NEWPORT HARBOUR (LANDSIDE) - DRAFT

Shadow Habitat Regulations Assessment (Stage 1: Screening & Stage 2: Appropriate Assessment)

Client:

Stephenson Halliday

Report Reference:

RSE_7345_R2_V1_HRA

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RammSanderson

ECOLOGY
FLOOD RISK
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REGISTERED PRACTICE 2024-2025

PROJECT			
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Report Title	Shadow Habitat Regulations Assessment (Stage 1: Screening & Stage 2: Appropriate Assessment)		

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DISCLOSURE:

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1 INTRODUCTION

1.1 Terms of Reference

i RammSanderson Ecology Ltd. were commissioned by Stephenson Halliday on behalf of Associated British Ports (herein referred to as the 'Applicant') to provide a Shadow Habitat Regulations Assessment (sHRA) to include Stage One (Likely Significant Effect or LSE Screening) and Stage 2 (Appropriate Assessment). This document relates to proposals put forward by the Applicant regarding a planning application to demolish buildings on site, clear ground and installation of industrial plant for the manufacture of cement substitute from recycled waste products. Installed structures will include additional ship unloading equipment, storage, Vertical Roller Mill and storage silos (the 'Scheme'). The potential for the Scheme to impact upon any nearby European /EU sites[1] is assessed herein. The Scheme is located within Newport Docklands, in Wales (the 'Site' or 'Applicant Site').

1.2 The Scheme

i There are three phases to the Scheme. These are;

- Site preparation, connection to services, security fencing, provision of foundations.
- Importation, storage and onward distribution of estimated aprox.100,000 tonnes per annum of cement and or cement substitutes.
- Importation of estimated approx. 1,000,000 tonnes per annum of raw materials such as cement clinker and slag, construction and operation of mill for processing, manufacture of cement and cement substitutes and onward distribution. Substation and hydrogen storage will be investigated.

ii The first phase involves the removal of existing redundant temporary buildings, scrub and the provision of temporary welfare facilities.

iii The second phase requires the installation of silos. The cement coming from the import vessels will be unloaded pneumatically and transported via pipes to four storage silos of approximately 45m height with weighbridges beneath the silos. All operations within this phase would occur on a 24-hour basis. The silos will be above the height of the lighting columns but below the height of the wind turbines located to the east of the Site. Additional aircraft warning lights will be installed if required.

iv Whilst Phase 2 is operational, Phase 3 will be constructed. The material that is unloaded in Phase 3 consists of raw materials such as cement clinker. These raw materials will be unloaded directly from vessels to a hopper/conveyor system that will carry the material over the rail sidings. Some raw materials such as slag can be stored in open air, others such as clinker need to be stored in a covered storage to the south of the railway line. From the storage area the raw material is fed into the mill and the final product is moved to the four retained silos used in Phase 2 which are augmented with a further 4/6 silos. Roadgoing vehicles would arrive at the Site entrance and be directed to the space beneath a silo. A sealed connection will be formed and a 30-tonne load directed into the vehicle. Weighing is automatic and, upon decoupling, the vehicle is driven from the Site to its' delivery destination. Receptor locations will be smaller silos serving concrete batching plants on industrial sites or specific construction sites.

