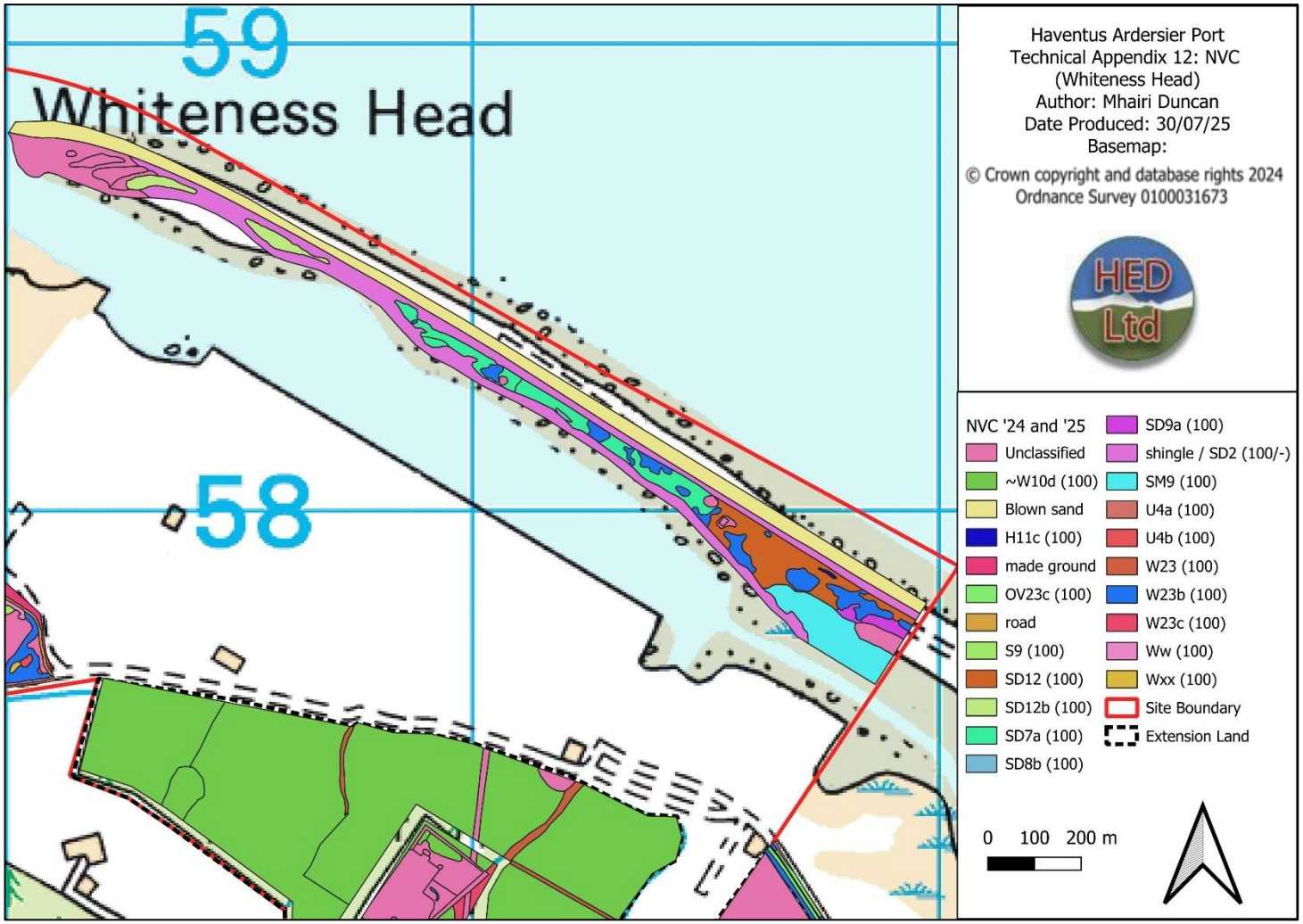

Figure 5: Map Showing NVC Survey Results (Whiteness Head)

3.2.4 Site 5: Access Road Verges

The two strips of ground on either side of the road are almost entirely on made ground that would likely have been built at the start of construction of the previous site in the 1970s. The total surveyed area (i.e., between the fences) is just less than 7ha. The road rises from sea level in the north to between 20m and 25m asl in the south.

