



Environmental Statement
CHAPTER 9 – Terrestrial Ecology

Langstone FCERM Scheme

January 2025

Langstone FCERM Scheme Environmental Statement

Chapter 9

Terrestrial Ecology

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9. Terrestrial Ecology

9.1 Introduction

This section provides an impact assessment of the proposed scheme on terrestrial ecology. Birds have been considered separately within the **Ornithology** section in **Chapter 10**. The study area for this chapter comprises of terrestrial habitats within 2km of the Langstone scheme boundary. The impact assessment also details necessary mitigation and residual impacts to demonstrate the environmental acceptability of the Scheme.

9.2 Key Legislation, Policy and Guidance Considerations

The terrestrial ecology impact assessment has been undertaken within the context of relevant planning, legislation and government policies and these are summarised below.

9.2.1 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended), often referred to as the 'Habitats Regulations', transposed the requirements of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) and Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') into law within England and Wales. These regulations provide for the designation and protection of a network of internationally important sites designated for their ecological status, including Special Areas of Conservation and Sites of Community Importance (to promote the protection of flora, fauna and habitats); and Special Protection Areas (to protect rare, vulnerable and migratory birds). These sites are collectively referred to as 'European sites', or more recently following Brexit as the 'National Site Network', and provide protection for qualifying habitats and species, as well as supporting habitats for SPA bird populations.

The Habitats Regulations also convey special protection to a number of animal species which are listed in Schedule 2 of the Regulations and plants species listed in Schedule 5 of the regulations and are referred to as European Protected Species (EPS). Those relevant to the proposed Scheme include bats and the great crested newt (*Triturus cristatus*). Regulation 41 makes it an offence to deliberately capture, injure or kill, or deliberately disturb an EPS.

9.2.2 Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) is the primary piece of legislation for wildlife protection in the UK. It initially integrated existing laws that apply to EU nations into UK legislation such as the Birds Directive and Bern Convention.

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) is a binding international legal instrument for nature conservation across Europe and some African states. The Bern Convention ensures the conservation and protection of wild plant and animal species and their natural habitats listed in Appendices I and II, to increase co-operation between contracting parties and to regulate the exploitation of migratory species listed in Appendix III. The UK Government ratified the Bern Convention in 1982 and the obligations were transposed into UK law under the Wildlife and Countryside Act 1981 (as amended). Protected species listed under Appendix II of the Bern Convention relevant to the Scheme include the great crested newt (*Triturus cristatus*).

The Wildlife and Countryside Act also provides protection to EPSs and other species. Protected bird species are listed under Schedule 1, protected animal species are listed under Schedule 5 and protected plant species are listed under Schedule 8 of the Act. Species protected under these Schedules relevant to the proposed Scheme include bats, reptiles, great crested newt (*Triturus cristatus*) and stag beetle (*Lucanus cervus*). Schedule 6 provides partial protection to animals (e.g. badger (*Meles meles*), West European hedgehog (*Erinaceus europaeus*)) which may not be killed or taken by certain methods. It also includes provisions for the control of invasive non-native species (INNS) listed in Schedule 9 of the Act.

9.2.3 Natural Environment and Rural Communities (NERC) Act 2006 (as amended)

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 requires that 'every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'. In addition, Section 41 of the Act refers to a list of habitats and species which are of principal importance for the conservation of biodiversity in England and which were first identified as priority habitats and species in the UK Biodiversity Action Plan (UK BAP). Habitats of Principal Importance and Species of Principal Importance relevant to the proposed Scheme include coastal saltmarsh, coastal vegetated shingle, hedgerows, intertidal mudflats, wet woodland, seven bat species (see **Section 9.4.2.1**), reptiles, great crested newt (*Triturus cristatus*), common toad (*Bufo bufo*) and West European hedgehog (*Erinaceus europaeus*).

9.2.4 The Hedgerow Regulations 1997

Under the Hedgerows Regulation 1997 there is a legal requirement to gain permission from the Local Planning Authority to remove the majority of countryside hedgerows over 20m in length including hedgerows located on agricultural land, common land, forestry land, paddocks, Local Nature Reserves and SSSIs.

9.2.5 Protection of Badgers Act 1992

This act prohibits the deliberate killing, injuring or taking of a badger including any interference with a badger sett (and the attempt to do so). See **Section 9.4.2.2** for further details.

9.2.6 Wild Mammals (Protection) Act 1996

This Act provides protection to wild mammals from deliberate harm such as to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate a wild mammal with intent to inflict unnecessary suffering.

9.2.7 Town and Country Planning (Tree Preservation) (England) Regulations 2012

The Regulations provide protection to specific trees, groups of trees or woodlands in the interests of amenity with a Tree Protection Order (TPO) in England. The TPO prohibits the cutting down, topping, lopping, uprooting, wilful damage and wilful destruction of TPO trees, groups of trees and woodlands without the Local Planning Authority's written consent.

9.2.8 Environment Act 2021

The Environment Act includes provisions to strengthen and improve the duty on public bodies to conserve and enhance biodiversity, including mandating a net gain in biodiversity through the planning system which came into force in February 2024. The Act also requires the preparation and publication of Local Nature Recovery Strategies (LNRS) and introduces a new framework for setting long-term, legally binding targets for environmental improvement.

9.3 Methodology and Approach to EIA

The 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine' (CIEEM, 2018) have been used as a basis for the terrestrial ecology impact assessment. In accordance with these guidelines the key elements of the Ecological Impact Assessment (EclA) process are as follows:

- **Establishing the baseline** – Collecting information and describing the terrestrial ecological communities in the absence of the proposed scheme, to inform the assessment of impacts.
- **Identifying important ecological features** – Identifying important ecological features (habitats, species and ecosystems) that may be affected, with reference to a geographical context in which they are considered important.
- **Impact assessment** – An assessment of whether important ecological features will be subject to impacts from all relevant phases of the proposed scheme (e.g. construction and operation), and the characterisation of these impacts and their effects.
- **Mitigation, compensation and enhancement** – Incorporation of measures to avoid, prevent, reduce and compensate potential negative ecological impacts and their effects, and the provision of ecological enhancements to ensure biodiversity net gain. Review of mitigation and assessment of the significance of residual effects, including cumulative effects.
- **Implications for decision making** – Consideration of the legal and policy framework throughout the process.

9.3.1 Establishing the baseline

A desk-based study was undertaken to describe the existing terrestrial environment of the Langstone FCERM Scheme. This included a review of information available on the habitats and species present within the study area using the following sources:

- Langstone FCERM Scheme Environmental Scoping Report (Coastal Partners, 2020);
- The Scoping Opinions from Havant Borough Council (HBC) and the associated consultee responses;
- Langstone FCERM Scheme Preliminary Ecological Appraisal (PEA) (Coastal Partners, 2020) (see **Appendix L1**);
- Phase 2 surveys for botany, bats, badgers, great crested newts, reptiles;
- Natural England information on the Designated Sites System, including the Multi-Agency Geographic Information for the Countryside (MAGIC) map and website (www.magic.gov.uk); and

- Hampshire Biodiversity Information Centre (HBIC) biological records to summarise information on existing protected species records within and surrounding (2km buffer zone) the project area.

9.3.2 Determination of important terrestrial receptors

In order to determine the potential significance of an ecological impact, it is first necessary to identify whether an ecological receptor within the zone of influence is sufficiently 'important' for a significant impact upon it to be material in decision making. The value of species and populations within the application site has been determined using a combination of information on their distribution, rarity and conservation status. Habitats have been evaluated against existing selection criteria, for example, those listed under international or national legislation.

In accordance with CIEEM guidelines, a geographic scale has been used to determine the importance of ecological receptors within the zone of influence, which is outlined in **Table 9.1**

Those ecological features classified below local / borough importance are not considered sufficiently valuable for a significant impact upon them to be material in decision making. Only those ecological receptors equivalent to, or greater than, local / borough value have therefore been included as 'important' ecological receptors within this assessment. The results of the ecological valuation process for the Langstone FCERM scheme are presented in **Section 9.4**.

Table 9.1 Importance criteria for terrestrial EcIA

Level of importance	Definition
International (Very High)	• An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site) or an area which the country agency has determined meets the published selection criteria for such designation, irrespective of whether or not it has yet been notified. • Internationally significant and viable areas of a habitat type listed in Annex 1 of the Habitats Directive. • Globally threatened species (i.e. critically endangered or endangered on IUCN Red list) or species listed on Annex 1 of the Berne Convention. • Regularly occurring populations of internationally important species that are rare or threatened in the UK or of uncertain conservation status. • A regularly occurring, nationally significant population / number of any internationally important species.
National (High)	• A nationally designated site (SSSI, NNR, MNR, MCZ) or a discrete area, which the country conservation agency has determined meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified. • Regularly occurring, globally threatened species (i.e. vulnerable or lower on IUCN Red list) or species listed on Annex 1 of the Berne Convention. • Habitats and species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act (previously UK BAP priority habitats and species).
Regional / County (Moderate)	• Viable areas of key habitat identified in the Regional/County BAP or smaller areas of such habitat which are essential to maintain the viability of a larger whole. • Viable areas of key habitat identified as being of Regional value in the appropriate Natural Area profile. • Water Framework Directive biological element.

Level of importance	Definition
	- Any regularly occurring significant population that is listed in a Local Red Data Book. - Significant populations of a regionally/county important species.
Local / Borough (Low)	- Areas of habitat identified in a sub-county (local / borough) BAP or in the relevant Natural Area profile. - District sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on local / borough ecological criteria. - Sites / features that are scarce within the local area / borough or which appreciably enrich the local area / borough habitat resource. - Species are abundant, common or widely distributed. - Habitat / species possess low biodiversity, social / community value and / or economic value.
Negligible	- There is no site designation for areas of habitat. - The area does not offer key habitat for a population. - Species present are common and widespread. - Habitat / species are not considered particularly important for their biodiversity, social / community value and / or economic value.

9.3.3 Assessment criteria and assignment of significance

Potential terrestrial ecological impacts arising as a result of the proposed development are described in **Section 9.7 and Section 9.8** for all features of ecological importance with reference to characteristics such as the likelihood, extent, magnitude, duration, frequency, timing and reversibility. The definitions of magnitude used within this chapter of the ES are defined in **Table 9.2**.

Table 9.2 Magnitude of impact

Magnitude of impact	Definition
High	- Effect causes extensive changes to a significant proportion of a habitat, community or trophic level nationally, or where relevant, within a statutory designated site, resulting in the loss of function of the habitat. - Effects are likely beyond the terrestrial ecology study area. - Effects cause a change to a significant proportion of a species population resulting in a decline in the abundance of the population nationally, or where relevant, within a statutory designated site, that will not be reversed through natural recruitment for 10+ years.
Medium	- Effect causes a change to part of the habitat, community or trophic level but does not result in long term effects on the function of the habitat. - Effect causes a substantial change in the abundance of a species, affecting a portion of the population that may last for more than 2 years but does not result in long term impacts to the population itself.
Low	- Effect causes a change to a small area of habitat, community or trophic level resulting in no loss of function of the habitat. - Effect causes a change to a small number of individuals of a local population for a short period of time (<2 years) but does not affect the viability of the population.
Negligible	Effects on a trophic level, habitat, community, or population are undetectable or within the range of natural variation.

The interaction of the magnitude of an impact with the value (which mirrors the importance categories in **Table 9.1**) and the sensitivity of the receptor determines the significance of effects. The value and sensitivity of a receptor must therefore first be combined. The matrix used to combine these categories is shown in **Table 9.3**. In order to ensure that the worst-case scenario is assessed, where the sensitivity of a habitat or species varies due to different effects from a single impact/activity, the highest level of sensitivity will be applied within the matrix.

Table 9.3 Matrix to determine sensitivity and value

		Value			
		International	National	Regional	Local
Sensitivity	High	High	High	Medium	Low
	Medium	High	Medium	Low	Low
	Low	Medium	Low	Low	Negligible
	Negligible	Low	Low	Negligible	Negligible

The value-sensitivity category has then been applied to the matrix in **Table 9.4** to be used for the assessment of significance. For the purposes of the terrestrial ecology impact assessment, an effect that is of major or moderate significance is considered to be significant in EIA terms whether adverse or beneficial. Any effect that is assessed as minor or negligible is not significant.

Table 9.4 Significance of potential effects

		Value and sensitivity			
		High	Medium	Low	Negligible
Magnitude	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Minor
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Minor	Minor	Negligible	Negligible

9.4 Baseline Conditions

The Langstone frontage comprises of predominantly built-up areas (e.g. hard standing and residential properties). There are also areas of improved grassland, woodland and scrub. Several trees and a woodland with a Tree Preservation Order (TPO) are located within/adjacent to the proposed scheme area. The Langstone FCERM Scheme is located within/adjacent to both Chichester and Langstone Harbours, where Hayling Island joins the mainland. Langstone and Chichester Harbours and their surroundings support a host of habitats and species of significant ecological and nature conservation importance.

9.4.1 Protected Habitats and Botanical Interest

9.4.1.1 Protected Habitats

Habitats of international importance within and adjacent to the Scheme boundary include the following Annex I habitat types listed within the EU Habitats Directive: 1130 estuaries, 1320

Spartina swards (*Spartinion maritimae*), 1330 Atlantic salt meadows (*Glauco- Puccinellietalia maritimae*), 1310 *Salicornia* and other annuals colonising mud and sand, 1210 annual vegetation of drift lines, 1140 mudflats and sandflats not covered by sea water at low tide, which are all qualifying features within the Solent Maritime SAC. In addition, the Botanical Survey 2021 (**Appendix L3**) confirmed the presence of 91E0 alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, also an Annex I habitat type.

There are five habitats of principal importance listed under Section 41 of the NERC Act 2006 present within/adjacent to the proposed Langstone FCERM Scheme, including coastal saltmarsh, coastal vegetated shingle, hedgerows, intertidal mudflats and wet woodland (**Figure 9.1**). Section 40 of the NERC Act 2006 places a duty on all public authorities, including Local Planning Authorities, to conserve and enhance biodiversity.

The Botanical Survey 2021 (**Appendix L3**) also confirmed the presence of broadleaved woodland (a UK BAP broad habitat type) within the elm plantation located along the stream edge, around the Mill Pond and within the scrub habitat alongside the cycle path.

Intertidal mudflats and intertidal saltmarsh have been considered under the Marine Ecology section (**Chapter 8**).