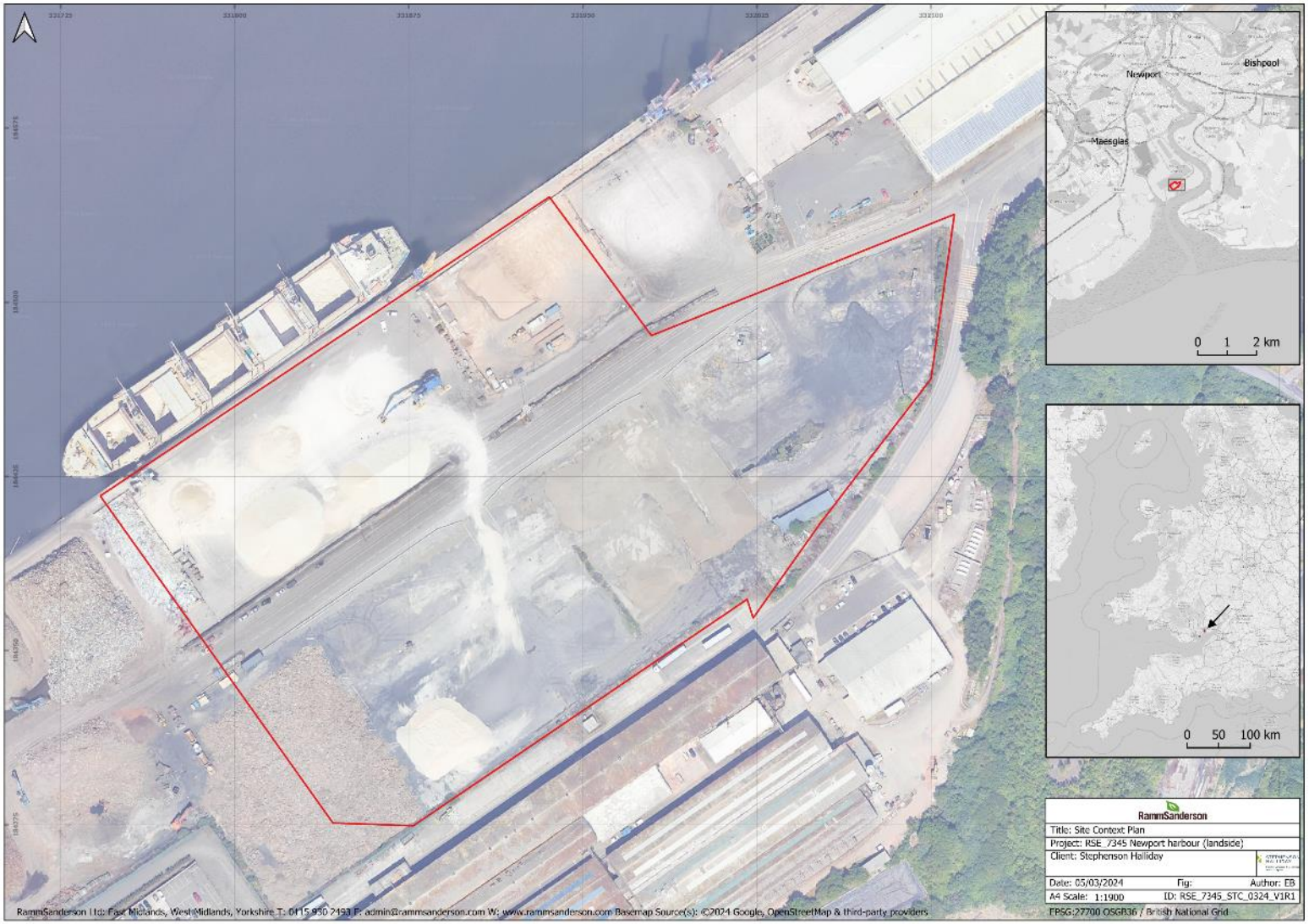
[1] The term European Sites in this context includes Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs), potential SPAs, Sites of Community Importance (SCIs), RAMSAR sites, and any sites identified as compensatory measures for adverse effects on any of the above.

v Phase 3 also includes the permanent office/welfare and septic tank arrangement. A clean water supply will be taken from the mains system but a heat exchange coolant system will be in operation that may require an abstraction and discharge consent from Natural Resources Wales. Loading takes place automatically from the silo above and is controlled by a small workforce of two personnel per shift. Again, it is proposed that operations would take place on a 24 hour basis (Stephenson Halliday, 2024 (ref: RJH/0655/1)).

1.3 The Application Site

i The Site is located within Newport Docklands in South Wales (central OS Grid Reference: ST 31966 84501). It is approximately 4.8ha in extent, on South Dock in Alexandra Docks, Newport harbour which is owned and operated by Associated British ports (ABP). It consists of an existing wharf, and previously developed land with ship loading equipment, rail sidings, two ponds, an ephemeral pond in a scrape and buddleia shrubs. Road access to the Site is gained via East Way Road giving access directly onto the A48 (Southern Distributor Road). A preliminary ecological appraisal was undertaken in 2024. This recorded the Site as dominated by sparsely vegetated urban land, developed land (sealed surface) with a derelict building and ponds. The south-east boundary was formed of a line of trees (RammSanderson, 2024). The Site borders the River Usk near its confluence with the River Seven.

