



Ecological Impact Assessment (including Intertidal Phase 1 survey and Habitat Regulations Assessment) of Gimblet Rock Holiday Park, Carreg yr Imbill, Pwllheli, Gwynedd, Wales

for

Pariol Leisure, Gimblet Rock Holiday Park Ltd

06 May 2025

ECO_1300



Ecoscope Ltd.

Telford Lodge, Benarth Road, Conwy LL32 8UB

t. 03335 771 402 e. info@eco-scope.co.uk w. www.eco-scope.co.uk

Registered address as above | Company Number: 08916412 | VAT Reg. No. 199 5268 44

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GLOSSARY OF TERMS

EclA = Ecological Impact Assessment

HRA = Habitat Regulations Assessment

INNS = Invasive Non-Native Species

LERC = Local Environmental Record Centre (Cofnod)

NRW = Natural Resources Wales

SSSI = Site of Special Scientific Interest

PEA = Preliminary Ecological Assessment

LPA = Local Planning Authority

S7 = Section 7, Environment (Wales) Act 2016

RDB-NS = Red Data Book-Nationally Scarce

MLW = Mean Low Water

EXECUTIVE SUMMARY

Eco-Scope Ltd was commissioned to undertake an Ecological Impact Assessment (EclA, including intertidal Phase 1 and Habitat Regulations Assessment HRA) of proposals to construct an extension to the slipway and a floating pontoon at Gimblet Rock Holiday Park, Carreg yr Imbill, Pwllheli, Gwynedd.

The report assess potential impacts of proposals (for which no design has yet been issued) on priority intertidal habitats and also terrestrial habitats and species which may be affected by the work.

Document Issue Date: Tuesday, 06 May 2025

Approved by: Mr. Stuart Kato M.Sc., MCIEEM

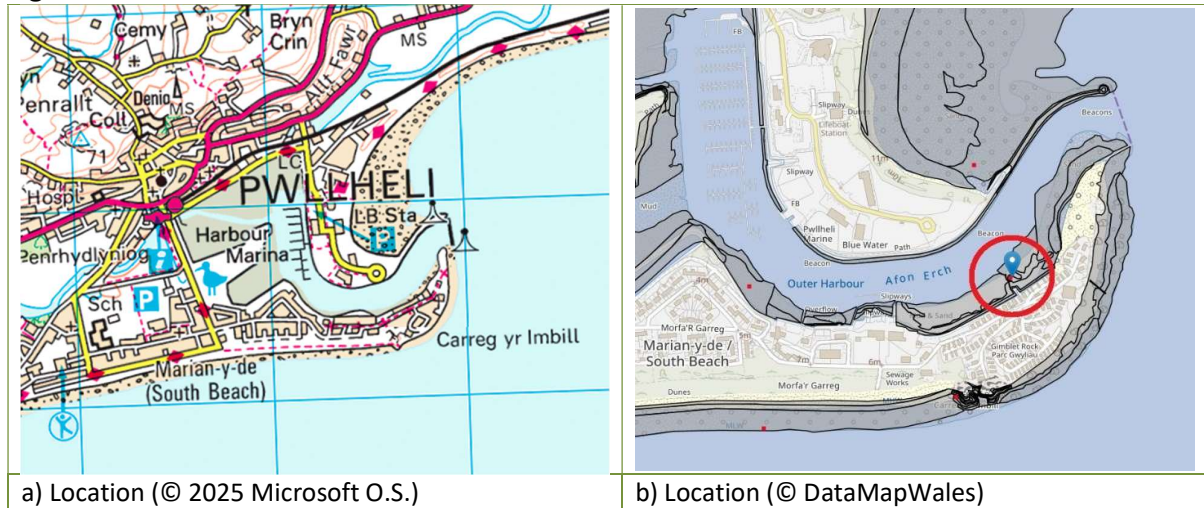
Prepared by: Dr Richard Birch CECOL

1. INTRODUCTION

1.1 Background to the proposals

- 1.1.1 Eco-Scope Ltd was commissioned to undertake an Ecological Impact Assessment (EcIA), including an Intertidal Phase 1 survey of the outer Pwllheli Harbour by the Client, Pariol Leisure.
- 1.1.2 The location represents the mouth of the Afon Erch (Figure 1a/b), which flows into the Pen Llŷn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC, hence the requirement for EcIA and habitat Regulations Assessment (HRA).