On both sides of road, the vegetation comprises alternating strips of neutral grassland and W23b *Ulex europaeus - Rubus fruticosus* scrub, *Rumex acetosella* sub-community; *Ulex* is spreading and slowly increasing at the expense of open grassland. The neutral grassland, being of recent origin is classified as OV23c *Lolium perenne - Dactylis glomerata* community, *Arrhenatherum elatius - Medicago lupulina* sub-community rather than a semi-natural mesotrophic grassland. The OV23c is moderately species-rich. W23b and OV23c make up 99% of the vegetation, with just tiny scraps of unclassified ferns, dune grassland and trees.

There are occasional small clusters of *Dactylorhiza incarnata* on the north side of the road, many of which were strimmed in the days immediately before the survey.

Table 6: Results from NVC Survey at Site 5 (Access Road)

NVC	NVC Label	Phase1	Ph1 Code	Notes
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community + unclassified	Scrub + scattered trees	A2.1 + A3.3	scattered Salix & SP
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	-	-	road
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community + OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Scrub + scattered trees	A2.1 + A3.3	scattered Sambucus, Salix & SP
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b + OV23c (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community + OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Scrub + neutral grassland	A2.1 + B2.1 (100)	Mosaic of the 2 habitats
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Other habitat - mown verge	J5 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	much Cytisus, so succeeding to scrub
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	

OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	

W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
-	unclassified	Ferns	C3.2 (100)	Dryopteris spp.
-	unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix spp.
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	with Rubus idaeus
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	spp.-poor with some Carex arenaria
-	unclassified	Tree	A3.1 (100)	Betula spp.
W21a (100)	W21a Crataegus monogyna - Hedera helix scrub, Hedera helix - Urtica dioica sub-community			Sambucus