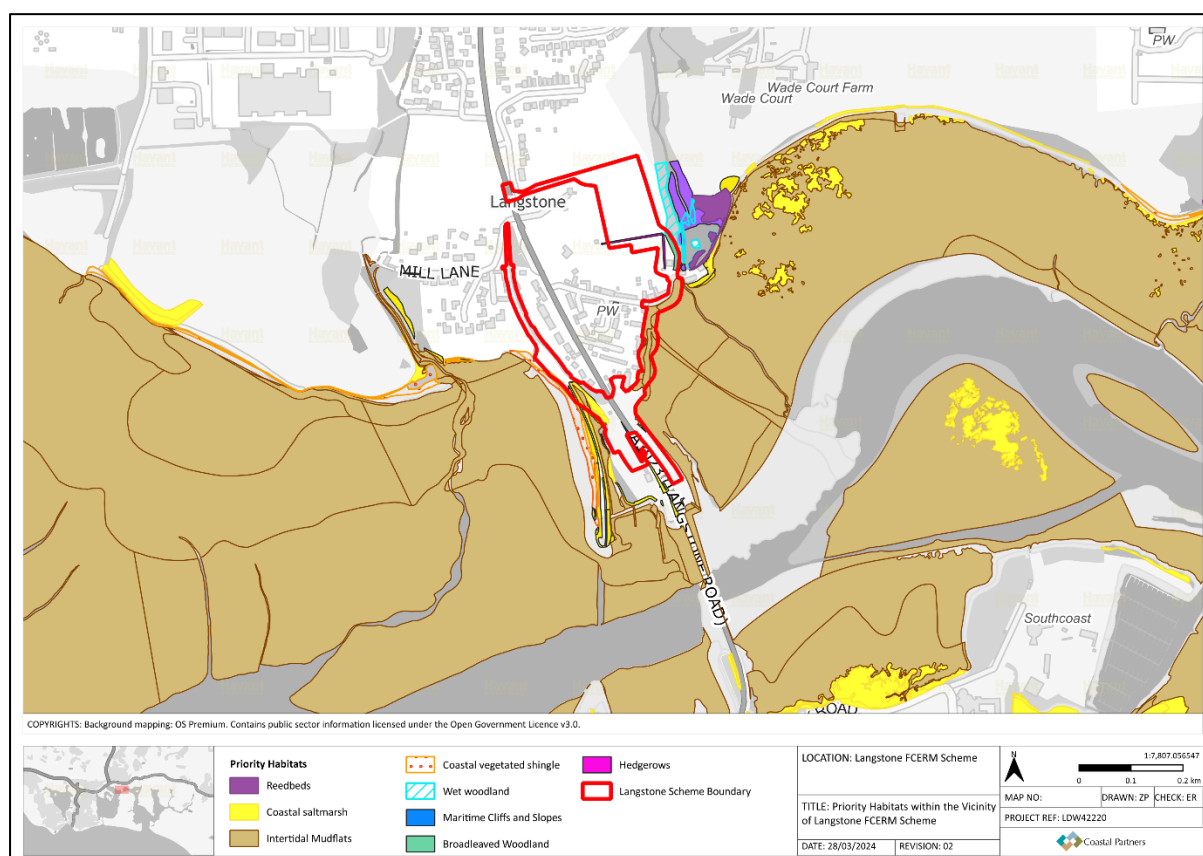


Figure 9.1 Priority habitats within the vicinity of the Langstone FCERM Scheme boundary (HBIC 2023 data and Botanical Survey 2021 data).

9.4.1.2 Botanical Interest

The August 2023 HBIC data found 90 notable plant species within 2km of the scheme. 45 of these notable plant species lie within 1km of the scheme. One plant species (butcher's-broom (*Ruscus aculeatus*)) within 1km is a Habitats Directive Annex V species. Four of the plant species listed within 1km are species of principle importance under Section 41 of the NERC Act 2006 including, Divided Sedge (*Carex divisa*), Slender Hare's-ear (*Bupleurum tenuissimum*), small cord-grass (*Spartina maritima*) and spreading hedge-parsley (*Torilis arvensis*). 12 of the plant species listed within 1km are on the International Union for Conservation of Nature (IUCN) red list and 18 of the plant species listed are classified as nationally scarce or nationally rare.

Of most significance, the HBIC data identified seven notable plant species within and adjacent to the Langstone FCERM Scheme boundary including brookweed (*Samolus valerandi*) (a county scarce species), English scurvygrass (*Cochlearia anglica*) (a county scarce species), golden samphire (*Limbarda crithmoides*) (a nationally scarce and county scarce species), sea-buckthorn (*Hippophae rhamnoides*) (a nationally scarce species), sea woodworm (*Artemisia maritima*) (a county scarce species), slender hare's-ear (*Bupleurum tenuissimum*) (listed as IUCN_EN_2014:VU, IUCN_GB_2001:VU, a Section 41 NERC Act, nationally scarce and county scarce species) and strawberry clover (*Trifolium fragiferum*) (listed as IUCN_EN_2014:VU, IUCN_GB_2001:VU).

Botanical Survey 2021

All broad terrestrial habitat types within the footprint of the proposed Langstone FCERM scheme were identified, and a list was compiled of characteristic plant species within each habitat type (**Figure 9.2**). A detailed survey using methods developed for National Vegetation Classification [NVC] and the Integrated Habitat System (IHS), has been undertaken for the entire frontage in 2021, the full survey is provided at **Appendix L3**. NVC communities of most botanical interest noted during the botanical survey included saltmarsh, swamp, woodland, ruderal and grassland habitats.

Saltmarsh habitats recorded within the survey area included:

- SM6 saltmarsh, *Spartina anglica* common cord-grass salt-marsh community,
- SM8 Annual *Salicornia* salt-marsh glasswort species salt-marsh community,
- SM9 *Suaeda maritima* salt-marsh annual sea-blite salt-marsh community,
- SM14 *Halimione portulacoides* (*Atriplex portulacoides*) salt-marsh sea-purslane salt-marsh community,
- SM17 *Artemisia maritima* salt-marsh sea wormwood salt-marsh community,
- SM24 *Elymus pycnanthus* (*Elymus athericus*) salt-marsh sea-couch grass community,
- SM23 *Spergularia marina-Puccinellia distans* salt-marsh lesser sea-spurrey-reflexed salt-marsh grass salt-marsh community,
- MC6 *Atriplex prostrata-Beta vulgaris ssp.maritima* community sea-purslane - sea-beet strand line community (strandline and coastal vegetated shingle habitat) - similar species noted as the maritime cliff community.

Notable species within the saltmarsh communities include golden samphire (*Limbarda crithmoides*) (a nationally scarce and county scarce species) located at the head of the inlet

(east of the spit) and scattered on the cement bank east of the sailing club. Sea wormwood (*Artemisia maritima*) (a county scarce species) was noted within the SM17 community on the western bank of the inlet and the eastern bank beside the sailing club. Lax-flowered sea-lavender (*Limonium humile*) (a nationally scarce and county scarce species) was located within the SM24 community along a few metres of the sea wall adjacent to the Mill Pond. Curled dock (*Rumex crispus* subsp. *littoreus*) (a county scarce species) was noted within the SM24 community on the spit.

Swamp (reedbed) habitat S4 *Phragmites australis* common reed swamp was recorded bordering the Mill Pond.

NVC woodland and scrub communities recorded within the survey area included:

- W6a *Alnus glutinosa-Urtica dioica* woodland typical sub-community alder-common nettle woodland (notably wet woodland habitat) plus a plantation of English elm *Ulmus procera* were located along the stream edge and around the Mill Pond,
- W24a *Rubus fruticosus-Holcus lanatus* underscrub sub-community *Cirsium arvense-Cirsium vulgare*. Bramble and Yorkshire Fog underscrub sub-community creeping thistle-spear thistle were noted around the meadows,
- W24b *Rubus fruticosus-Holcus lanatus* underscrub sub-community *Arrhenatherium elatius-Heracleum sphondylium* Bramble and Yorkshire Fog underscrub sub-community with false oat-grass and hogweed sub community along the cycle track.
- W21a *Cretagus mongyna-Hedera helix* scrub sub-community *Hedera helix-Urtica dioica* hawthorn and ivy scrub sub-community of ivy and common nettle,
- W21 plus sycamore along the cycle track; and
- W22c *Prunus spinosa- Rubus fruticosus* scrub sub-community *Dactylis glomerata* blackthorn-bramble sub-community of cock's-foot grass on the very western edge of the survey area and on the spit.

Ruderal communities recorded within the survey area included:

- OV21b *Poa annua-Plantago major* sub-community *Polygonum avicular Ranunculus repens* Annual meadow-grass- greater plantain sub-community of knotgrass- creeping buttercup,
- OV24b *Urtica dioica- Galium aparine* sub-community *Arrhenatherum elatius- Rubus fruticosus* Common nettle-cleavers sub-community of false oat-grass- bramble, and
- OV25b *Urtica dioica- Cirsium arvense* sub-community *Rumex obtusifolius- Artemisia vulgaris* common nettle-creeping thistle sub-community of broad-leaved dock and mugwort.

NVC grassland communities noted during the botanical survey included:

- MG12a *Festuca arundinacea* sub-community *Lolium perenne-Holcus lanatus* tall fescue sub-community perennial rye-grass- Yorkshire fog grassland,
- MG13 *Agrostis stolonifera-Alopecurus geniculatus* grassland Creeping bent- marsh fox-tail,
- Mature MG7 ley and MG7e *Lolium perenne ley - Lolium perenne-Plantago lanceolata* grassland Perennial rye-grass with rib-wort plantain ley,

- MG1a *Arrhenatherum elatius* sub-community *Festuca rubra* - False oat-grass sub-community red fescue grassland,
- MG1b *Arrhenatherum elatius* sub-community *Urtica dioica* - False oat-grass sub-community common nettle,
- MG1d *Arrhenatherum elatius* sub-community *Pastinaca sativa* - False oat-grass sub-community wild parsnip grassland,
- MG1e *Arrhenatherum elatius* sub-community *Centaurea nigra* False oat-grass sub-community with common knapweed,
- MC8a *Festuca rubra* - *Armeria maritima* red fescue- thrift typical sub-community of maritime grassland,
- Mix of vegetation representing calcareous and maritime species over bare chalk, and
- Transitional maritime grassland.

Three species poor hedgerows were recorded within the survey area. The hedge along the east side of the meadow (west of Mill Pond) comprised of elm (*Ulmus procera*) and blackthorn (*Prunus spinosa*) with occasional hawthorn (*Crataegus monogyna*). The middle hedgerow between the two fields (west of Mill Pond) is similar, comprised of hawthorn and blackthorn, with occasional elder (*Sambucus nigra*), holly (*Ilex aquifolium*), ash (*Fraxinus excelsior*) and clumps of elm. The hedge along the northern edge of the field located east of the Langbrook stream comprised of elm and hawthorn, with some dogwood (*Cornus sanguinea*) and a mature sycamore (*Acer pseudoplatanus*) tree. Ground elder (*Aegopodium podagraria*) and ivy (*Hedera helix*) were also noted.

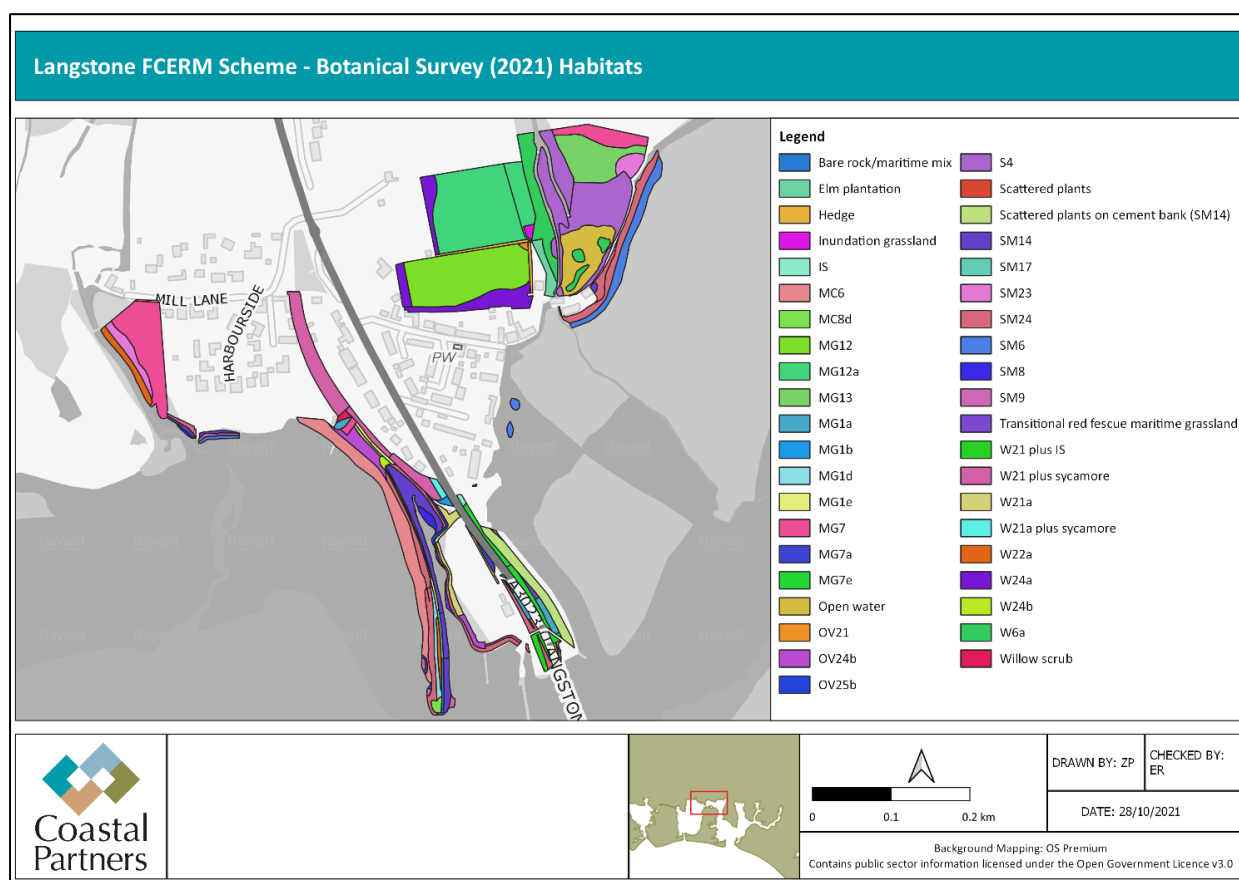


Figure 9.2 Langstone broad habitats from 2021 botanical survey.

Non-native Plant Species

The August 2023 HBIC data had records of 28 plant species within 1km of the scheme that are considered potentially invasive species. This includes seven species that are listed under Schedule 9, part 2 of the Wildlife and Countryside Act 1981 (as amended). Section 14 of the Act prohibits planting or otherwise causing to grow any plant listed in the Schedules. The species identified within 1 km are; Japanese Knotweed (*Fallopia japonica*), Japanese Rose (*Rosa rugosa*), Montbretia (*Crocasmia x crocosmifolia*), Three-cornered Garlic (*Allium triquetrum*), Virginia-creeper (*Parthenocissus quinquefolia*), Wall Cotoneaster (*Cotoneaster horizontalis*) and Yellow Archangel (*Lamium galeodifolium argenteum*). Two of these species were recorded within the site boundary including Japanese Rose (*Rosa rugosa*) (in Frontage 2) and Three-cornered Garlic (*Allium triquetrum*) (in Frontages 1A and 2). In addition, Japanese Rose (*Rosa rugosa*) was noted adjacent to the Hayling Billy Trail footpath on the west side of Langstone Road during the botanical survey in 2021.

9.4.2 Protected and Notable Species

The Preliminary Ecological Appraisal identified the likely absence of the hazel dormouse (*Muscardinus avellanarius*) and otter (*Lutra lutra*). Additionally, the Langstone FCERM Scheme Environmental Scoping Report scoped out disturbance impacts to the water vole (*Arvicola amphibius*) and loss of water vole habitat. These species are therefore not addressed further in this ES.