Figure 1 Location



- 1.1.3 The proposal is to construct a new concrete slipway for launching boats and a floating pontoon as part of new improvements to Gimblet Rock Holiday park in Pwllheli. At the current time (April 2025) no detailed designs have been provided.

1.2 Scope of the HRA and EcIA

- 1.2.1 The HRA covers potential impacts to protected sites and their qualifying features within 3 kilometres of the proposal.
- 1.2.2 The EcIA follows the recommendations in the CIEEM Guidelines for EcIAⁱ
- 1.2.3 Given that at time of reporting, no design has been provided, the scope of the EcIA covers the intertidal region approximately 100m either side of the development,

and includes examples of features even further where they could not be accessed due to the iniquities of the tides.

- 1.2.4 The EclA also includes terrestrial species, including migratory birds, that use the habitats in the vicinity of the development proposal, and might be affected by the scope of works.

2. METHODOLOGY

2.1 Desk study and HRA

2.1.1 The desk study involved:

- Phase 1 intertidal map data from [DataMapWales](#);
- Biodiversity data from the Local Environmental Record Centre ([Cofnod](#));
- Location of Protected Sites within 3 km obtained from [Magic Map](#).

2.2 Field survey

2.2.1 A site visit to undertake intertidal phase 1 was made on 3rd April 2025 by the following personnel (Table 1).

Table 1 – Personnel

Name	Contribution	Qualifications
Dr Richard Birch	Field Surveyor and Report	Qualified horticulturalist and 1 st class degree in Botany. 28 years practising ecologist. Licences for bats & newts in Wales. Chartered ecologist since 2016 (CEcol). Although not authoritative, additional skills include Breeding bird survey, Moths and Aquatic Invertebrate identification, Geological Assessment and Intertidal Marine Phase 1.

2.2.2 The field survey followed the method outlined in the Intertidal Phase 1 Handbookⁱⁱ

3. RESULTS

3.1 Desk Study

HRA - Designated Sites

3.1.1 Details of designated sites within 3 km of the proposals, including their reasons for designation, are provided in Table 2, below.

Table 2 Statutory Designated Sites within 3 km of the proposals

SITE NAME	DESIGNATION	QUALIFYING FEATURES	AREA	DISTANCE
Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau	SAC	• Sandbanks covered by seawater; • Estuaries; • Coastal lagoons; • Large, shallow inlets and bays; • Reefs • Mudflats; • Annual macrophytes colonising mud and sand; • Atlantic salt meadows; • Partially-submerged sea caves; • Bottle-nosed Dolphin; • Otter; • Grey Seal.	146010 Ha	200 m
Mynydd Tir y Cwmwd a'r Glannau at Garreg yr Imbill	SSSI	• Igneous and sedimentary Ordovician geology; • Lowland Heath; • Adder; • Chough, Peregrine and Raven; • Sand/muddy gravel; • Tidal boulder communities; • Clay cliffs and sand dune communities.	162 Ha	200 m
Morfa Abererch	SSSI	• Lowland wet/dry Heath; • Sand dune and shingle; • Maritime flood plain over deep peat; • Marsh Fritillary butterfly	98 Ha	2.4 Km

Selected species from Cofnod data

3.1.2 Cofnod data included 504 records of 217 species, the following of which have the potential to be affected by the proposed development (Table 3).

Table 3 Significant species from LERC data

COMMON NAME	LATIN NAME	STATUS	NOTES
Maerl (a Red Alga)	<i>Phymatolithon calcareum</i>	BAP, HDir5, S7.	Slow growing and vulnerable to disturbance.