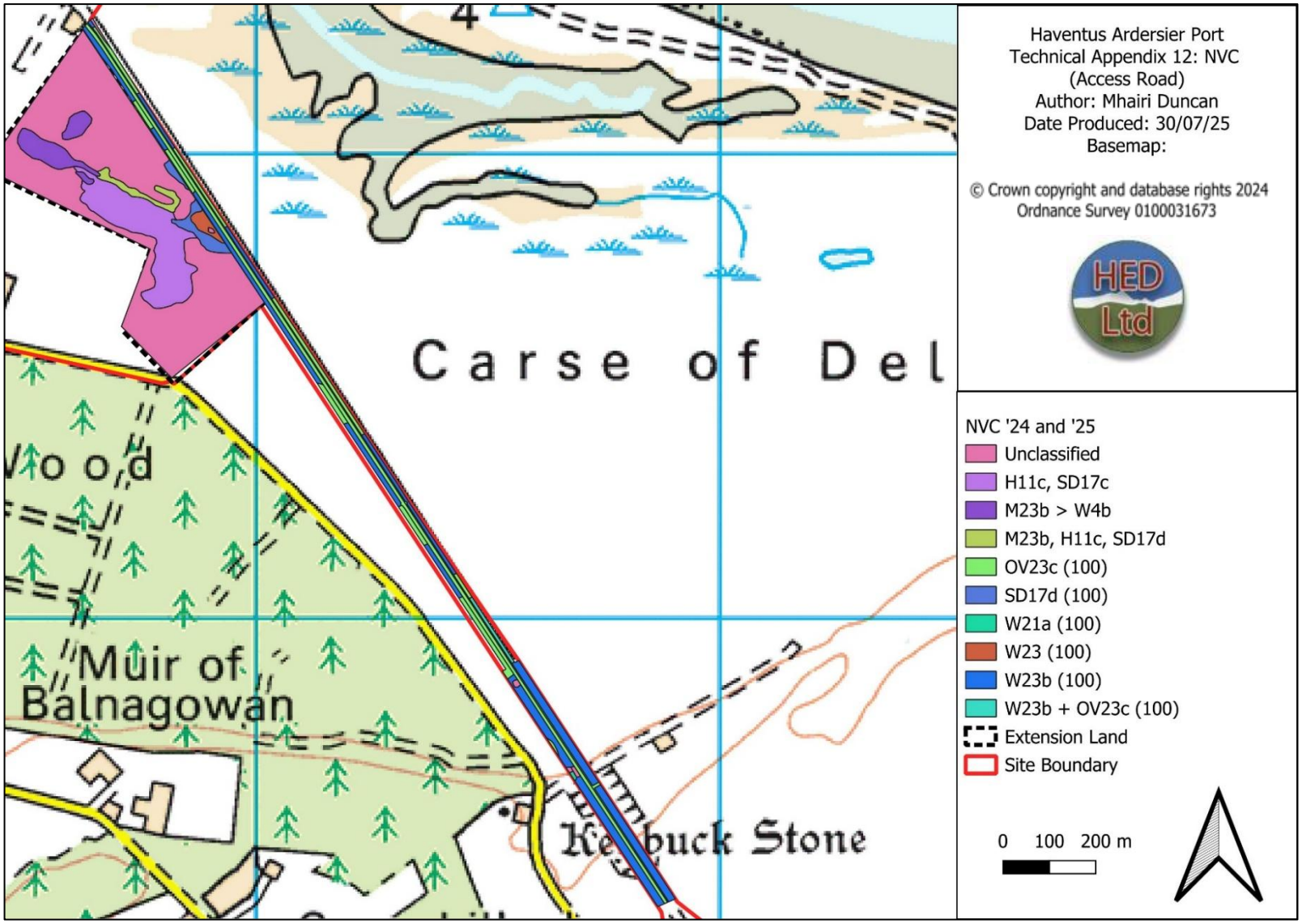

Figure 6: Map Showing NVC Survey Results (Access Road)

3.2.5 Site 6: Woodland Enclave

The surveyed area is wholly enclosed by SP-dominated forestry and is made up of two holdings totally about 9ha; the site is almost flat and is between sea level and 5m asl. A power line wayleave that has been recently flailed/mown runs north-south across the north-east corner through both holdings.

The eastern holding which comprises about one third of the total area is largely covered with W23c *Ulex europaeus – Rubus fruticosus* scrub, *Teucrium scorodonia* sub-community with a rather sparse field layer. SP-dominated W10d *Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland*, *Holcus lanatus* sub-community occurs in two small stands. There is a house with grassy garden and a few ornamental and fruit trees, and a patch of U1d *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland, *Anthoxanthum odoratum - Lotus corniculatus* sub-community that is slowly being over-run by *Ulex*. Note (again) the presence of U1 acid grassland is unusual in Scotland but is here due to the extreme dryness of the early growing season.

The western holding is more varied but supports no semi-natural vegetation. The northern part is mostly buildings and sheds of various sizes, hardstanding, bird pens and species-poor mown grassland on compacted soils, with a scattering of stands of annual and perennial weeds and Ulex. Near the northern edge is a small stand of SP-dominated W10d *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland, *Holcus lanatus* sub-community which has a few SP that probably pre-date the surrounding ones in the plantation. There is a very small (<0.1ha) stand of recently planted native trees to the east of the dwelling house and a small orchard nearby. South of the orchard is a field with a few trees in the south end that has been divided into two management units: one part is currently fallow (mainly with agricultural weeds, one small part is bare) and the other part is species-poor semi-improved grassland. The trees are mature SP and *Betula pubescens*.

Table 7: Results from NVC Survey at Site 6 (Woodland Enclave)

NVC	NVC Label	Phase1	Ph1 Code	Notes
-	unclassified	-	-	mown/flailed vegetation
W23c (100)	W23c Ulex europaeus - Rubus fruticosus scrub, Teucrium scorodonia sub-community	Scrub	A2.1 (100)	
-	unclassified	-	-	mown/flailed vegetation
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Field layer close to W10d, locally frequent Goodyera repens
~W10d? (100)	possible W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Mixed woodland	A1.3 (100)	Betula, Sambucus & Juniperus
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Mature SP with occasional Ulex & Cytisus
-	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Mature SP with Ulex
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Amenity grassland, perennial & annual vegetation, scattered scrub	A2.2+J1.2+J1.3 (100)	Unused pens, machinery
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
-	unclassified	Amenity grassland	J1.2 (100)	mown
-	unclassified	Ruderals	C3.1 (100)	

~W10d? (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	
-	unclassified	Mixed woodland	A1.2.2 (100)	
-	unclassified	Tree	A3.1 (100)	Salix
-	unclassified	Tree	A3.2 (100)	Cupressus
-	unclassified	Mixed woodland	A1.2.2 (100)	Cupressus, Prunus
-	unclassified	Bare ground, buildings	J3.6, J4	
W23c (100)	W23c Ulex europaeus - Rubus fruticosus scrub, Teucrium scorodonia sub-community	Scrub	A2.1 (100)	
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Mature SP
-	unclassified	Broadleaved woodland	A1.1.2	Salix
-	unclassified	Bare ground, amenity grassland, buildings, ruderals	J1.2, J1.3, J3.6, J4	Pens, sheds, buildings, machinery, hardstanding, some grass and ruderals
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Tree	A3.1 (100)	Betula spp.
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Mature SP
-	unclassified	Tree	A3.1 (100)	Salix spp.
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Tree	A3.1 (100)	Betula spp.
-	unclassified	Tree	A3.2 (100)	Mature SP