Following the recommendations of the Langstone FCERM Scheme Environmental Scoping Report additional surveys have been undertaken to support this ES and confirm any specific mitigation that will be required during the construction works for botany, bats, badgers, great crested newts, reptiles, trees and woodland particularly with TPOs.

The following section is comprised of a desktop review of HBIC data, the Langstone FCERM Scheme Environmental Scoping Report, HBC scoping opinions and phase 2 survey reports. The desktop review has been undertaken to assess the potential for encountering protected, notable or invasive species during these works, specifically looking at bats, badgers, great crested newts, common toad, reptiles, west European hedgehog, invertebrates and trees in relation to planning (**Sections 9.4.2.1 – 9.4.2.8**).

9.4.2.1 Bats

All bat species in the UK are listed under Annex IV of the EC Habitats and Species Directive. All UK bat species are protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to:

- Deliberately kill, injure or capture bats;
- Deliberately disturb bats in such a way as to be likely to significantly affect i) the ability of any significant group of bats to survive, breed or rear or nurture their young, or ii) the local distribution or abundance of bats;
- Intentionally or recklessly disturb any bat whilst it is occupying a roost;
- Damage or destroy bat roosts;
- Intentionally or recklessly obstruct access to a bat roost.

Seven UK bat species are listed as species of principle importance under Section 41 of the NERC Act 2006, and local authorities and other public bodies have a legal duty to take their conservation into account. The seven species listed are: Barbastelle Bat (*Barbastella barbastellus*); Bechstein's Bat (*Myotis bechsteinii*); Noctule Bat (*Nyctalus noctula*); Soprano pipistrelle Bat (*Pipistrellus pygmaeus*); Brown Long-eared Bat (*Plecotus auritus*); Greater Horseshoe Bat (*Rhinolophus ferrumequinum*); Lesser Horseshoe Bat (*Rhinolophus hipposideros*).

The August 2023 HBIC data search identified 12 species of bat within 2km of the site boundary, including Brown Long-eared Bat (*Plecotus auratus*), Common Pipistrelle Bat (*Pipistrellus pipistrellus*), Daubenton's Bat (*Myotis daubentonii*), Greater Horseshoe Bat (*Rhinolophus ferrumequinum*), Lesser Noctule Bat (*Nyctalus leisleri*), Nathusius's Pipistrelle Bat (*Pipistrellus nathusii*), Natterer's Bat (*Myotis nattereri*), Noctule Bat (*Nyctalus noctule*), Serotine Bat (*Eptesicus serotinus*), Soprano Pipistrelle Bat (*Pipistrellus pygmaeus*) Western Barbastelle (*Barbastella barbastellus*) and Whiskered Bat (*Myotis mystacinus*). There are recorded sightings for Common Pipistrelle, Lesser Noctule, Noctule, Serotine, Soprano Pipistrelle and Western Barbastelle bat species in flight located close to the frontage 5 area. The habitats within and adjacent to the site boundary have moderate-high potential for bat roosting and moderate-high potential for bat foraging and commuting activities.

Bat Roosts: Preliminary Ground Level Bat Roost Assessment (Trees)

A preliminary ground level bat roost assessment involving an inspection of trees in accordance with 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Collins, 2016), was undertaken on 25th February 2021 to establish if bats are roosting or could potentially roost within or adjacent to the site boundary; (see Langstone FCERM Scheme Preliminary Ground Level Bat Roost Assessment (Trees) Report – **Appendix L4**).

The linear treelines within and adjacent to the scheme boundary have potential for roosting bats. Potential Roosting Features (PRFs) were found within ten trees located along the footpath edge, Mill Lane, Langstone Meadows edge and within Langstone Village (**Figure 9.3**). Two oak trees were classified as high roosting potential; three trees (two oak and one willow) were classed as medium roosting potential; one tree (sycamore) was classified as low roosting potential; and four trees (two Monterey Pine, one Norway Maple, and one Poplar) were classified as negligible roosting potential.

Langstone - Trees with Confirmed or Potential Roosting Features for Bats (25th February 2021)

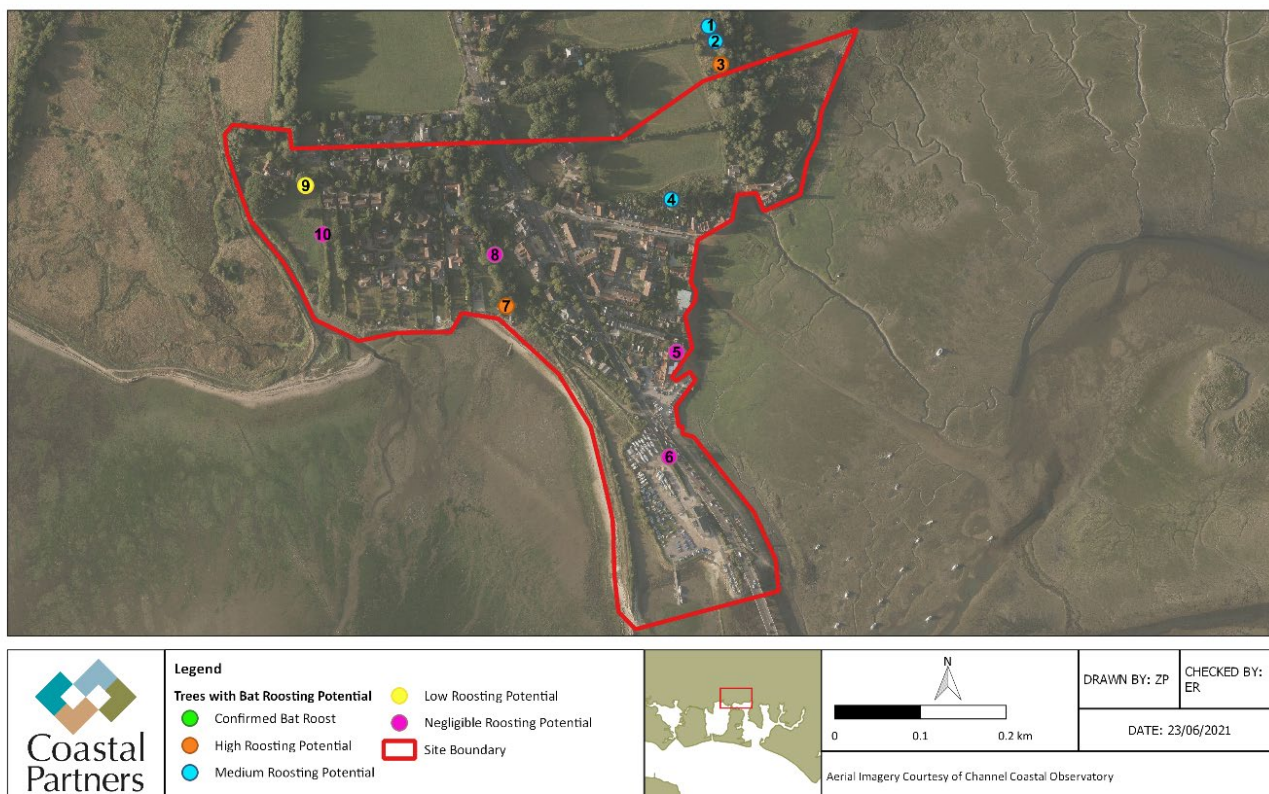


Figure 9.3 Trees with confirmed or potential roosting features, Langstone.

A second preliminary ground level bat roost assessment involving an inspection of trees in accordance with 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Collins, 2016), was undertaken on 20th February 2024. The assessment was located around the proposed access junction between Langstone Road and the compound entrance which potentially requires additional trees to be trimmed or removed. Five identified trees were assessed for bat roosts and PRFs and all were found to have negligible PRFs. A mature Pedunculate Oak tree (tree 7 on the Tree Survey map – **Figure 9.8**) located close to the proposed haul route (that will be retained as part of the works) was also assessed and found to have medium PRFs.

9.4.2.2 Badger

Badgers (*Meles meles*) are protected including their setts under the Protection of Badgers Act 1992 in England and Wales. It is an offence to wilfully kill, injure or take a badger (or attempt to do so); cruelly ill-treat a badger; dig for a badger; intentionally or recklessly damage or destroy a badger sett, or obstruct access to it; cause a dog to enter a badger sett; disturb a badger when it is occupying a sett. The Badger is also partially protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

The August 2023 HBIC data has no records of the badger (*Meles meles*) within 2km of the scheme boundary.

A presence / likely absence survey was undertaken on 25th February 2021 (see Langstone FCERM Scheme Badger Survey Report – **Appendix L5**), in accordance with ‘Surveying Badgers’ (Harris et al. 1989) and entailed an assessment of habitat suitability and a methodical search for visible badger field signs. Any sett found was to be recorded, classified using the National Badger Survey criteria (Harris et al. 1989) and assigned as either ‘well used’, ‘partially used’ or ‘disused’.

No evidence of badger setts or badger activity were recorded during the presence / likely absence survey. However, there is suitable badger foraging habitat within and adjacent to the scheme boundary. A badger’s territory usually comprises of a number of different habitat types to ensure a range of food sources can be found at different times of the year. Although, earthworms are the preferred food of the badger comprising approximately 50% of their diet (Woods, 2010); badgers are opportunistic omnivores and would also eat other invertebrates, small mammals, cereals and fruits. A range of habitats supporting a number of these food types are found within the site including woodland, hedgerows, scrub, grassland and pasture. However, the A27 major road to the north may limit badger activity within the area.

9.4.2.3 Great Crested Newt

Great crested newts (*Triturus cristatus*) are listed on Appendix II of the Bern Convention and on Annexes II and IV of the EU Habitats Directive. In the UK, the great crested newt is protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Offences can be committed through:

- Capturing, killing, disturbing or injuring great crested newts deliberately;
- Damaging or destroying a breeding or resting place;
- Obstructing access to their resting or sheltering places (deliberately or by not taking enough care);
- Possessing, selling, controlling or transporting live or dead newts, or parts of them, or taking great crested newt eggs.

The great crested newt is also a species of principle importance under Section 41 of the NERC Act 2006.

The August 2023 HBIC data search identified no records of the great crested newt (GCN) (*Triturus cristatus*) within the site boundary or within 2km of the site. In 2019, Natural England surveyed a number of ponds within the area for presence of the GCN for District Level Licensing using the GCN Habitat Suitability Index (HSI) and GCN eDNA. The nearest ponds tested were located in Havant approximately 4km north of the Langstone site boundary, and Purbrook approximately 6km northwest of the Langstone site boundary. Both ponds were confirmed as GCN absence.

Great Crested Newt Habitat Suitability Index

A Habitat Suitability Index (HSI) assessment was undertaken on 25th February 2021 (see Langstone FCERM Scheme Great Crested Newt Survey Report – **Appendix L6**), in accordance with Oldham et al. (2000), to assess the suitability of the Mill Pond located adjacent to the site boundary. Additional salinity readings were taken within the Mill Pond using an Automatic Temperature Compensation portable salinity refractometer.

The Mill Pond at Langstone was found to be of poor suitability for the GCN. The salinity test results indicated the pond contained fresh water, which is considered suitable for GCNs. However, due to the pond's proximity to the estuary and a history of overtopping in this location, it is likely that the salinity of water will vary and will periodically be unsuitable for this species. The report summarised that the poor suitability of the pond, occasional saltwater incursion, lack of GCN records in the area and manmade barriers around the site, provides confidence in the likely absence of the GCN. However, the terrestrial habitat adjacent to the Mill Pond is considered good suitability for GCNs and there is good habitat connectivity to the east. Therefore, further investigations into the likelihood of GCN presence within the Mill Pond were recommended using a GCN eDNA test.

GCN eDNA Test

The Mill Pond was tested for GCN eDNA in accordance with Biggs et al. 2014 and laboratory tested via RSK ADAS Ltd in April / May 2022. The results were negative, confirming that GCN are likely absent from the Mill Pond.

9.4.2.4 Common Toad

The common toad (*Bufo bufo*) is a species of principle importance under Section 41 of the NERC Act 2006, and local authorities and other public bodies have a legal duty to take their conservation into account. One HBIC record of the common toad (*Bufo bufo*) lies approximately 500m northeast of the proposed Scheme. There are areas with suitable aquatic and terrestrial habitat for the common toad within and adjacent to the Scheme boundary.

9.4.2.5 Reptiles

All reptiles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), making it illegal to intentionally or recklessly kill or injure a common reptile. Rare reptiles, which include smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) also receive legal protection under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). It would be an offence to deliberately injure, kill, capture or disturb a rare reptile, or to damage or obstruct any place used for shelter or protection. Rare reptiles may only be disturbed by licensed ecologists. All reptile species are species of principle importance under Section 41 of the NERC Act 2006, and local authorities and other public bodies have a legal duty to take their conservation into account.

The August 2023 HBIC data search identified records of adder (*Vipera berus*), slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) within 2km of the site. Six records of the slow worm were located approximately 500m northeast of the proposed works. Although there were no HBIC records within the site boundary, there are areas of potential reptile habitat, including expanses of rough grassland and scrub.

A presence / likely absence survey was undertaken in 2021 in accordance with the Herpetofauna Groups of Britain and Ireland (HGBI) (1998) guidelines and Natural England's 'Reptiles: surveys and mitigation for development projects' guidance (Natural England, 2015). A second survey was undertaken in 2022 to account for an additional haul route and compound location (see Langstone FCERM Scheme Reptile Survey Report – **Appendix L7**).

During the surveys, two reptile species, common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*) were recorded along transects B-E (2021) and transect A (2022) (**Figure 9.4**).

Peak adult survey counts were one common lizard (on 16.04.21, 23.04.21 and 27.04.21) and thirteen slow worms (on 27.05.21). Using the Froglife Advice sheet 10 (Froglife, 1999) criteria, these results indicate that the location has a 'good' population of slow worm and a 'low' population of common lizard.