COMMON NAME	LATIN NAME	STATUS	NOTES
Ringed Plover	<i>Charadrius hiaticula</i>	Bern2, Bonn2, RL-VU, S7.	Recorded from harbour
Curlew	<i>Numenius arquata</i>	BAP, BDir2.2, Bonn2, RL-EN, S7.	Recorded from harbour
Oystercatcher	<i>Haemotopus ostralegus</i>	Bern2, Bonn2, RL-VU.	Recorded from harbour
Turnstone	<i>Arenaria interpres</i>	Bern2, Bonn2, RL-VU.	Recorded from Harbour (during site visit)
Mallard	<i>Anas platyrhynchos</i>	BDir2.1, Bonn2, RL-NT, UKBA, WBA	Regular in the harbour
Common lizard	<i>Zootoca vivipara</i>	Bern3, S7, WCA5	Recorded within 100m
Thornback Ray	<i>Raja clavata</i>	S7	
Modest Barnacle	<i>Austrominius (Elminius) modestus</i>	INNS	Established non-native.
Leathery Sea Squirt	<i>Corella eumyota</i>	INNS	
Sea Buckthorn	<i>Hippophae rhamnoides</i>	INNS	Present on nearby dunes
Mossy stonecrop	<i>Crassula tillaea</i>	RDB-NS	
Bee orchid	<i>Orphrys apifera</i>	CITES-B, LBAP	

3.1.3 Other species of significance recorded within 500m, and which may occur periodically in and around the location, include:

- Otter;
- Swallow;
- Linnet;
- Red-throated Diver.

3.1.4 Records of salmonid fish and Eel *Anguila anguila* are not included in the data, but the Erch is known for its populations Salmon, Brown and Sea Troutⁱⁱⁱ

3.1.5 Section 7 (S7) Environment (Wales) Act 2016 lists the following habitats that occur within 500m of the site:

- Coastal sand dune;
- Coastal vegetated shingle;
- Estuarine rocky habitats;
- Intertidal mudflats
- Sheltered muddy gravels;

3.2 Intertidal Phase 1 survey

3.2.1 The proposed development will extend over an area of sea defences including a wall and rock armour at high water mark, through muddy sand down to the mean low water level (MLW). Beyond this, there are patches of muddy gravel (Figure 2a/b), but these could not be accessed.

Figure 2 Site views #1



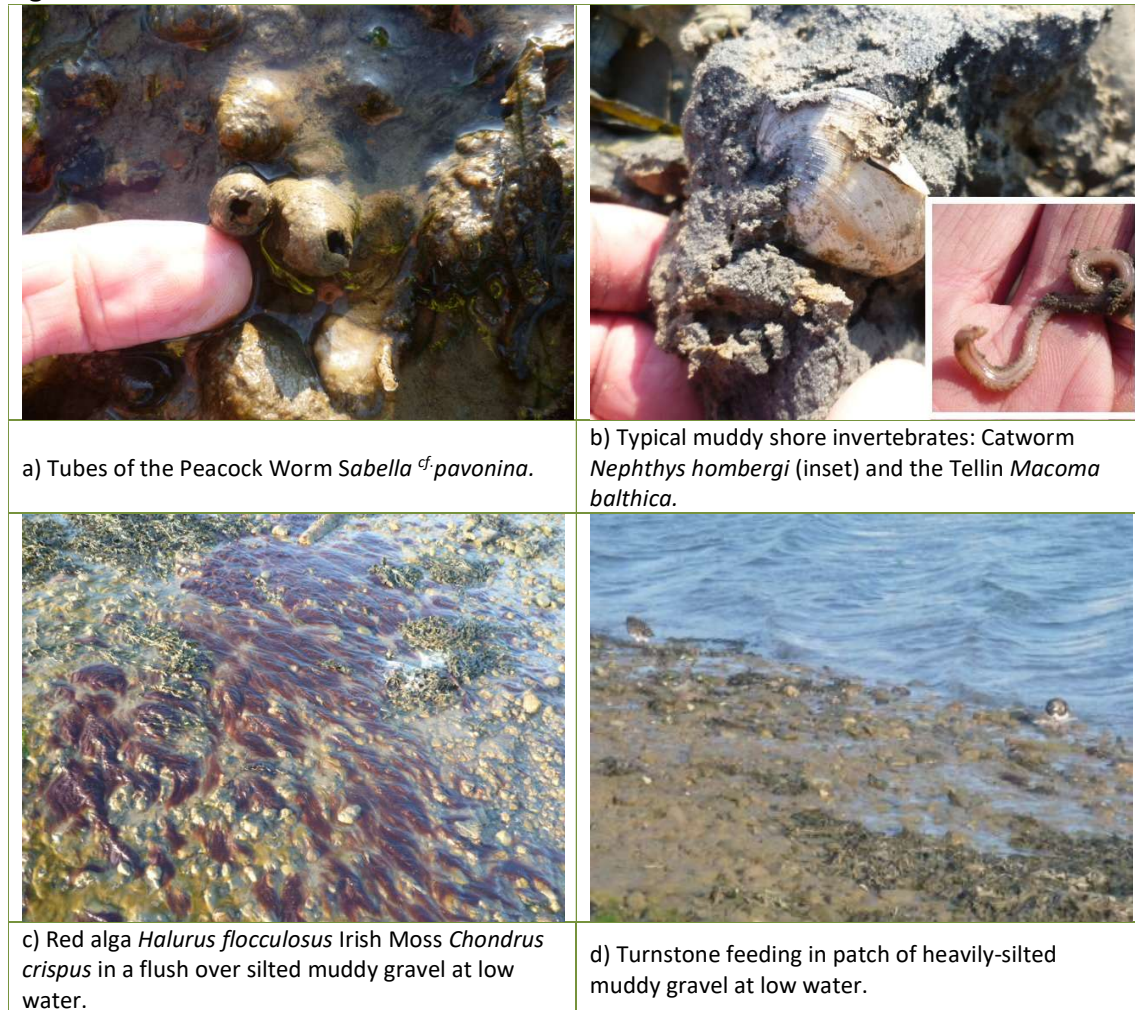
3.2.2 Within 100m, muddy gravel occurs above MLW (Figure 2c) and this was sampled as an indicator of the condition of muddy gravel throughout the channel, including the proposed location of the jetty.