Figure 1: Site Location and Context Plan



ECOLOGY

2 METHODOLOGY

2.1 Scope of the sHRA

i Under Regulation (Reg) 9(3) of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (*as amended*)

> *"a competent authority, in exercising any of its functions, must have regard to the requirements of the Directives so far as they may be affected by the exercise of their functions"*

ii Under Reg 63 it is the responsibility of a competent authority (i.e. the Local Planning Authority or statutory body such as the Environment Agency), that:

> *before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which*
>
> *(a)is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and*
>
> *(b)is not directly connected with or necessary to the management of that site,*
>
> *must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.*

iii While no longer within the EU, those sites designated/classified prior and post 31st December 2020 remain European Sites within the UK. Domestic and EU caselaw prior to 31st December 2020 is also retained.

iv S6(3) of the EU (Withdrawal Act) 2018 (as amended) *"requires retained EU law (such as the Conservation of Habitat and Species Regulations 2017) to be interpreted in line with "retained caselaw" which includes retained EU caselaw".*

v This document is provided as a sHRA under Regulation 63 to be provided to the competent authority to assist their judgement. In absence of an HRA being compiled by the competent authority, this document (if deemed appropriate) may be adopted by the competent authority.

vi The proposed development requires the granting of planning permission and therefore this document is intended under Regulation 63 and Regulation 70 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 to assess effects upon the Conservation Objectives for the European Site and determine:

- Test 1: if it will result in a Likely Significant Effect (in isolation and in combination with other developments within the Risk Zone of the designated site) and where it does the next test will be conducted within a separate report;
- Test 2: identify under Appropriate Assessment, a means of mitigation to result in Neutral Impact. Where this cannot be achieved, further Stage 3 Derogation documentation is required.

vii It is important to note that the stages described above must be undertaken with the rigorous application of the precautionary principle. It requires those undertaking the exercise to be confident that the plan will not have a significant impact on conservation objectives. Where uncertainty or doubt remains, an adverse impact should be assumed.

viii Relevant case law helps to interpret when effects should be considered as a likely significant effect, when carrying out HRA of a Scheme. In the Waddenzee case (Case C-127/02) the European Court of Justice ruled (2004) on the interpretation of Article 6(3) of the Habitats Directive (translated into Reg. 102 in the Habitats Regulations), including that:

> *An effect should be considered 'likely', "if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site" (para 44). An effect should be*

considered 'significant', "if it undermines the conservation objectives" (para 48). Where a plan or project has an effect on a site "but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned" (para 47).

ix A relevant opinion delivered to the Court of Justice of the European Union commented that (North East Lincolnshire, 2023):

"The requirement that an effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on the site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."

x This opinion (known as the 'Sweetman' case) therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered 'trivial' or 'de minimis'; referring to such cases as those:

"that have no appreciable effect on the site". In practice such effects could be screened out as having no likely significant effect – they would be 'insignificant'.

2.2 Assessment Steps

i The steps undertaken to complete an HRA are as follows:

- describe the plan and the Scheme proposed;
- screen the Scheme for theoretical and generic impacts using the David Tyldesley Associates (DTA) HRA Handbook descriptors (Tydesley & Chapman, 2013);
- screening the remaining measures for credible pathways using the DTA Handbook approach;
- consider in-combination effects with other relevant plans or projects;
- consider the need for further stages of assessment (appropriate assessment, alternative solutions and overriding public interest IROPI);
- determine a conclusion.

ii Based upon case law, avoidance and site-specific mitigation cannot be considered during HRA screening (Environment Agency, 2022). In the absence of scientific certainty, a precautionary approach must be used, although it is reasonable to assume that the best working practices will be used during construction.

2.2.2 Screening

iii The HRA must distinguish between the evidence required to establish a pathway and significance of the effects on the qualifying features of the EU site and the evidence required to define the magnitude and outcome of the effect, including mitigation, during appropriate assessment. The DTA Handbook describes the evidence required to include:

- qualifying features
- conservation objectives
- conservation status and site condition
- baseline characteristics and conditions trends
- the plan proposals characteristics
- predicted outcomes

iv Screening is not defined in the Habitats Regulations, meaning that there is no definitive distinction between the level of evidence and its interpretation required for the test of likely significant effect and appropriate

assessment. The government guidance is that the effects considered at screening must be credible, and not hypothetical. Habitats regulations assessments: protecting a European site - GOV.UK (www.gov.uk[2]) states:

'You should check if there's a risk or possibility of a significant effect based on the evidence. You should only consider real, not hypothetical risk.'