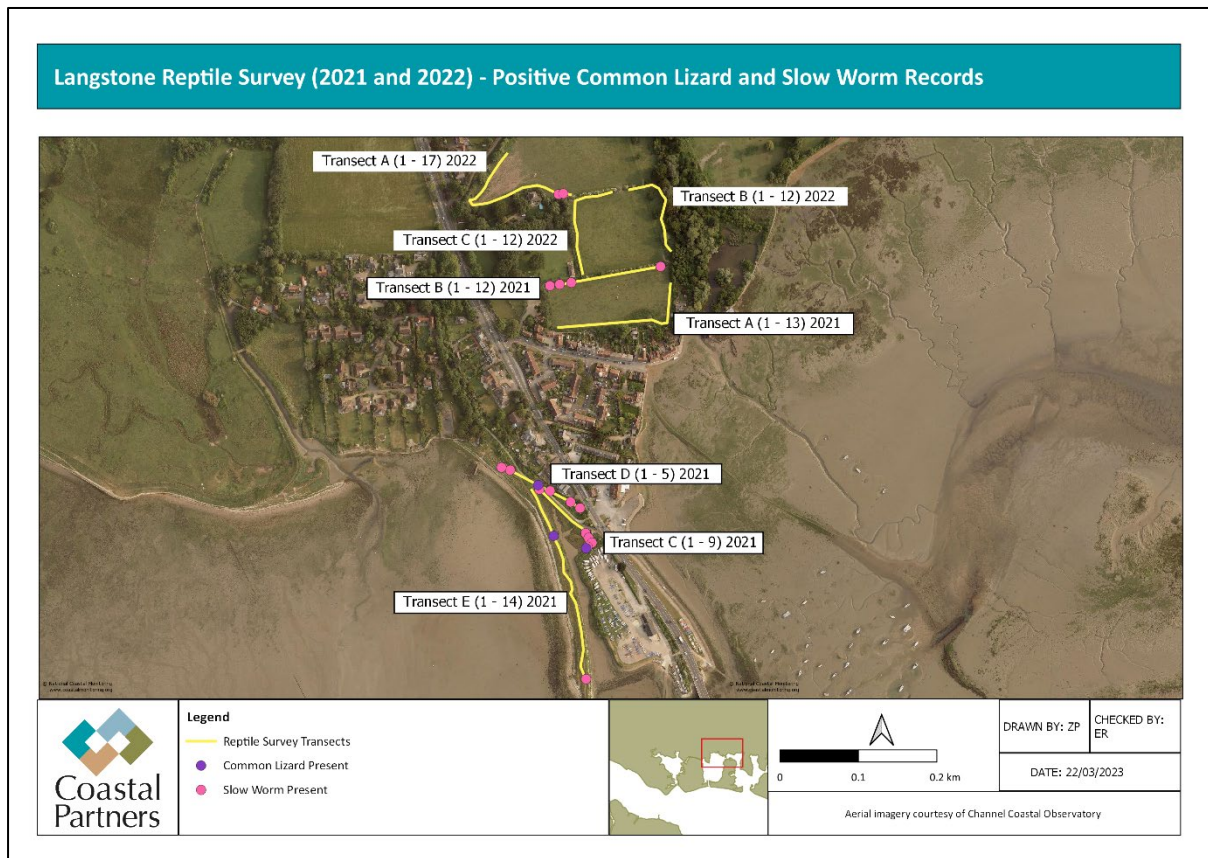


Figure 9.4 Positive records of slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) on all transect routes during 2021 and 2022 reptile surveys.

The slow worm was present along transects B, C, D and E within the 2021 survey and transect A within the 2022 survey (**Figure 9.4**), with the largest numbers recorded along transect D (2021 survey) adjacent to the footpath, which contained predominantly scrub habitat. The common lizard was found along transects C and E within the 2021 survey (**Figure 9.4**), where scrub and grassland habitats were present. During the course of the reptile survey, male, female and juvenile slow worms were recorded, which confirmed that there was a breeding population present for this species within the site. It was difficult to sex the common lizards seen during the survey, but it can be presumed that a breeding population is also present within the site boundary.

There were no adder or grass snake sightings during the survey. Whilst there was HBIC records of adder within 2km of the site, there were none within the site boundary. Adder records close to the site were on Hayling Island and local observers confirmed that adders are usually seen on the north of Hayling Island. The nearest grass snake record was at the Old Farmhouse on Wade Lane in 2006, north of the Scheme boundary. However, the site contains suitable habitat for the adder and grass snake, particularly to the west of the bridge and there are small pockets of suitable habitat in the Langstone meadow near the Mill Pond. It should

be presumed that any suitable reptile habitat within the site boundary supports a number of reptile species.

9.4.2.6 West European Hedgehog

The west European hedgehog (*Erinaceus europaeus*) is afforded partial protection under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and are listed under the Wild Mammals Protection Act (1996). The west European hedgehog is also listed as species of principle importance under Section 41 of the NERC Act 2006, and local authorities and other public bodies have a legal duty to take their conservation into account.

The August 2023 HBIC data search identified records of the west European hedgehog (*Erinaceus europaeus*) within 2km of the Langstone Scheme boundary. Three records are located within 500m of the boundary. Suitable hedgehog habitat can be found within and adjacent to the proposed Scheme.

9.4.2.7 Invertebrates

The HBIC August 2023 data found 106 notable invertebrate species within 2km of the Scheme. However, just 25 of the notable invertebrate species lie within 1km of the Scheme. Of the 25 invertebrate species listed within 1km of the Scheme, two species are a Habitats Directive Annex II species, three species are on the International Union for Conservation of Nature (IUCN) red list, five species are species of principle importance under Section 41 of the NERC Act 2006 and 14 species are of national importance (**Table 9.5**).

Of most significant, the HBIC data identified records of the stag beetle (*Lucanus cervus*), (a Habitats Directive Annex II species, a species of principal concern under Section 41 of the NERC Act 2006 and a nationally scarce species) within close proximity of the proposed works, located at SU716049 and SU718048. Stag beetles are found in woodland edges, hedgerows, orchards, parks and gardens. They lay their eggs in rotting wood (e.g. log piles) which the larvae feed on once hatched. After between three to six years, the larvae will build a cocoon in the soil, up to 50cm below ground. The larva will then pupate and metamorphose into an adult, emerging from the cocoon in autumn and spending the winter and spring in the soil. Adults emerge from the soil between May and August (PTES, 2022).

Table 9.5 HBIC (August 2023) terrestrial invertebrate records within 1km of the Langstone FCERM Scheme.

Group Name	Common Name	Latin Name	Conservation Status	Area
Coleoptera	<i>Atomaria rhenonum</i>	<i>Atomaria rhenonum</i>	NN	100
Coleoptera	<i>Bembidion normannum</i>	<i>Bembidion normannum</i>	NS	100
Coleoptera	<i>Cassida prasina</i>	<i>Cassida prasina</i>	NS	100
Coleoptera	<i>Cercyon littoralis</i>	<i>Cercyon littoralis</i>	NS	100
Coleoptera	<i>Chaetocnema sahlbergii</i>	<i>Chaetocnema sahlbergii</i>	IUCN_GB_2001:VU, NR	100
Coleoptera	<i>Cordicollis instabilis</i>	<i>Cordicollis instabilis</i>	NS	100
Coleoptera	<i>Cyclodinus constrictus</i>	<i>Cyclodinus constrictus</i>	NS	100
Coleoptera	<i>Cyclodinus salinus</i>	<i>Cyclodinus salinus</i>	NR	100
Coleoptera	<i>Dicheirotichus obsoletus</i>	<i>Dicheirotichus obsoletus</i>	NS	100
Coleoptera	Sea-Wormwood Weevil	<i>Polydrusus pulchellus</i>	NS	100
Coleoptera	<i>Sibinia arenariae</i>	<i>Sibinia arenariae</i>	NS	100
Coleoptera	Stag Beetle	<i>Lucanus cervus</i>	Ann2np, NS, s41	100

Group Name	Common Name	Latin Name	Conservation Status	Area
Hymenoptera	Lobe-spurred Furrow Bee	<i>Lasioglossum pauxillum</i>	NS	1000
Lepidoptera	Blackthorn Case-bearer	<i>Coleophora coracipennella</i>	CR	1000
Lepidoptera	Blood Vein	<i>Timandra comae</i>	S41	1000
Lepidoptera	Cinnabar	<i>Tyria jacobaeae</i>	s41	1000
Lepidoptera	Fleabane Smudge	<i>Digitivalva pulicariae</i>	CR	1000
Lepidoptera	Grey Dagger	<i>Acronicta psi</i>	s41	1000
Lepidoptera	Jersey Tiger	<i>Euplagia quadripunctaria</i>	Ann2np	1000
Lepidoptera	Saltern Groundling	<i>Scrobipalpa instabilella</i>	CR	1000
Lepidoptera	Saltmarsh Plume	<i>Agdistis bennetii</i>	CR	100
Lepidoptera	Silver-streaked Case-bearer	<i>Coleophora limoniella</i>	CR	1000
Lepidoptera	Small Heath	<i>Coenonympha pamphilus</i>	IUCN_GB_2001:NT, s41	1000
Lepidoptera	Sulphur Pearl	<i>Sitochroa palealis</i>	NN	1000
Odonata	Common Darter	<i>Sympetrum striolatum</i>	IUCN_GB_2001:DD	1000

HBIC Data (2021) Status key:

Status code	Status
Ann2np	Habitats Directive Annex II species
IUCN_GB_2001:VU	Vulnerable species - 2001 International Union for Conservation of Nature (IUCN) Red List Categories and Criteria
NN	Nationally notable - National species status
NS	Nationally scarce - National species status
NR	Nationally rare - National species status
s41	Natural Environment and Rural Communities (NERC) Act 2006 Section 41 list species
CR	County rare - Locally (Hampshire) determined species status

Based upon a walk-over in 2021, except for the coastal vegetated shingle and saltmarsh habitat, it is not considered that any habitats suitable for notable invertebrates (with the exception of the stag beetle) will be significantly affected during the construction or operation of this Scheme. Further research has been undertaken on the identified species to indicate which may rely on these habitats. It should be noted that moths are relatively mobile species and can be attracted from some distance to a light source, so are not necessarily good indicators of local habitats. There is also often not good ecological information regarding habitat requirements for these species. The species listed in **Table 9.6** have been identified as potentially having an association with coastal vegetated shingle and /or saltmarsh habitats, either by virtue of them being a specialist of that habitat or the known presence of their foodplant within the coastal vegetated shingle / saltmarsh habitats found on site. Although many of the coleoptera (beetles / weevils) identified are coastal species, they are detritivores scavenging on rotting seaweed / vegetation along coastal edges.

In total, 16 species have been noted as having an association with coastal vegetated shingle and/or saltmarsh habitats, including 11 beetle species (one IUCN rare/nationally rare, one nationally rare, eight nationally scarce, one nationally notable), five moth species (one s41, three county rare), and one butterfly species (s41).

Table 9.6 Details of notable invertebrate species which may have an association with coastal vegetated shingle and saltmarsh. (Status key: R= IUCN Rare, s41 species of principle concern (NERC 2006), NR-Nationally Rare, NS-Nationally Scarce, NN-Nationally Notable and CR-County Rare).

Group Name	Common Name	Latin Name	Habitat	Foodplant	Conservation Status
Beetle	<i>Atomaria rhenonum</i>	<i>Atomaria rhenonum</i>	Coastal edges	Decaying plants / fungus in marsh debris / tidal refuse.	NN
Beetle	<i>Bembidion normannum</i>	<i>Bembidion normannum</i>	Saltmarsh edges - mud / fine sand (upper tidal zone)	Detritus.	NS
Beetle	<i>Cassida prasina</i>	<i>Cassida prasina</i>	Grassland	Yarrow, Sneezewort, Sea Campion.	NS
Beetle	<i>Cercyon littoralis</i>	<i>Cercyon littoralis</i>	Coastal edges found under rotting seaweed and flotsam	Scavenger.	NS
Beetle	<i>Chaetocnema sahlbergii</i>	<i>Chaetocnema sahlbergii</i>	Coastal	Sedge, rush, cotton grass, sea-milkwort.	R, NR
Beetle	<i>Cordicollis instabilis</i>	<i>Cordicollis instabilis</i>	Saltmarsh / coastal margins	Decaying vegetation.	NS
Beetle	<i>Cyclodinus constrictus</i>	<i>Cyclodinus constrictus</i>	Saltmarsh / coastal margins	Decaying vegetation.	NS
Beetle	<i>Cyclodinus salinus</i>	<i>Cyclodinus salinus</i>	Saltmarsh / coastal margins	Decaying vegetation.	NR
Beetle	<i>Dicheirotichus obsoletus</i>	<i>Dicheirotichus obsoletus</i>	Saltmarsh / coastal margins	Decaying vegetation.	NS
Beetle	Sea-Wormwood Weevil	<i>Polydrusus pulchellus</i>	Coastal (saltmarsh, shingle, estuaries)	Sea wormwood, sea purslane, sea beet, buck's-horn plantain.	NS
Beetle	<i>Sibinia arenariae</i>	<i>Sibinia arenariae</i>	Coastal edges	Sand / sea spurrey.	NS
Moth	Cinnabar	<i>Tyria jacobaeae</i>	Open grassland	Common ragwort.	s41
Moth	Saltern Groundling	<i>Scrobipalpa instabilella</i>	Saltmarsh, coastal dune, scrub	Sea purslane, orache, glasswort, annual sea-blite.	CR
Moth	Saltmarsh Plume	<i>Agdistis bennetii</i>	Saltmarsh	Sea-lavender.	CR
Moth	Silver-streaked Case-bearer	<i>Coleophora limoniella</i>	Saltmarsh	Common sea-lavender.	CR
Butterfly	Small Heath	<i>Coenonympha pamphilus</i>	Grassland, heathland, coastal dunes	Fine grasses, especially bents, fescues, meadow-grasses.	s41

9.4.2.8 Trees and Planning

Three conservation areas are located within and adjacent to the Langstone FCERM Scheme boundary, including Langstone Conservation Area, Mill Lane Conservation Area and Wade Court Conservation Area. All trees with a stem/trunk diameter of 75mm (approximately 3 inches) or more at a height of 1.5m from the ground are protected within a Conservation Area.

Havant Borough Council requires six weeks' notice before any works can be carried out on trees within a Conservation Area that are not protected by a Tree Preservation Order (TPO). TPOs are given to protect trees that have a significant visual impact on the environment by the local planning authority within Havant Borough Council which provides a level of legal protection under the Town and Country Planning (Tree Preservation) (England) Regulations 2012. Several trees with a TPO are located within the proposed Scheme area (**Figure 9.5**). During a planning application process tree related matters including trees in conservation areas and TPO's are covered by the planning consent process and do not require additional notification or consenting routes.

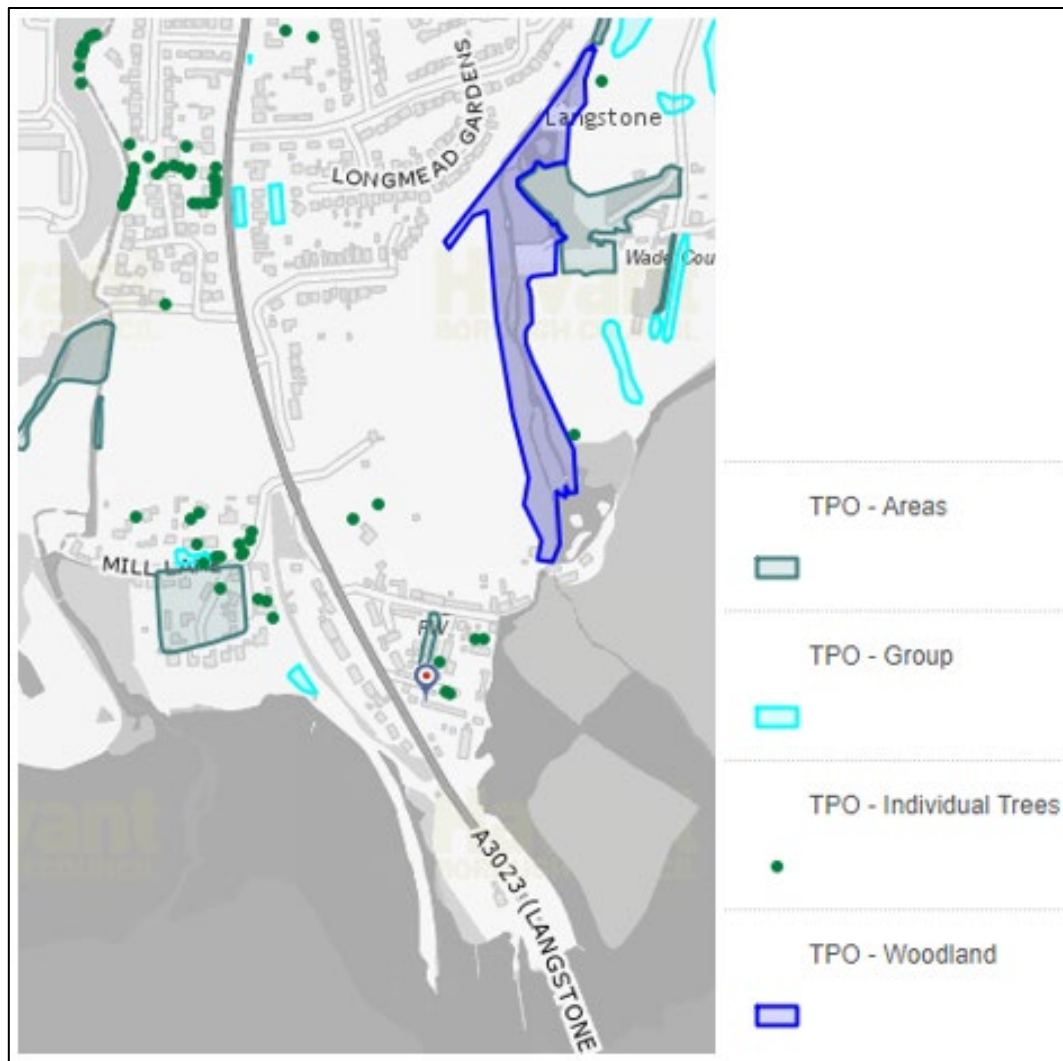


Figure 9.5 TPOs within and adjacent to the Langstone FCERM Scheme. (Source: Havant Borough Council, Available at: http://maps.havant.gov.uk/mycouncil.aspx?MapSource=HBC/AllMapsHBC&StartEasting=471836.825000&StartNorthing=104858.925000&StartZoom=250&o=1&Layers=tpo_areas).