3.2.3 The muddy gravel fauna had brittlestars and the non-native barnacle *Austrominius modestus* (Figure 2d) as an underboulder community. Of particular note were the

tubes of the Peacock worm *Sabella* sp. (Figure 3a - probably *S. pavonina*, but the worm was not located for confirmation).

- 3.2.4 Other species included abundant Common Periwinkle *Littorina littorea* and immature examples of the Green Shore Crab *Carcinus maenus* and Shanny *Lipophrys pholis*.

Figure 3 Site views #2



- 3.2.5 No Maerl was noted; however patches of red and brown algae occupied more consolidated muddy gravel, especially where flushes emerged from beneath sand (Figure 3c).

- 3.2.6 Muddy gravel is an S7 habitat, also important for wading birds like Dunlin and Turnstone (Figure 3d).

3.2.7 The majority of the intertidal habitat is sheltered muddy sand (Figure 4a) with a sparse but typical furoid progression including Bladder wrack *Fucus vesiculosus*, Egg wrack *Ascophyllum nodosum* and Serrated wrack *F. serratus*, with patches of Gutweed *Enteromorpha* sp. The bare sandy substrate contains occasional Lugworm *Arenicola marina* and abundant Sand Mason worm *Lanice conchilega* (Figure 4b-d).

Figure 4 Site views #3



3.2.8 Where the sand was sampled for invertebrates it was found to contain abundant Sand Mason worm, Catworm *Nephtys hombergi* and occasional Cockle *Cerastoderma edule* and Baltic Tellin *Macoma balthica* (Figure 3b).

3.2.9 An intertidal Phase 1 map and key is included in Figure 6, APPENDIX 1.

4. CONCLUSIONS

4.1 Habitat Regulation Assessment

4.1.1 The proposed development is within 250 m of a site of International importance (Pen Llyn a'r Sarnau/ Lleyr Peninsula and the Sarnau SAC) and its underpinning SSSI (Mynydd Tir y Cwmwd a'r Glannau at Garreg yr Imbill). These may be impacted by sediment discharges during construction.

4.1.2 Although the proposal is outside the boundary, some features included in the SAC designation will potentially be impacted, notably:

- Sandbanks;
- Estuaries;
- Mudflats.