-	unclassified	Tree	A3.1 (100)	Betula spp.
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Poor semi-improved grassland	B6 (100)	rank with Rubus, Urtica, etc.
-	unclassified	Broadleaved woodland	A1.1.2	Orchard
-	unclassified	Other	J5	Fruit bushes
-	unclassified	Broadleaved woodland	A1.1.2	Corylus, Quercus, Fraxinus, Prunus, Fagus, etc.
-	unclassified	Poor semi-improved grassland	B6 (100)	
-	unclassified	Ruderals, ephemeral vegetation	C3.1, J1.3 (100)	
-	unclassified	Amenity grassland	J1.2 (100)	
-	unclassified	Amenity grassland	J1.2 (100)	mown
-	unclassified	Broadleaved woodland	A1.1.2	Prunus spp.
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Field layer close to W10d, locally frequent Goodyera repens
U1d (100)	U1d Festuca ovina - Agrostis capillaris - Rumex acetosella grassland, Anthoxanthum odoratum - Lotus corniculatus sub-community	Semi-improved acid grassland	B1.2 (100)	spp.-poor
-	unclassified	Tree	A3.1 (100)	Betula spp.
W23c (100)	W23c Ulex europaeus - Rubus fruticosus scrub, Teucrium scorodonia sub-community	Scrub	A2.1 (100)	

~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Field layer close to W10d, locally frequent Goodyera repens