All trees, shrubs and tree groups are a material consideration for planning applications, so the Local Planning Authorities can understand the impact on trees. The relevant guidance for this is "British Standard 5837:2012: Trees in relation to design, demolition and construction – recommendations". Within this guidance, the requirements for surveys to calculate Root Protection Areas (RPA) for trees and subsequent actions to protect trees are provided. In

general terms, any construction (including storage of materials and plant) within the RPA should be avoided or mitigated.

The BS5837 'Trees in relation to construction', Tree Survey and Arboricultural Method Statement (Harverson, 2024) undertaken within the Scheme boundary surveyed 24 individual trees, 13 groups of smaller trees, two hedgerows and one wood (**Appendix L8**). The surveyed trees were categorised using the BS5837:2012 tree grading criteria and the RPAs of the surveyed trees were calculated. Three individual trees and the wood were assessed as high quality (category A); 12 individual trees, five groups of trees and the two hedgerows were assessed as moderate quality (category B); seven individual trees and six groups of trees were assessed as being of low quality (category C); and two individual trees and two groups of trees were assessed as being unsuitable for retention (category U) (see Appendix BH2 in Harverson (2024)). The calculated RPAs are also provided in Harverson (2024). **Appendix L8** includes a supplementary tree survey that was undertaken for the access to the main compound as identified through the Road Safety Audit.

9.5 Identification of Effect Pathways

The scope of the terrestrial ecology impact assessment has been informed by the EIA Scoping Report produced for the scheme (Coastal Partners, 2020) and the associated Scoping Opinions received from Natural England and Hampshire County Council's County Ecologist in February 2021 and June 2021 respectively (see Appendix A). **Table 9.7** below provides a summary of the potential impact pathways scoped in and out of the assessment with respect to terrestrial ecology receptors.

Table 9.7 Summary EIA Scoping for terrestrial ecology potential impact pathways.

Potential Impact Pathway	Scoping Decision	Notes
Damage to TPO woodland via construction of set-back floodwall.	Scoped In	It is not clear at this stage of scheme development what activities will be required for construction, but there is potential that lopping of trees will be necessary and that excavation activities will cause damage to roots.
Damage to priority habitats, broad habitats and notable plants species via vegetation clearance and construction activities	Scoped In	Vegetation clearance and construction activities may directly and/or indirectly affect habitats and notable plants species within the Scheme area.
Disturbance to bat species roosting and feeding in the area	Scoped In	The impact is likely to be minimal, with limited impact on foraging habitat, although very site-specific issues have the potential for harm if not adequately assessed. For example, some buildings will be directly impacted by the scheme (i.e. within ODU 3I) by incorporation into the sea defence.
Disturbance to reptile species and loss of reptile habitat	Scoped In	Construction activities including vegetation removal have the potential to cause disturbance to reptile species.

Potential Impact Pathway	Scoping Decision	Notes
Disturbance to badgers	Scoped In	It appears unlikely that badger setts are present within the construction envelope of the Scheme. However, the site is likely to be within foraging range of badgers and a badger walkover survey will be undertaken to confirm absence during detailed design.
Disturbance to Great Crested Newts	Scoped In	There are no records of great crested newt with 2 km of the Scheme however potential waterbodies are identified in the vicinity which will be investigated further where necessary.
Harm to terrestrial invertebrates	Scoped Out (scoped in following desk top study)	The Scheme is unlikely to affect invertebrates however a detailed analysis of invertebrate records will be undertaken to confirm any species of concern.
Disturbance to water vole and loss of habitat for water vole	Scoped Out	No water voles have been identified within the vicinity of the Scheme and the Scheme will not affect suitable habitat. Consequently, water voles have been scoped out.
Potential beneficial impacts through planting, habitat enhancements and landscaping	Scoped In	The Scheme has the potential for beneficial impacts and will be considered in relation to net gain.

In summary, the potential impacts on important terrestrial ecological features during the construction of the proposed scheme that have been scoped in for further assessment are:

- Temporary and/or permanent loss of priority / broad habitats and notable plant species through vegetation clearance and breaking out of existing defences.
- Fuel storage and fuelling operations for plant may pollute sensitive habitats such as coastal vegetated shingle, wet woodland, hedgerows, reedbed and broadleaved woodland within and adjacent to the scheme boundary.
- Dust produced from construction activities may be carried through the air, land on nearby sensitive vegetation within the coastal vegetated shingle, wet woodland, hedgerows, reedbed and broadleaved woodland within and adjacent to the scheme boundary.
- Vegetation removal and construction activities such as trampling / movement of plant could cause invasive non-native terrestrial species (e.g. Japanese Rose, Three-cornered Garlic) to spread.
- Vegetation removal and construction activities could impact protected species (including bats, badgers, great-crested newts, common toad, reptiles, hedgehogs, invertebrates) living, foraging, commuting or hibernating in a particular habitat (e.g. woodland, scrub, grassland, saltmarsh).
- Artificial lighting at night may affect foraging and commuting bats within and adjacent to the scheme boundary.
- Excavations, construction activities and vegetation removal could impact trees particularly within the RPAs.

The potential impacts on important terrestrial ecological features during the operational phase of the proposed scheme that have been scoped in for further assessment are:

- Planting of additional trees / hedgerows / wildflower meadows will provide additional habitat to benefit a number of nesting, foraging and hibernating terrestrial species.
- Installation of bat boxes will benefit the roosting bats.

These potential impacts are characterised and assessed in more detail in **Section 9.6** for the construction phase and **Section 9.7** for the operational phase of the proposed scheme.

9.6 Potential Impacts During Construction

The effects of the construction of the Langstone FCERM Scheme on terrestrial ecology receptors within the study area has been assessed. A description of the significance of effect upon terrestrial ecology receptors potentially caused by each identified impact is provided below. Appropriate mitigation measures to avoid / reduce the negative impacts are also provided below which will be implemented within the CEMP for these works.

9.6.1 Construction Impact 1: Priority and broad habitat loss through vegetation clearance and/or construction of sea defences.

Priority Habitats

Terrestrial habitats of international importance under Annex I of the EU Habitats Directive located within the Core Scheme boundary include vegetated shingle (1210 annual vegetation of drift lines) and wet woodland (91E0 alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*). Both these habitats are also protected on a national scale under Section 41 of the NERC Act 2006. The vegetated shingle habitat located in Frontage 2 will be retained during the construction works and will not be impacted by vegetation clearance activities or removal of the existing defences. A 0.014 ha linear strip of wet woodland understorey habitat located in Frontage 5 will be removed where a reinforced concrete flood wall is proposed to run along the footpath and through the woodland. The loss of wet woodland habitat within Frontage 5 could cause changes to the woodland habitat and community creating a medium impact. The value and sensitivity impact table considers the loss of wet woodland habitat from vegetation clearance activities to be medium, creating a **major adverse significance** effect.

Hedgerows are also protected on a national scale under Section 41 of the NERC Act 2006 and therefore have a high level of importance. One species poor hedgerow (west of Mill Pond) comprising of elm (*Ulmus procera*) and blackthorn (*Prunus spinosa*) with occasional hawthorn (*Crataegus monogyna*), will be removed in Frontage 5 to allow construction of the concrete wall. Sections of two species poor hedgerows also located in Frontage 5 may need to be removed through vegetation clearance activities to widen the gap to allow sufficient access for construction plant movements between the compound and work areas. This includes the hedgerow between the top and middle field and the hedgerow between the middle and southern field (which comprises of hawthorn and blackthorn, with occasional elder (*Sambucus nigra*), holly (*Ilex aquilifolium*), ash (*Fraxinus excelsior*) and clumps of elm). The BNG calculations show a total combined length of hedgerow in Frontage 5 of 57m; of which 22m will be removed as part of the works. The loss of hedgerow habitat within Frontage 5 could cause changes to the hedgerow habitat and community creating a medium impact. The value and sensitivity impact table considers the loss of sections of hedgerow habitat from vegetation clearance activities to be medium, creating a **moderate adverse significance** effect.

Broad Habitats

The Langstone Core Scheme will include vegetation clearance of woodland, scrub and grassland habitats (which are of regional / local interest), within all Frontages as outlined on the Clearance Plans. In addition, there is a mandatory national requirement to deliver a minimum 10% Biodiversity Net Gain of habitat under The Environment Act 2021, therefore these habitats have a high level of importance. The effects of the habitat loss may cause changes to part of those habitats and communities and the overall biodiversity of the area, creating a medium impact. The value and sensitivity impact table considers the loss broad habitats by vegetation clearance activities to be medium, creating a **moderate adverse significance** effect.

Mitigation
<u>Priority Habitats</u> - Any wet woodland understorey habitat removed will be replaced with a native wetland mix of shrubs as outlined in the landscaping plans and planting schedule. 27m of species rich hedgerow will be planted in same location to replace the species poor hedgerow removed during vegetation clearance and additional areas will be planted with a hedgerow seed mix as outlined in the landscaping plans and planting schedule. - All priority habitat losses, gains and environmental improvements for the Langstone FCERM Scheme are outlined in the draft BNG Plan and will be submitted for approval prior to commencement. <u>Broad Habitats</u> - All broad habitat losses, gains and environmental improvements for the Langstone FCERM Scheme are outlined in the draft BNG Plan and will be submitted for approval prior to commencement.

For priority habitats, both the wet woodland understorey strip and the section of hedgerow loss will be replaced and improved by planting native wetland shrubs / hedgerow species, which will increase the overall area of the wet woodland / hedgerow habitat and increase the species diversity, as outlined in the landscaping plans and planting schedule. Therefore, with the adoption of the mitigation measures above, the residual impact on wet woodland and hedgerow priority habitats is considered to be of **negligible significance**. In addition, the Scheme will improve the species diversity of hedgerow habitats by adding a herbaceous hedgerow seed mix along sections of the Billy Trail footpath in Frontages 1A and 2 and along the north bank of the bund within Frontage 5 creating a **beneficial** residual impact.

All broad habitat losses and gains have been calculated and outlined in the BNG Plan and will be submitted for approval prior to commencement. Therefore, with the adoption of the mitigation measures above, the residual impact is considered to be of **negligible significance**. The Scheme will also include habitat improvement works as detailed in the Landscaping Plans and Planting Schedule, creating a **beneficial** residual impact.

9.6.2 Construction Impact 2: Permanent loss of notable plant species through the removal of the existing defences.

Golden Samphire (*Limbarda crithmoides*) (a nationally scarce and county scarce species) is located at the head of the inlet (east of the spit) in Frontage 2 and scattered on the cement revetment in Frontage 3. The saltmarsh inlet where the Golden Samphire is located in Frontage 2 will be retained during the construction works and will not be impacted by vegetation clearance activities or breaking out of the existing defences. The Golden Samphire scattered plants along the revetment in Frontage 3 will be permanently lost through the breaking out of the existing defences. Golden Samphire is of high importance, being a nationally scarce plant species. Although the plants are scattered along the revetment, all the plants will be damaged / removed during the breaking out of the revetment affecting this portion of the population, creating a medium impact. The value and sensitivity impact table considers the loss of Golden Samphire as a result of breaking out and removing the existing revetment to be medium, creating a **moderate adverse significance** effect.

Mitigation

- Either translocate the Golden Samphire plants from the old revetment at Frontage 3 to areas with suitable conditions and/or create areas with suitable conditions for assisted colonisation.
- Areas of vegetation that will not be removed but contain notable species (e.g. Golden Samphire in Frontage 2) should be mapped, demarcated and protected throughout the works to avoid any harm.

Translocating the Golden Samphire plants to nearby areas with suitable conditions and/or creating areas with suitable conditions for assisted colonisation will ensure the local population of the species is retained. In addition, Golden Samphire plants in other locations (Frontage 2) will be protected from the construction works to ensure the population is not impacted. Therefore, with the adoption of the mitigation measures above, the residual impact is considered to be of **negligible significance**.

9.6.3 Construction Impact 3: Pollutants and dust affecting priority habitats and notable plant species.

Pollutants (e.g. fuel) and dust deposition may impact sensitive habitats of international importance such as vegetated shingle and wet woodland habitats and national importance such as hedgerows, reedbed and lowland mixed deciduous woodland habitats within / adjacent to the Scheme area. Sensitive plants species such as Golden Samphire within/adjacent to the Scheme area, may also be impacted by pollutants and dust deposition. These habitats / species are of very high / high importance and pollutants or dust may impact the function of these habitats / plant species creating a low impact. The value and sensitivity impact table considers these impacts to be medium/low, creating a **moderate/ minor adverse significance** effect.

Mitigation

- Fuel and other chemicals to be stored at least 10m away from the sensitive habitats, in nearby compounds and to be fully bunded to 110% of the maximum storage capacity and maintained in a secure and clear manner.

- All fuelling operations, servicing of equipment and fuel storage to take place at least 10m away from sensitive habitats.
- Spill kits will be available at all fuelling locations and carried by all plant working in sensitive areas.
- Any spillage shall be immediately contained, removed from site and disposed of to a licensed tip.
- A supply of water and means of dispensing it will be available on site to dampen down dust, haul routes and material stockpiles.

Control measures to prevent pollution incidents and manage dust levels in the CEMP will reduce the likelihood of these impacts. Therefore, with the adoption of the mitigation measures above, the residual impact is considered to be of **negligible significance**.

9.6.4 Construction Impact 4: The spread of non-native invasive plant species from vegetation clearance and construction activities such as trampling and plant movements.