4.1.3 Although the proposal is outside the boundary, some features included in the designation of the SSSI will potentially be affected, including:

- Sandy/Muddy Gravel;
- Tidal Boulder communities;
- Coastal sand dune system.

4.2 Other significant habitats/species

4.2.1 The proposal also has the potential to affect wading birds feeding in the harbour, including:

- Oystercatcher;
- Curlew;
- Ringed Plover;
- Turnstone.

4.2.2 Other, non-wading species that may potentially be affected include:

- Otter;
- Swallow;
- Linnet;

- Red-throated Diver.

4.2.3 Terrestrial works have the potential to destroy sand dune habitat for Common Lizard, Bee Orchid and Mossy Stonecrop.

4.2.4 Works may potentially spread INNS, including sea squirts and algae in the marine environment, and Sea Buckthorn in the terrestrial one.

4.3 Summary of significant effects

4.3.1 Potentially significant impacts include:

1. Impact on protected sites due to sediment discharges during construction;
2. Damage to an intertidal system which includes 3 priority habitats (sandflats, mudflats and sandy/muddy gravel);
3. Impacts to an estuarine route used by migratory salmonid fish (Brown/Sea trout and Atlantic salmon) and European Eel;
4. Disturbance to wintering non-breeding waders (Curlew, Oystercatcher, Ringed Plover and Turnstone);
5. Impacts to relic sand dune habitats at Morfa'r Garreg.

4.3.2 Cumulative impacts of development on a constrained peninsula of land include:

6. Increased pressure on localised habitats for activities like bait digging and sediment disturbance through the activities of boat owners and seasonal tourism;
7. Cumulative loss of costal sand dune (S7 priority habitat) to development;
8. Loss of habitat and disturbance to migrant and seasonal nesting birds (Swallow, Linnet);
9. Loss of habitat for uncommon vascular plant species like Bee orchid, Mossy stonecrop and Green-winged orchid, and disturbance to Common lizard.

4.3.3 Additional structures into the estuary may also influence the route of channels across the intertidal in ways that have not been modelled.

4.3 Impact Assessment

4.3.1 The assessment of impacts of the proposed development (subject to design) are undertaken without mitigation in Table 4.

Table 4 Impact assessment (*without mitigation*)

IMPACT	FEATURE AFFECTED	RISK	SEVERITY	RISK × SEVERITY
Construction of a concrete jetty into the estuary.	• Migratory fish • Muddy gravel • Sand flats	5	4	20
Sediment clouds caused during the construction phase.	• Migratory fish • Muddy gravel	5	5	25
Disturbance during construction.	• Sand dune habitat • Migratory wading birds • Otter	4	5	20
Post-construction obstruction and disturbance.	• Migratory fish • Wintering birds • Muddy gravel	5	4	20

Key

RISK		SEVERITY		RISK × SEVERITY	
1	Negligible	1	Negligible	1-9	Cumulative effect of likelihood × severity = minor negative (potentially positive) impact
2	Slight risk	2	Low level of impact		
3	Moderate risk	3	Moderate impact	10-16	Cumulative effect of likelihood × severity = moderate negative impact
4	Event likely to occur	4	Major impact		
5	High risk of event occurring	5	Severe impact	17 - 25	Cumulative effect of likelihood × severity = major negative impact

4.4 Conclusion

4.4.1 Without mitigation, the short-term impacts of construction are assessed as **Major** to **Severe** at a **Regional** level (see Table 5 for definitions). This is based on the amount of habitat affected, its significance as a priority habitat in Wales and the duration of the proposed works.

4.4.2 Without mitigation, the cumulative impacts of increased disturbance to fragile habitats like sand dune and localised muddy gravel are assessed as **Severe** at a **National** level.

Table 5 Hierarchy of Impact

HIERARCHY OF IMPACT	DEFINITION
International	Having an impact on the population size or habitat area of a threatened species which may be significant on a Worldwide scale.