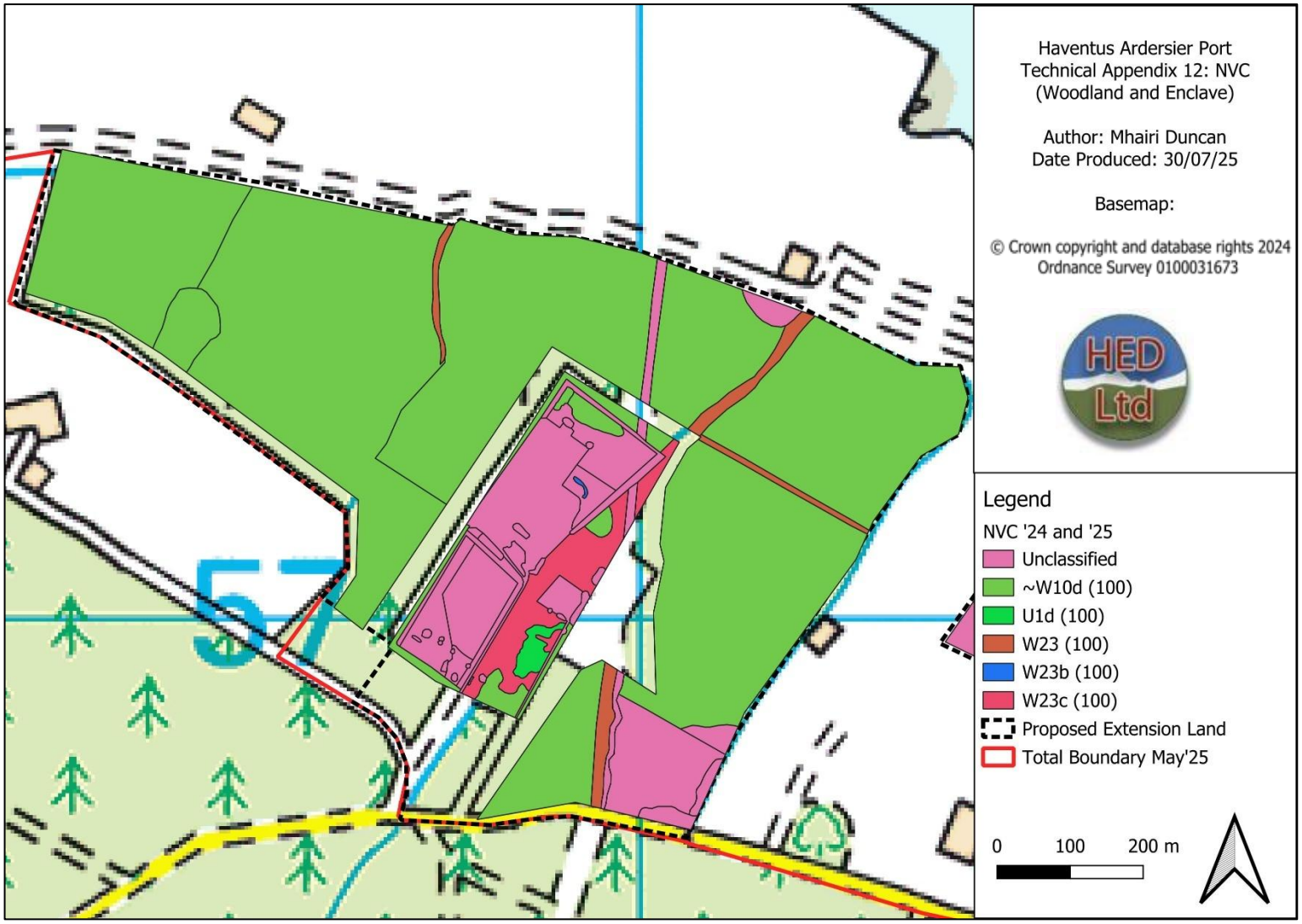

Figure 7: Map Showing NVC Results (Woodland Enclave 2025) and (Woodland 2024)

4.0 Evaluation of Plants and Plant Communities

4.1 Site 2: Dune-slack

No further commentary is provided based on this year's fieldwork. The evaluation provided following the previous survey of this site is as follows. "The combination of plant communities found on site with saltwater influence succeeding towards woodland is uncommon in the Highlands. Left undisturbed, this area is likely to develop into *Pinus*-dominated woodland over the coming decades. Rodwell (1991) suggests development towards W16 *Quercus robur* – *Betula* spp. – *Deschampsia flexuosa* woodland from H11 heath; although W16 has not been recognised as a woodland community in Scotland. With *Betula* spp. and *Salix aurita* already well-established, and with a damp and saltwater influence in the centre, there is potential for a more variable and interesting woodland here without intervention, although the current proliferation of *Ulex* will prolong the succession" (HED Ltd., 2024).

4.2 Site 3: Lagoon

The whole of this surveyed area is no more than about 50 years old at most, and the patterns of vegetation development reflect this, with rather unusual mosaics of coastal vegetation. None of the plant communities here is intrinsically scarce and some are likely to be temporary; some mosaics, especially to the west of the lagoon, are likely to resolve into less complex patterns over time if allowed. Gorse-dominated vegetation will replace dune grassland and neutral grassland, then slowly succeed to woodland – but these changes may be interfered with by changes in management, e.g., scrub removal (as seen along the southern bank where the badger setts are) and fluctuations in rabbit population size. More significant would-be permanent changes in groundwater levels, although current fluctuations seem to be seasonal.

The presence of *Centaurium littorale* on the track is of interest but the plant is not rare and has no legal protection beyond the provisions of the Wildlife and Countryside Act (1981); the same applies to *Dactylorhiza incarnata* on neutral grassland to the west of the lagoon.

Beyond the intrinsic interest of the vegetation here is the value of habitat for mammals (badger setts are present already), arthropods and birds (especially in breeding season due to scrub and cover at water's edge), and potentially herptiles.

4.3 Site 4: Whiteness Head Spit

Whiteness Head is possibly more remarkable as a geomorphological feature than for the vegetation types currently to be found (for example, Sheet 28, 1 inch, seventh series, published 1958) show that the spit is (or possibly was, until recent dredging) migrating north and west at around 10m per year.

Tom Dargie (2001) gives some information on the vegetation present in 1997. He describes the presence of calcareous fixed dune on the western part of the spit, which was not at all evident this year. The spit has shifted north in 30 years, so the calcareous element has eroded away, to be replaced by acidic dune vegetation, with the change possibly owing to a change in source material.

None of the vegetation types present is especially species-rich or scarce, although the spit itself is unique in Scotland, so the mosaic of vegetation types has inherent value. I would also draw attention to the small stand of SD7a *Ammophila arenaria - Festuca rubra* semi-fixed dune community, Typical sub-community with a few small *Juniperus* and ferns – although this is likely to erode and vanish within a very few years.

Wind and water-borne litter from the previous and current phases of construction is present on much of the south side of the spit, especially in the west. Risks to breeding birds and damage to the marine environment are clear.

4.4 Site 5: Access Road Verges

The alternating strips of OV23c *Lolium perenne - Dactylis glomerata* community, *Arrhenatherum elatius - Medicago lupulina* sub-community and W23b *Ulex europaeus - Rubus fruticosus* scrub, *Rumex acetosella* sub-community hold little interest apart from the clusters of *Dactylorhiza incarnata*; these and other flowering plants would benefit from more sensitive verge management.

4.5 Site 6: Woodland Enclave

The only features of interest here are the few isolated, mature trees in the south and the stands of SP-dominated W10d *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland, *Holcus lanatus* sub-community, although of these, the only ones with more than a residual field layer are the ones that are immediately next to the surrounding plantation and protected from regular disturbance.

5.0 References

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