The HBIC 2023 data records and the Botanical Survey (2021) have confirmed two non-native invasive plant species listed under Schedule 9 part 2 of the Wildlife and Countryside Act 1981 (as amended), are present within the Scheme boundary located close to the Billy Trail footpath. Japanese Rose is present within Frontage 2 and Three-cornered Garlic is present within Frontages 1A and 2. Schedule 9 non-native invasive plants are of a national concern and therefore have a high level of importance.

Vegetation clearance activities are proposed along sections of both these frontages, which could result in the spread of the Schedule 9 non-native invasive plant species. In addition, the movement of plant and materials during construction within Frontages 1A and 2 could cause the Japanese Rose and/or Three-cornered Garlic to spread and impact habitats and native plant communities. The spread of Schedule 9 plants through vegetation clearance and/or construction activities may cause ecological harm to the surrounding area and may result in long term effects on native biodiversity and the functioning of habitats. Considering there is a legal requirement to control the spread of Schedule 9 plants, the magnitude of these impacts would be classed as high. The value and sensitivity impact table considers the spread of Schedule 9 non-native invasive plant species from vegetation clearance and construction activities to be high, creating a **major adverse significance** effect.

Mitigation

- A pre-commencement survey will be undertaken and a 7m buffer zone will be marked around any Japanese Rose and/or Three-cornered Garlic plants found.
- A Schedule 9 Plant Management Plan will be implemented and adhered to for plants/material retained on site.
- All material within the 7m buffer zones removed from site will be clearly identified to the waste carriers as potentially containing Japanese Rose and/or Three-cornered Garlic and taken to a suitably licensed disposal site, or appropriately disposed of on site.
- Ensure that imported materials are free from Japanese Rose, Three-cornered Garlic and other invasive species where possible.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to plant or otherwise cause a Schedule 9 plant to grow. However, with the implementation of a Schedule 9 Plant Management Plan and adoption of the mitigation measures above, the Schedule 9 plants will either be isolated and controlled or removed from site. This will reduce the impact on other native biodiversity within the surrounding area and potentially improve the local biodiversity in the long-term. Therefore, with the adoption of the mitigation measures above, the residual impact is considered to be of **negligible significance**.

9.6.5 Construction Impact 5: Disturbance to roosting, foraging and commuting bat species from vegetation clearance and construction activities.

Bats are protected on an international scale under Annex IV of the EC Habitats and Species Directive and therefore have a very high level of importance. The trees located within the woodland areas, meadows and linear treelines are considered a medium - high quality habitat for roosting bats. All trees within and adjacent to the Scheme boundary have been assessed for roosts and potential roosting features. All trees found to have low, medium and high potential roosting features within frontages 1A, 2, 3, 4 and 5 will be retained as part of the works. Five trees with negligible PRFs located around the proposed access junction between Langstone Road and the compound entrance will likely require removal or pruning. The removal of any additional trees and/or overhanging branches could impact roosting, foraging and commuting bats.

The woodland, linear treelines, open grassland, meadows and riparian habitats within and adjacent to the site boundary are considered high value foraging and commuting habitat. Construction works have the potential to cause disturbance to roosting, foraging and commuting bats. Artificial lighting particularly at night could indirectly impact roosting, foraging and commuting bat species within and adjacent to the Scheme boundary. The magnitude of these impacts would be considered medium as they could potentially cause a change to part of the habitat, community or trophic level but does not result in long term effects on the function of the habitat. The value and sensitivity impact table considers the impacts to bats to be high, creating a **major adverse significance** effect.

Mitigation
- Any trees to be felled or pruned will be assessed from the ground level for the potential bat roost features, as even unoccupied bat roosts are protected by law. Emergence/re-entry surveys will be conducted at a suitable time of year on any additional tree due to be felled or pruned where medium/high/confirmed potential bat roosting features are identified. - Where possible all work on trees will be carried out in Spring (mid-March to end of April) before young are born, or Autumn (September to late October) after the young are weaned and independent before hibernation. However, these times are climate dependent and can vary from year to year. - Soft felling will be used as a precautionary method to remove trees / branches, including the five identified trees with negligible PRFs located around the proposed access junction between Langstone Road and the compound entrance. Soft felling requires the trees to be cut down in sections, with each section carefully lowered to the ground. Once lowered, the sections must be left in situ for 24 hours, to give any temporary roosting bats time to move away to another roost site.

- To minimise risk of affecting foraging bats, avoid night working using artificial lighting. If essential, lights should be directed and shrouded to avoid light illuminating potential foraging areas e.g. tree lines.
- Habitat improvement opportunities including tree planting, creation of hedgerows, creation of wildflower and coastal meadows will be implemented to create a beneficial impact to roosting, foraging and commuting bats once the habitats have established. The installation of bat boxes will be implemented to create a beneficial impact for roosting bats.

The sensitive working practices will be implemented within the CEMP to reduce impacts on roosting, foraging or commuting bats. With the adoption of the mitigation above, the residual impact is considered to be of **minor adverse significance**. Habitat improvement opportunities including tree planting, wet woodland planting in frontage 5, creation of hedgerows, wildflower and coastal meadows within the Scheme will support roosting, foraging and commuting bats in the long-term once these habitats have established. The installation of bat boxes within the linear treelines along frontage 1A will also support roosting bats, creating a **beneficial** residual impact.

9.6.6 Construction Impact 6: Impacts to badgers from vegetation clearance and construction activities.

Badgers are protected on a national scale under the Protection of Badgers Act 1992 in England and Wales and therefore have a high level of importance. As outlined in **Section 9.4.2.2**, the badger presence / likely absence survey undertaken on 25th February 2021 concluded that Langstone FCERM Scheme site is not an important breeding or foraging site for the badger, but it does represent suitable foraging habitat. The survey concluded that no further surveys are required for the proposed works, however, badger sensitive working practices (e.g. no excavations should be left open overnight, they should be covered and / or provide a means of escape (e.g. scaffold plank laid at 45 degrees)), should be adopted within the CEMP (should the site fall within foraging range of badgers).

Therefore, the magnitude of the impact would be considered negligible. The value and sensitivity impact table considers impacts to badgers from vegetation clearance and construction activities to be low, therefore creating a **minor adverse significance** effect.

9.6.7 Construction Impact 7: Impacts to great crested newt from vegetation clearance and construction activities.

The GCN is protected on an international scale being listed on Appendix II of the Bern Convention and on Annexes II and IV of the EU Habitats Directive and therefore has a very high level of importance. As outlined in **Section 9.4.2.3** there are no GCN HBIC (2023) records within 2km of the site and suitable ponds tested under the Natural England (2019) GCN District Level Licensing within 6km of the site confirmed GCN absence. In addition, the results from the GCN eDNA test in April / May 2022 were negative, confirming that GCN are absent from the Mill Pond. Therefore, no further surveys or mitigation are required for the proposed Langstone works and the GCN has been scoped out of any further assessment.

9.6.8 Construction Impact: 8 Impacts to common toad from vegetation clearance and construction activities.

The common toad is protected on a national scale under Section 41 of the NERC Act 2006 and therefore has a high level of importance. HBIC (2023) had one record of the common toad located approximately 500m northeast of frontage 5 and there are areas with suitable aquatic and terrestrial habitat for the common toad within/adjacent to Frontage 5. Due to the low numbers / small area of habitat the magnitude of impact to the common toad from vegetation clearance and construction activities are considered negligible. However, common toads do migrate between aquatic areas and areas of suitable terrestrial habitat, therefore sensitive working practices (e.g. no excavations should be left open overnight, they should be covered and / or provide a means of escape (e.g. scaffold plank laid at 45 degrees)), should be adopted within the CEMP. The value and sensitivity impact table considers these impacts to be low, therefore creating a **minor adverse significance** effect.

9.6.9 Construction Impact 9: Impacts to reptiles from vegetation clearance and construction activities.

Vegetation clearance, construction activities and operations (particularly involving machinery) have the potential to impact reptiles at Frontage 2 (between May/June and September 2025 and April and September 2026) and Frontage 5 (between April and September 2025 and April and September 2026). Reptiles (in particular common lizards and slow worms) are protected at a national scale under the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006, and therefore have a high level of importance. The majority of potential reptile habitat located within Frontages 2 and 5 will be removed as part of the works through vegetation clearance and construction machinery will be tracked within the reptile habitat areas during the proposed works. The location of the main compound and associated haul route also lies within / adjacent to areas of reptile habitat. Therefore, without mitigation the proposed works are highly likely to harm common lizards, slow worms and any other reptiles present within potential reptile habitat particularly within/adjacent to Frontages 2 and Frontage 5 of the Scheme, potentially causing extensive changes to a significant proportion of the reptile habitat and community. The value and sensitivity impact table considers the impacts to reptiles to be high, creating a **major adverse significance** effect.

Mitigation

Frontage 5

Due to the low reptile population and the good connectivity of areas of reptile habitat in this frontage, the main method of mitigation will be vegetation management undertaken to encourage reptiles to move into adjacent habitats. Reptile fencing and/or close-cropped strips will be located to stop recolonisation of de-risked areas from adjacent suitable habitat that will act as reptile safe areas throughout the works. These reptile safe sites will not be impacted by the construction works. The following measures will be taken during the vegetation management and reptile de-risking:

- During the active season (March to October - subject to suitable weather conditions), vegetation management (staged cutting down to ground level) will be used to encourage reptiles to move into safe zones.

- The cutting programme will aim to work in a directional manner cutting progressively toward the nearest reptile safe area.
- Once it is considered that all reptiles will have moved into safe zones, all safe zones will be constrained by close crop mowing along the zone boundaries and/or reptile fenced to best practice standards.
- Following vegetation management hand capture under Alternative Cover Objects (ACO) will be undertaken, to demonstrate that the area is clear of reptiles. Any captured animals will be translocated into the nearest reptile safe area. Capture will be undertaken five days a week, once per day in suitable weather conditions. Capture operations will continue for a minimum of 15 days and then until no animals have been seen or captured for five consecutive days with suitable weather conditions.
- As most of the habitat is alongside habitats that will be retained and/or are with tree protection zones no destructive search will be carried out following vegetation management.
- Close cropping will continue around the Frontage boundaries and reptile fencing will be placed around the Frontage boundaries where necessary (attached to the heras fencing) to ensure reptiles do not return to the site during the construction works. Vegetation will be kept short within the Frontage boundaries to further deter reptiles during the construction works. The reptile fencing will be checked regularly to ensure it is in good working order.

Frontage 2

Vegetation management and in situ reptile translocation within the Frontage boundaries is planned for Frontage 2. Reptile fencing and/or close-cropped strips will be located to stop recolonisation of de-risked areas from adjacent suitable habitat that will act as reptile safe areas throughout the works. These reptile safe sites will not be impacted by the construction works. The following measures will be taken during the vegetation management and reptile de-risking:

- During the active season (March to October - subject to suitable weather conditions), vegetation management (staged cutting down to ground level) will be used to encourage reptiles to move into safe zones and/or where that is not feasible into focus areas.
- The cutting programme will aim to work in a directional manner cutting progressively toward the nearest reptile safe area.
- Once it is considered that all reptiles will have moved into safe zones, all safe zones will be constrained by close crop mowing along the zone boundaries and/or reptile fenced to best practice standards.
- Following vegetation management hand capture under Alternative Cover Objects (ACO) will be undertaken, to demonstrate that the area is clear of reptiles. Any captured animals will be translocated into the nearest reptile safe area. Capture will be undertaken five days a week, once per day in suitable weather conditions. Capture operations will continue for a minimum of 30 days and then until no animals have been seen or captured for five consecutive days with suitable weather conditions.
- If considered necessary, e.g. in areas where capture is difficult, a destructive search will be carried out. This will follow best practice procedures presented and use two suitably qualified and experienced ecologists observing/checking and capturing any reptiles and covering both the excavation and the deposition areas.
- Close cropping will continue around the Frontage boundaries and reptile fencing will be placed around the Frontage boundaries where necessary to ensure reptiles do not return to the site during the construction works. Vegetation will be kept short within the Frontage boundaries to further deter reptiles from recolonisation during the

construction works. The reptile fencing will be checked regularly to ensure it is in good working order.

A full Reptile Mitigation Strategy will be prepared and submitted for approval prior to commencement. A draft Reptile Mitigation Strategy has been submitted with this application and can be found in Appendix B of the CEMP.

By moving reptiles away from the construction works and into the safe zones will significantly reduce impacts to reptile species. Once the construction works are completed, reptiles will be able to move back into the regrown reptile habitat areas or improved habitat areas. With the adoption of the mitigation above, the residual impact is considered to be of **negligible significance**.

9.6.10 Construction Impact 10: Impacts to west European hedgehog from vegetation clearance and construction activities.

The west European hedgehog is protected on a national scale under Section 41 of the NERC Act 2006 and therefore has a high level of importance. HBIC (2023) had records of the west European hedgehog located approximately 500m north / northeast of Frontage 1A and 5. There are areas with suitable habitat for the west European hedgehog within/adjacent to Frontages 1A, 2 and 5. Vegetation clearance activities could create a medium impact to hedgehogs by removing habitat used for hibernating and foraging activities. In addition, construction activities such as plant movement and excavations could create a low impact to foraging and commuting hedgehogs. The value and sensitivity impact table considers these impacts to be medium / low, therefore creating a **moderate / minor adverse significance** effect.

Mitigation

- Any dense vegetation clearance (e.g. hedgerows / along the Hayling Billy trail) should initially be checked for hedgehogs prior to removal.
- Any piles of leaf litter and similar material should initially be cleared by hand, to avoid harm to sleeping or hibernating hedgehogs.
- No excavations should be left open overnight, they should be covered and / or provide a means of escape (e.g. scaffold plank laid at 45 degrees).

The sensitive working practices will be implemented within the CEMP to reduce impacts on hibernating, foraging or commuting hedgehogs. With the adoption of the mitigation above, the residual impact is considered to be of **negligible significance**.

9.6.11 Construction Impact 11: Impacts to invertebrates from vegetation clearance and construction activities.

The stag beetle is very high importance being a Habitats Directive Annex II listed species. The two HBIC records of stag beetles were located within 500m of the Hayling Billy Trail footpath in Frontage 1A and Frontage 2. Selected trees, particularly dead/dying trees will be removed along the Frontages 1A and 2, which may provide suitable habitat for stag beetle larvae, will be removed through vegetation clearance activities. The vegetation clearance could potentially cause a small change to a small number of stag beetles within the local population in the short-term, creating a low impact. The value and sensitivity impact table considers this

impact to stag beetles to be medium, therefore creating a **moderate adverse significance** effect.

The invertebrate species identified in **Table 9.6** are of international (very high), national (high) and county (moderate) importance. The identified invertebrate species are vegetated shingle and upper saltmarsh specialists. These habitats are present in Frontage 2 and will be retained during the works, therefore the impact to these invertebrate species is negligible. The value and sensitivity impact table considers impacts to invertebrates from vegetation clearance and construction activities to be low / negligible, therefore creating a **minor adverse / negligible significance** effect.

Mitigation
• The area to be cleared in Frontage 1A and 2 should be checked for any stag beetle larvae and / or adults by a suitably qualified and experienced ecologist. Any stag beetles or larvae found should be carefully translocated to a suitable natural or purpose-built habitat close by. • Create areas with loggeries / log piles / log pyramid features within the landscaping plans along the Hayling Billy trail footpath in Frontages 1A and 2, to encourage female stag beetles to lay their eggs within / near the rotting wood features.