HIERARCHY OF IMPACT	DEFINITION
National	Having an impact on a priority habitat or species threatened across its entire UK range.
Regional	Having an impact on a priority habitat or species distribution that may be significant in any of the individual countries making up the British Isles.
Local	Having an impact on a habitat or species that may be significant at a local level (Borough or Parish)

5. RECOMMENDATIONS

5.1 Mitigation Strategy

5.1.1. The mitigation hierarchy is:

- Avoidance
- Protection
- Reduction
- Enhancement
- Mitigation

5.1.2 Only those that relate to the proposals will be considered.

5.2 Avoidance

5.2.1 Timing of works in the river must avoid peak fish migration periods (June to September – October).

5.2.2 Wintering birds are less likely to be affected, but a high tide roost on the raised embankments on the opposite side of the estuary and any movements by otter would be impacted by night working, so this must be avoided in winter.

5.3 Protection

5.3.1 During excavation works for construction of foundations and supports for the pontoon, steps to minimise sediment dispersal will include the implementation of cofferdams around excavations or activities that may cause disturbance of sediment.

5.4 Enhancement

5.4.1 Structures set into the muddy gravels at or below MLW may have some benefit, but equally may encourage establishment of INNS. Existing areas of muddy gravel would be augmented by gravel leys created beneath and in the lee of the pontoon.

5.4.2 Pathways and tracks set into embryonic dune within the campsite must have gravel French drains alongside. This not only prevents puddles on paths, but provides a thin soil for potential colonisation of Mossy Stonecrop (Figure 5a).

5.5 Mitigation

5.5.1 Post-construction, the beach between the proposed jetty and the slipway of the boatyard to the west will potentially be subject to increased 3rd party damage from bait digging and collection. It is recommended that signage prohibiting bait collection in this area (Figure 5b).

Figure 5 Mitigation proposals



5.5.2 A summary of the mitigation is included in Table 6.

Table 6 Summary

No.	SUMMARY OF MITIGATION
1.	Avoidance strategy (timing of works) to limit impacts on fish, birds and otter movements.
2.	Foundations set into the intertidal to be contained within coffer dams.
3.	Creation of a 'muddy gravel' substrate by addition of hardcore and/or mixed gravel beneath pontoon.
4.	Pathways to have French drains set alongside.
5.	Signage to prohibit bait digging.

5.6 Revised Impact Assessment

5.6.1 Implementation of the mitigation strategy as outlined is re-assessed in Table 7.

Table 7 Impact assessment (after mitigation)

IMPACT	FEATURE AFFECTED	MITIGATION STRATEGY	RISK	SEVERITY	RISK × SEVERITY
Construction of a concrete jetty into the estuary.	• Migratory fish • Muddy gravel • Sand flats	• Cofferdams • No night working	3	2	6
Sediment clouds caused during the construction phase.	• Migratory fish • Muddy gravel	• Cofferdams	3	3	9
Disturbance during construction.	• Sand dune habitat • Migratory wading birds • Otter	• Timing of works • No night working	3	2	6
Post-construction obstruction and disturbance.	• Migratory fish • Wintering birds • Muddy gravel	• Prohibition of bait collection • Gravel leys	1	1	1