By checking for and translocating any stag beetle adult/larvae found to suitable nearby habitat in Frontages 1A and 2 during the vegetation clearance activities, will significantly reduce impacts to local stag beetles, creating a **negligible significance** residual impact. The addition of stag beetle loggeries / pyramids in suitable locations along the Hayling Billy Trail footpath in Frontages 1A and 2 will also support stag beetle larvae and egg laying activities, creating a **beneficial** residual impact.

9.6.12 Construction Impact 12: Temporary loss or damage to trees from site clearance and construction works.

TPOs are protected nationally under the Town and Country Planning (Tree Preservation) (England) Regulations 2012 and therefore have a high level of importance. No individual TPOs will be impacted during the proposed site clearance and construction works.

As outlined on the clearance plans, it is proposed that a number of trees that will be retained as part of the works, may be impacted via excavations, construction activities, vegetation removal activities, particularly around the RPAs. The identified trees include six category B trees and 11 category C trees in Frontage 1A; and one category C tree in Frontage 2. Disturbance such as shallow excavations, soil compaction by heavy plant or machinery or contamination by substances such as cement, diesel or chemicals can be damaging to the root system of trees and therefore the trees themselves, creating a medium impact.

The value and sensitivity impact table considers the temporary loss or damage to trees from site clearance and construction activities to be medium, therefore creating a **moderate adverse significance** effect.

Mitigation

- All the recommended tree works should be undertaken by an approved and experienced tree contractor as outlined in the Arboricultural Method Statement prior to any construction contractors commencing works on site.
- Erect the protective fencing as specified and shown on the Tree Protection Plan BJH03/04 at appendix BH3 (Haverson, 2024). Barriers are to be 'Fit for Purpose' to exclude construction activity and must be maintained to ensure that they remain rigid and complete and in the original setting out positions. These checks will need to be incorporated into a schedule of site monitoring visits to be agreed with the contractor subject to phased development operations and subsequently copies of these site visit reports will need to be copied to the LPA.
- A copy of the Tree Protection Plan is to be pinned up in the offices on site for all site staff to see. The area within the fenced off construction exclusion zone is to be regarded as sacrosanct and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or local authority tree officer, unless this has already been agreed as part of the planning application consent process and is detailed in writing and shown on a plan.
- The following prohibitions shall apply within the area enclosed by the Tree Protection Fencing [Construction Exclusion Zone]:
 - No mechanical digging or scraping once the initial ground cover vegetation has been cleared and the site fenced off.
 - No storage of plant, equipment or materials
 - No vehicular or plant access
 - No fire lighting
 - No handling, discharge or spillage of any chemical substance, including cement washings
 - No action likely to cause localised water-logging
 - No change in ground levels
- All site works storage areas and compounds/welfare units/toilet blocks and any mixing areas are to be located outside of and well clear of retained tree RPA's.
- All Utility Service connections are to be located outside of tree RPA's.

Arboricultural Expert Monitored 'Hand Digging' works [for works within tree RPZ's]:

- Break out hard surfacing with appropriate drills and hand held tools stopping as soon as bare earth is reached - which may include the use of a mini digger with a pneumatic 'pecker' attachment or for large plant working entirely from the foreshore and outside of tree RPZ's.
- Clear away the debris and arisings from the work face.
- An Arboricultural Expert is to be called in to monitor the 'Hand Digging' works with forks [or air spades or similar acceptable low impact technology] ONLY initially and shovels and spades at a later date at the discretion and direction of the Arboricultural Expert.
- If roots are encountered then they are to be carefully worked around and if they are 25mm or less in diameter and not found 'en masse' then the Arboricultural Expert will sever them at the trench edge with clean and sharp bypass secateurs to allow works to continue. In the event that the roots are over 25mm in diameter then the priority must be to retain them and find a 'work around' solution (e.g. packing around them with sharp washed sand and then wrapping in hessian to protect them).

Ground Protection Measures:

- Whilst there is no anticipated specific need for these works it may be found that to access an area to work on it (i.e. the Mill Lane footpath link) then ground protection must be laid to give access to hand operated machinery as per BS5837:2012 Section 6.2.3.3 Recommendations.
- The Tree Protection Plan will be monitored as outlined in the Arboricultural Method Statement (Haverson, 2024).

With the adoption of the mitigation above, site clearance and construction activities will avoid and reduce impacts to the RPAs of the identified trees at risk. Therefore, the residual impact is considered to be of **negligible significance**.

9.6.13 Construction Impact 13: Permanent loss or damage to trees from site clearance and construction works.

TPOs are protected nationally under the Town and Country Planning (Tree Preservation) (England) Regulations 2012 and therefore have a high level of importance. No individual TPOs will be removed during the proposed site clearance and construction works. However, a small area of trees that lie within the TPO woodland adjacent to the Mill Pond in Frontage 5 will be impacted. As outlined in the clearance plans, it is proposed that a number of trees will need to be removed to allow for the Scheme to be built and to remove any dead or dying (category U) trees, which includes:

- Small area (approximately 0.014ha) of trees that lie within the TPO woodland adjacent to the Mill Pond in Frontage 5
- 10 category B trees, 8 category C trees, nine category U trees and four groups of trees in Frontage 1A
- One category B tree and three category C trees in Frontage 2
- One category B tree in Frontage 4
- One category B tree, one category U tree and three groups of trees in Frontage 5.
- One category B tree and one category U tree for works required to access compound 1.

The loss of the trees would create a high / medium impact to the local habitats and biodiversity in the area. The BNG calculations have assessed the effect of this habitat loss and is included within the draft BNG Plan. The value and sensitivity impact table considers the permanent loss or damage to trees from site clearance and construction activities to be high/medium, therefore creating a **major / moderate adverse significance** effect.

Mitigation

- Where specific trees are shown for removal to facilitate the layout of the Scheme (on the Tree Protection Plans: LANG-ACM-TPP-F1A_DR_ZZ_011030, LANG-ACM-TPP-F2_DR_ZZ_011031, LANG-ACM-TPP-F3_DR_ZZ_011032, LANG-ACM-TPP-F4_DR_ZZ_011033, LANG-ACM-TPP-F5_DR_ZZ_011034, LANG-ACM-TPP-F5_DR_ZZ_011035, LANG-ACM-TPP-F5_DR_ZZ_011036, LANG-ACM-TPP-F5_DR_ZZ_011037, LANG-ACM-TPP-F5_DR_ZZ_011038), they are to be cut down in a controlled manner to avoid damage to other trees and their surroundings. The stumps are to be ground out by machine except where they are shown to be coppiced

and these will be cut down to ground level and allowed to re-shoot and contribute to the general shrubbery and low canopy cover in the future (see Haverson (2024) for further details).

- All of the recommended tree works should be undertaken by an approved and experienced tree contractor prior to any construction contractors commencing works on site.
- Any trees and scrub removed will be replaced with an equal or greater number of appropriate species, sizes and quality. A BNG plan will detail how this will be delivered, a draft version has been submitted with this application. See draft landscaping plans and planting schedule for further details.

With the adoption of the mitigation above and the implementation of the BNG Plan, the trees removed will be replaced with 90 trees of native species, increased in number and area and improved in quality and biodiversity value. Therefore, the residual impact is considered to be of **negligible significance**.

9.7 Potential Impacts During Operation

The effects of the operational phase of the proposed scheme on terrestrial ecology receptors within the study area has been assessed. An outline of the nature of the impacts and a description of the significance of effect upon terrestrial ecology receptors is provided below.

9.7.1 Operational Impact 1: Permanent gain of trees and vegetation

Areas of terrestrial habitat along Frontages 1A, 2, 3 and 5 will be reinstated and improved through the proposed Scheme as detailed below.

Frontage 1A: The edges of the upgraded cycleway embankment will be seeded with hedgerow seed mix and coastal meadow seed mix. Beyond the 2 metre seeded strip, areas cleared for the construction of the new embankment will be reinstated and improved with mixed native shrub and tree species planting. Bat boxes will also be installed on existing retained trees along this frontage. See landscaping plan (LANG-ACM-LS-F1A-DR-LA-011020) and planting schedule (LANG-ACM-LS-ZZ-DR-LA-061028) for further details.

Frontage 2: The edges of the upgraded cycleway embankment will be seeded with hedgerow seed mix (in the northern section) and coastal meadow seed mix (in the middle and southern sections). The new embankment will be reinstated with mixed native shrub (in the northern and middle sections) and coastal meadow mix (in the southern sections). Native tree species including some fruit trees (to benefit invertebrates and other species) will also be planted. See landscaping plan (LANG-ACM-LS-F2-DR-LA-011021) and planting schedule (LANG-ACM-LS-ZZ-DR-LA-061028) for further details.

Frontage 3: A wildflower turf will be planted along the top of the flood wall adjacent to Langstone Road. Shrub planters with maritime vegetated shingle species are also proposed along the seating area on top of the quay wall adjacent to the Ship Inn. See landscaping plan (LANG-ACM-LS-F3-DR-LA-011022) and planting schedule (LANG-ACM-LS-ZZ-DR-LA-061028) for further details.

Frontage 5: Mixed native hedgerow species will be planted to reinstate and improve the hedgerow habitats. Mixed meadow species and meadow seed mix will also be planted to

reinstate and improve areas within Frontage 5. The proposed earth embankment will be seeded with a meadow mix on the southern side and a hedgerow seed mix on the northern side. Native wetland planting and native tree species will be planted along the footpath / woodland edge to reinstatement and improve the area. landscaping plan (LANG-ACM-LS-F5-DR-LA-011024) and planting schedule (LANG-ACM-LS-ZZ-DR-LA-061028) for further details.

The tree, hedgerow, wildflower, meadow and other vegetation planting will be present during the operational phase of the Scheme. The additional vegetation will provide nesting, roosting, foraging, commuting and hibernating habitat for a number of common and protected terrestrial species once established.

Mitigation
- Replanting will be undertaken as advised by the draft BNG Plan, Landscape Plans and Planting Schedule and shall be carried out no later than the first planting and seeding season following the completion of the development. - Any trees or plants which, within a period of 5 years from the date of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species.

With the adoption of the mitigation above, the residual impact is considered **beneficial**.

9.8 Cumulative Effects

The guidance and methodology described in **Chapter 16 (Cumulative Impacts)** has been used to assess potential cumulative effects from the proposed Scheme works on the important terrestrial ecological receptors within the 2km study area. The effects of the proposed Scheme that have the potential to affect terrestrial ecological receptors in-combination with other plans and projects are the loss and/or disturbance of terrestrial habitats (temporary and permanent).

Table 16.1 lists the plans and projects scoped into the cumulative impacts assessment for the proposed scheme. The following fully marine projects have been scoped out of this terrestrial ecology cumulative effects assessment as they have no potential for impacts on terrestrial habitat and will not result in any loss and/or disturbance of terrestrial habitats:

- Northney Marina maintenance dredging.
- Southern Water 10-year marine licence application for minor maintenance works on their coastal outfalls.

Table 9.8 below provides an assessment of potential cumulative effects on terrestrial ecological receptors between the remaining plans and projects and the proposed Scheme.

Table 9.8 Assessment of potential cumulative effects on terrestrial ecological receptors.

Plan or Project	Potential for cumulative effects from terrestrial habitat loss or disturbance
The North Solent Shoreline Management Plan	Any potential effects from terrestrial habitat loss / disturbance from the implementation of the SMP strategy policies is assessed at the individual scheme level as schemes come forward.
Havant Borough Local Plan – The Core Strategy (2011) and The Allocations Plan (2014)	Any potential effects from terrestrial habitat loss / disturbance from the implementation of the Local Plan policies and the Allocations Plan will be assessed at individual scheme level as schemes come forward. The Langstone FCERM Scheme will work within the HBC Core strategy of the adopted Local Plan 2011 by protecting where possible and enhancing the borough's statutory and non-statutory designated habitats and features of biological interest through appropriate mitigation measures and habitat improvements.
Havant Borough Regeneration Strategy	Any potential effects terrestrial habitat loss / disturbance from the implementation of the Regeneration Strategy will be assessed at individual scheme level as schemes come forward.
Hayling Island Coastal Management Strategy	Any potential effects from terrestrial habitat loss / disturbance from the implementation of the HICMS policies will be assessed at individual scheme level as schemes come forward. The HICMS is currently in draft and has not yet been adopted by Havant Borough Council or approved by the Environment Agency.
Portchester to Emsworth FCERM Strategy	Any potential effects from terrestrial habitat loss / disturbance from the implementation of the PEMS strategy policies is assessed at the individual scheme level as schemes come forward.
South Hayling Beach Management Plan	No. The beach recycling activities have avoided areas of sensitive terrestrial habitat (vegetated shingle) as outlined in the associated CEMP. Therefore, no significant cumulative effect with the proposed Scheme is expected on terrestrial ecological receptors.
North Portsea Island FCERM Scheme	No. Phases 1 to 4a of the NPI scheme have been completed and have therefore been considered as part of the baseline environment within this ES. Construction for Phase 4b is programmed to be completed in 2024 and therefore will not overlap temporally with the construction of the proposed Scheme. Phase 5 construction works are programmed to commence in 2025, which will overlap temporally with the construction of the proposed Scheme. The NPI5 work will include a small amount of temporary habitat loss and disturbance on a localised scale, which will be replaced and improved on completion of the works. Therefore, together with the mitigation measures incorporated into the proposed

Plan or Project	Potential for cumulative effects from terrestrial habitat loss or disturbance
	Scheme works, there are unlikely to be any significant cumulative impacts on terrestrial ecological receptors between this project and the proposed Scheme.
King Charles III England Coast Path: Portsmouth to South Hayling Stretch	No. The Portsmouth to South Hayling stretch of the England Coast Path (ECP) will largely be located along existing routes and will not result in any significant vegetation loss or disturbance. Therefore, no significant cumulative effect with the proposed Scheme is expected on terrestrial ecological receptors.
King Charles III England Coast Path: South Hayling to East Head Stretch	No. The South Hayling to East Head stretch of the ECP is currently being determined by the Secretary of State. Once approved, this stretch will largely be located along existing routes and will not result in any significant vegetation loss or disturbance. Therefore, no significant cumulative effect with the proposed Scheme is expected on terrestrial ecological receptors.
Farlington Marshes Coastal Defence and Regulated Tidal Exchange (RTE) scheme (22/00006/EIASCO)	No. Information on the project website indicates that a planning application for the project will be submitted in early 2024. However, at the time of writing this ES (April 2024), there is insufficient information available on the timing or detailed design of the proposed works at Farlington Marshes to be able to undertake any meaningful assessment of potential cumulative effects with the proposed Langstone FCERM Scheme.
Langstone Technology Park, Langstone Road, Havant. Application for part demolition and reconfiguration of building 1000, reconfiguration of car park layout and new industrial units. APP 19/00703. Plus an Outline Planning Permission for Phased demolition of existing buildings and the erection of new flexible use employment floorspace and ancillary uses and associated works. APP/22/00172.	No. These applications have not yet received planning approval. There is insufficient information available on the proposed works and timing, so an assessment of cumulative effects is not possible. Any habitat loss or disturbance is likely to be small scale and highly localised. Therefore, together with the mitigation measures incorporated into the proposed Scheme works, there are unlikely to be any significant cumulative impacts on terrestrial ecological receptors between these projects and the proposed Scheme.
Land Adjacent to Bosmere Medical Centre, Solent Way, Havant. Proposal for new headquarters building for Portsmouth Water. APP/21/00601	
Land at Kingscroft Farm, Meryrick Road, Havant. Proposed development of land at Kingscroft farm for up to 120 dwellings. APP/22/00669	
Rook farm – development of up to 300 dwellings. APP/21/01434	

Plan or Project	Potential for cumulative effects from terrestrial habitat loss or disturbance
Land to the rear of 49 - 71, Fathoms Reach, Hayling Island. Development of 51 dwellings. APP/22/00001	
Land north of Oysters, Station Road, Hayling Island. Development of 29 dwellings and associated highway works. APP/21/01350	
Land south of Saltmarsh Lane, Hayling Island. Development of up to 60 dwellings and associated landscape and highway works. APP/21/01351	
Land south of the Mallards and west of Langstone Road, Havant. Development of 65 dwellings. APP/21/00647	
Partial Reinstatement and Repair of existing sea wall to a height of 1.4m and Creation of an inner bund with a maximum height of 2.25m to protect habitat for wintering bird populations. Northney Farm, St Peters Road, Hayling Island. APP/23/00507	
Redevelopment of a brownfield site to include the provision of 4No. Apartment blocks comprising of 90No. residential dwellings, parking, public open space, landscaping and other associated works, including demolition of existing buildings on site, with access from Palk Road. APP/22/01231	

9.9 Conclusions

Table 9.5 below, summarises the potential impacts on terrestrial ecology that could result from delivery of the Langstone Scheme. Where significant impacts have been identified, appropriate mitigation has been incorporated to remove or reduce this impact. Any residual impact resulting from the delivery of the Scheme, after mitigation measures have been adopted, has been presented to demonstrate environmental acceptability.