Key

RISK		SEVERITY		RISK × SEVERITY	
1	Negligible	1	Negligible	1-9	Cumulative effect of likelihood × severity = minor negative (potentially positive) impact
2	Slight risk	2	Low level of impact		
3	Moderate risk	3	Moderate impact	10-16	Cumulative effect of likelihood × severity = moderate negative impact
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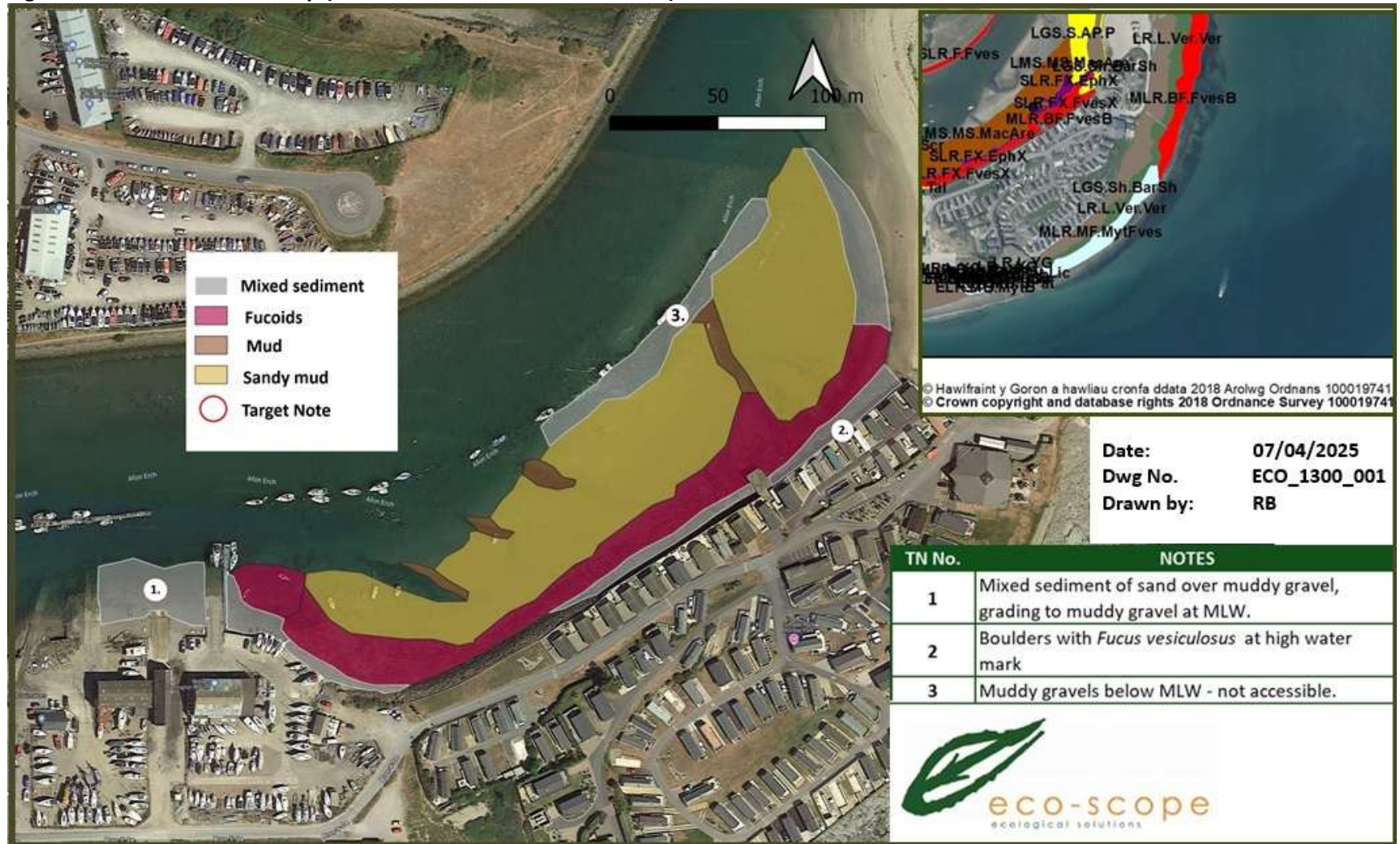
5.6.2 Post mitigation, the potential impact on priority habitats is re-assessed as **Low** at a **Local** level, with potential benefits from habitat creation and the cessation of bait digging on protected habitats, wintering waders and migratory fish.

5.6.3 Some residual impacts are present as a result of no specific design being forthcoming at the time of writing, and the general increase in the level of disturbance caused by additional tourism.

5.6.4 It is also recommended that an audit of the mitigation proposals as outlined above, be undertaken post construction.

6. APPENDIX 1

Figure 6 Intertidal Phase 1 map (with 2018 Intertidal Phase 1 inset)



7. APPENDIX 2

References

1. ⁱ Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine v. 1.3. CIEEM (2024).
2. ⁱⁱ Handbook for Marine Intertidal Phase 1 Biotope Mapping Survey (2006). Wyn, G., Brazier, P., Birch, K., Bunker, A., Cooke, A., Jones, M., Lough, N., McMath, A. and Roberts, S. Countryside Council for Wales.
3. ⁱⁱⁱ [Pwllheli & District Angling Association - Rivers Erch & Rhydhir](#)