Table 9.9 Overview of potential impacts, necessary mitigation and residual impacts

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
Priority and broad habitat loss through	<u>Priority Habitats:</u>	<u>Priority Habitats:</u>

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
vegetation clearance and/or construction of sea defences.	moderate adverse significance <u>Broad habitats:</u> moderate adverse significance	- Any wet woodland understorey habitat removed will be replaced with a native wetland mix of shrubs as outlined in the landscaping plans and planting schedule. 27m of species rich hedgerow will be planted in same location to replace the hedgerow removed during vegetation clearance and additional areas will be planted with a hedgerow seed mix as outlined in the landscaping plans and planting schedule. - All priority habitat losses, gains and environmental improvements for the Langstone FCERM Scheme are outlined in the draft BNG Plan and will be submitted for approval prior to commencement. Residual Impact: Negligible and Beneficial <u>Broad habitats:</u> All broad habitat losses, gains and environmental improvements for the Langstone FCERM Scheme are outlined in the draft BNG Plan and will be submitted for approval prior to commencement. Residual Impact: Negligible and beneficial
Permanent loss of notable plant species through the removal of the existing defences.	Moderate adverse significance	- Either translocate the Golden Samphire plants from the old revetment at Frontage 3 to areas with suitable conditions and/or create areas with suitable conditions for assisted colonisation. - Areas of vegetation that will not be removed but contain notable species (e.g. Golden Samphire in Frontage 2) should be mapped, demarcated and protected throughout the works to avoid any harm. Residual Impact: Negligible
Pollutants and dust affecting priority habitats and notable plant species	Moderate/minor adverse significance	- Fuel and other chemicals to be stored at least 10m away from the sensitive habitats, in nearby compounds and to be fully bunded to 110% of the maximum storage capacity and maintained in a secure and clear manner. - All fuelling operations, servicing of equipment and fuel storage to take place at least 10m away from sensitive habitats. - Spill kits will be available at all fuelling locations and carried by all plant working in sensitive areas. - Any spillage shall be immediately contained, removed from site and disposed of to a licensed tip. - A supply of water and means of dispensing it will be available on site to dampen down dust, haul routes and material stockpiles. Residual Impact: Negligible
The spread of non-native invasive plant species from vegetation	Major adverse significance	- A pre-commencement survey will be undertaken and a 7m buffer zone will be marked around any Japanese Rose and/or Three-cornered Garlic plants found. - A Schedule 9 Plant Management Plan will be implemented and adhered to for plants/material retained on site.

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
clearance and construction activities such as trampling and plant movements.		- All material within the 7m buffer zones removed from site will be clearly identified to the waste carriers as potentially containing Japanese Rose and/or Three-cornered Garlic and taken to a suitably licensed disposal site, or appropriately disposed of on site. - Ensure that imported materials are free from Japanese Rose, Three-cornered Garlic and other invasive species where possible. Residual Impact: Negligible
Disturbance to roosting, foraging and commuting bat species from vegetation clearance and construction activities	Major adverse significance	- Any trees to be felled or pruned will be assessed from the ground level for the potential bat roost features, as even unoccupied bat roosts are protected by law. Emergence/re-entry surveys will be conducted at a suitable time of year on any additional tree due to be felled or pruned where medium/high/confirmed potential bat roosting features are identified. - Where possible all work on trees will be carried out in Spring (mid-March to end of April) before young are born, or Autumn (September to late October) after the young are weaned and independent before hibernation. However, these times are climate dependent and can vary from year to year. - Soft felling will be used as a precautionary method to remove trees / branches, including the five identified trees with negligible PRFs located around the proposed access junction between Langstone Road and the compound entrance. Soft felling requires the trees to be cut down in sections, with each section carefully lowered to the ground. Once lowered, the sections must be left in situ for 24 hours, to give any temporary roosting bats time to move away to another roost site. - To minimise risk of affecting foraging bats, avoid night working using artificial lighting. If essential, lights should be directed and shrouded to avoid light illuminating potential foraging areas e.g. tree lines. - Habitat improvement opportunities including tree planting, creation of hedgerows, creation of wildflower and coastal meadows will be implemented to create a beneficial impact to roosting, foraging and commuting bats once the habitats have established. The installation of bat boxes will be implemented to create a beneficial impact for roosting bats. Residual Impact: Minor adverse significance and beneficial
Impacts to reptiles from vegetation clearance and construction activities	Major adverse significance	<u>Frontage 5</u> Due to the low reptile population and the good connectivity of areas of reptile habitat in this frontage, the main method of mitigation will be vegetation management undertaken to encourage reptiles to move into adjacent habitats. Reptile fencing and/or close-cropped strips will be located to stop recolonisation of de-risked areas from adjacent suitable habitat that will act as reptile safe areas throughout the works. These reptile safe sites will not be impacted by the construction works. The

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
		following measures will be taken during the vegetation management and reptile de-risking: • During the active season (March to October - subject to suitable weather conditions), vegetation management (staged cutting down to ground level) will be used to encourage reptiles to move into safe zones. • The cutting programme will aim to work in a directional manner cutting progressively toward the nearest reptile safe area. • Once it is considered that all reptiles will have moved into safe zones, all safe zones will be constrained by close crop mowing along the zone boundaries and/or reptile fenced to best practice standards. • Following vegetation management hand capture under Alternative Cover Objects (ACO) will be undertaken, to demonstrate that the area is clear of reptiles. Any captured animals will be translocated into the nearest reptile safe area. Capture will be undertaken five days a week, once per day in suitable weather conditions. Capture operations will continue for a minimum of 15 days and then until no animals have been seen or captured for five consecutive days with suitable weather conditions. • As most of the habitat is alongside habitats that will be retained and/or are with tree protection zones no destructive search will be carried out following vegetation management. • Close cropping will continue around the Frontage boundaries and reptile fencing will be placed around the Frontage boundaries where necessary (attached to the heras fencing) to ensure reptiles do not return to the site during the construction works. Vegetation will be kept short within the Frontage boundaries to further deter reptiles during the construction works. The reptile fencing will be checked regularly to ensure it is in good working order. <u>Frontage 2</u> Vegetation management and in situ reptile translocation within the Frontage boundaries is planned for Frontage 2. Reptile fencing and/or close-cropped strips will be located to stop recolonisation of de-risked areas from adjacent suitable habitat that will act as reptile safe areas throughout the works. These reptile safe sites will not be impacted by the construction works. The following measures will be taken during the vegetation management and reptile de-risking: • During the active season (March to October - subject to suitable weather conditions), vegetation management (staged cutting down to ground level) will be used to encourage reptiles to move into safe zones and/or where that is not feasible into focus areas. • The cutting programme will aim to work in a directional manner cutting progressively toward the nearest reptile safe area. • Once it is considered that all reptiles will have moved into safe zones, all safe zones will be constrained by close crop mowing along the zone boundaries and/or reptile fenced to best practice standards.

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
		- Following vegetation management hand capture under Alternative Cover Objects (ACO) will be undertaken, to demonstrate that the area is clear of reptiles. Any captured animals will be translocated into the nearest reptile safe area. Capture will be undertaken five days a week, once per day in suitable weather conditions. Capture operations will continue for a minimum of 30 days and then until no animals have been seen or captured for five consecutive days with suitable weather conditions. - If considered necessary, e.g. in areas where capture is difficult, a destructive search will be carried out. This will follow best practice procedures presented and use two suitably qualified and experienced ecologists observing/checking and capturing any reptiles and covering both the excavation and the deposition areas. - Close cropping will continue around the Frontage boundaries and reptile fencing will be placed around the Frontage boundaries where necessary to ensure reptiles do not return to the site during the construction works. Vegetation will be kept short within the Frontage boundaries to further deter reptiles from recolonisation during the construction works. The reptile fencing will be checked regularly to ensure it is in good working order. A full Reptile Mitigation Strategy will be prepared and submitted for approval prior to commencement. A draft Reptile Mitigation Strategy has been submitted with this application. Residual Impact: Negligible
Impacts to West European hedgehog from vegetation clearance and construction activities	Moderate / minor adverse significance	- Any dense vegetation clearance (e.g. hedgerows / along the Hayling Billy trail) should initially be checked for hedgehogs prior to removal. - Any piles of leaf litter and similar material should initially be cleared by hand, to avoid harm to sleeping or hibernating hedgehogs. - No excavations should be left open overnight, they should be covered and / or provide a means of escape (e.g. scaffold plank laid at 45 degrees). Residual Impact: Negligible
Impacts to invertebrates from vegetation clearance and construction activities.	Moderate adverse significance	- The area to be cleared in Frontage 1A and 2 should be checked for any stag beetle larvae and / or adults by a suitably qualified and experienced ecologist. Any stag beetles or larvae found should be carefully translocated to a suitable natural or purpose-built habitat close by. - Create areas with loggeries / log piles / log pyramid features within the landscaping plans along the Hayling Billy trail footpath in Frontages 1A and 2, to encourage female stag beetles to lay their eggs within / near the rotting wood features. Residual Impact: Negligible and Beneficial
Temporary loss or damage to trees from site	Moderate adverse significance	All of the recommended tree works should be undertaken by an approved and experienced tree contractor as outlined in the Arboricultural Method Statement prior to any construction contractors commencing works on site.

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
clearance and construction works.		- Erect the protective fencing as specified and shown on the Tree Protection Plan BJH03/04 at appendix BH3 (Haverson, 2024). Barriers are to be 'Fit for Purpose' to exclude construction activity and must be maintained to ensure that they remain rigid and complete and in the original setting out positions. These checks will need to be incorporated into a schedule of site monitoring visits to be agreed with the contractor subject to phased development operations and subsequently copies of these site visit reports will need to be copied to the LPA. - A copy of the Tree Protection Plan is to be pinned up in the offices on site for all site staff to see. The area within the fenced off construction exclusion zone is to be regarded as sacrosanct and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or local authority tree officer, unless this has already been agreed as part of the planning application consent process and is detailed in writing and shown on a plan. - The following prohibitions shall apply within the area enclosed by the Tree Protection Fencing [Construction Exclusion Zone]: - No mechanical digging or scraping once the initial ground cover vegetation has been cleared and the site fenced off. - No storage of plant, equipment or materials - No vehicular or plant access - No fire lighting - No handling, discharge or spillage of any chemical substance, including cement washings - No action likely to cause localised water-logging - No change in ground levels - All site works storage areas and compounds/welfare units/toilet blocks and any mixing areas are to be located outside of and well clear of retained tree RPA's. - All Utility Service connections are to be located outside of tree RPA's. Arboricultural Expert Monitored 'Hand Digging' works [for works within tree RPZ's]: - Break out hard surfacing with appropriate drills and hand held tools stopping as soon as bare earth is reached - which may include the use of a mini digger with a pneumatic 'pecker' attachment or for large plant working entirely from the foreshore and outside of tree RPZ's. - Clear away the debris and arisings from the work face. - An Arboricultural Expert is to be called in to monitor the 'Hand Digging' works with forks [or air spades or similar acceptable low impact technology] ONLY initially and shovels and spades at a later date at the discretion and direction of the Arboricultural Expert. - If roots are encountered then they are to be carefully worked around and if they are 25mm or less in diameter and not found 'en masse' then the Arboricultural Expert will sever them at the trench edge with clean and sharp bypass secateurs to allow works to

Potential Impact Pathways	Significance of impact	Mitigation and Residual Impacts
		continue. In the event that the roots are over 25mm in diameter then the priority must be to retain them and find a 'work around' solution (e.g. packing around them with sharp washed sand and then wrapping in hessian to protect them). Ground Protection Measures: - Whilst there is no anticipated specific need for these works it may be found that to access an area to work on it (i.e. the Mill Lane footpath link) then ground protection must be laid to give access to hand operated machinery as per BS5837:2012 Section 6.2.3.3 Recommendations. - The Tree Protection Plan will be monitored as outlined in the Arboricultural Method Statement (Haverson, 2024). Residual Impact: Negligible
Permanent loss or damage to trees from site clearance and construction works.	Major / moderate adverse significance	- Where specific trees are shown for removal to facilitate the layout of the Scheme (on the Tree Protection Plans), they are to be cut down in a controlled manner to avoid damage to other trees and their surroundings. The stumps are to be ground out by machine except where they are shown to be coppiced and these will be cut down to ground level and allowed to re-shoot and contribute to the general shrubbery and low canopy cover in the future (see Haverson (2024) for further details). - All of the recommended tree works should be undertaken by an approved and experienced tree contractor prior to any construction contractors commencing works on site. - Any trees and scrub removed will be replaced with an equal or greater number of appropriate species, sizes and quality. A BNG plan will detail how this will be delivered, a draft version has been submitted with this application. See draft landscaping plans and planting schedule for further details. Residual Impact: Negligible
Permanent gain of trees and vegetation (during operation).	Beneficial	- Replanting will be undertaken as advised by the draft BNG Plan, Landscape Plans and Planting Schedule and shall be carried out no later than the first planting and seeding season following the completion of the development. - Any trees or plants which, within a period of 5 years from the date of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species. Residual Impact: Beneficial
Overall summary and confidence	The proposed Scheme works are considered environmentally acceptable, in terms of impacts on terrestrial ecological receptors. Confidence in this assessment is high for protected habitats, botanical interests, protected and notable species and trees in relation to planning regulations as these areas have been informed through desk-based assessments using sources accepted as industry standards and best practice and by additional site-specific Phase 1 and 2 surveys by qualified and experienced ecologists.	

9.10 References

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