2.2.3 Appropriate Assessment

v An assessment of the potential effects for European sites in view of their conservation objectives is made, in terms of the magnitude, duration, location and extent of effects, both alone and in-combination with other developments. Where a LSE is identified this is taken through to AA and mitigation designed. Mitigation measures can include both avoidance measures and reduction measures, but the former approach is preferred. It should be noted that the scope of this shadow HRA is to provide confirmation that the Scheme provides sufficient mitigation regarding water discharge impacts. There is no dispute from Natural England regarding any other impact pathways. While others are mentioned during screening for transparency, they are not discussed in detail.

vi Where significant effects are likely, or it is uncertain if there would be significant effects, an Appropriate Assessment is required. For an AA, the implication of the plan/project on each affected site must be assessed in light of its conservation objectives. The development of conservation objectives is required by the 1992 Directive (92/43/EEC); an objective of this legislation is to achieve 'favourable status' of the habitats and / or species features for which the site is designated.

vii Conservation status for habitats is defined in Article 1(e) as:

"[The] conservation status of natural habitats [is] the sum of influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species… The conservation status of natural habitats will be taken as 'favourable' when:

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

Conservation status for species is defined in Article 1(i) as:

"[The] conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within [its] territory…The conservation status of species will be taken as 'favourable' when:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and*
- *the natural range of the species is neither being reduced for the foreseeable future; and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis."*

2.3 Important Ecological Features

i The sHRA has focused on the potential impacts to ecological features (habitats, species, ecosystems and their functions/ processes) that are considered important to the functioning of EU sites for the restoration or

[2] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site accessed 12/02/2024

maintenance of favourable conservation status for designating/classifying features that could potentially be affected by the Scheme. The sHRA has not carried out assessments of features that are designating/classifying reasons on other EU sites that the Scheme is deemed unlikely to affect.

2.4 Study Area

i Desk and field-based studies have been undertaken to establish the biodiversity baseline that may be impacted by the Scheme. The scale of the Study Areas varies dependent upon the ecology of the feature being assessed and its vulnerability to change resulting from construction and operation of the Scheme. Ecological features outside of the Study Area are unlikely to be affected by the Scheme and are not considered in this sHRA.

ii Table 1 summarises the Study Area for the Scheme

Table 1: Background Records and Field Surveys Study Areas

Ecological Feature	Background Records Study Area[3]	Field Survey Study Area[4]
Designated Sites and Habitats	1km	Within and adjacent to the Application Site

2.5 Desk Study

2.5.1 Background Records

i A desk study has been undertaken to obtain background records relevant to the Scheme for the Preliminary Ecological Appraisal (RammSanderson, 2024) and HRA reports, including records of statutory and non-statutory designated sites and protected and notable species within the Study Areas detailed above in Table 1. The data obtained provides contextual information for the scope of field surveys, to aid the evaluation of field survey results, and to provide supplementary information where complete field survey coverage has not been possible.

ii Data has been obtained from South East Wales Biological Records Centre in May 2024.

iii For the purpose of this assessment, only designated sites of international significance (and any national sites that underpin them) have been included.

2.5.2 Legislation

iv The Regulatory Framework applied to European sites includes:

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019; and
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC.

v Being designated/classified under UK Regulations and the EU Directive, the SACs and SPAs are also listed under Natura 2000 which is a Europe-wide network of sites of international importance for nature conservation established under the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC; 'Habitats Directive'). The Natura 2000 network of sites seeks to protect core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right.

[3] Distance measured from the Application Site Boundary.
[4] Distance measured from the Application Site Boundary.

2.6 Field Surveys

i An initial field survey has been conducted to collect information on the habitats and species present that may be affected by the Scheme. The geographical areas across which field surveys have been undertaken are the areas over which ecological features are likely to be subject to impacts from the construction or operation of the Scheme if they are present and accounting for the Scheme design measures detailed in Section 1.

ii Table 2 summarises the field surveys that have been undertaken to inform the Stage 1 assessment.

Table 2: Field Surveys undertaken to inform Stage 1 sHRA

Ecological Feature	Survey Type	Date(s) of Survey(s)
Habitats	UK Habs field survey	March 2024

iii No other field surveys have been undertaken to support this sHRA as they were considered unnecessary. Where further detail is required to inform a Stage 2 assessment, these have been outlined in the relevant parts of Section 4.

2.7 Limitations to the Assessment

i The ecological surveys undertaken to support this sHRA have not produced a complete list of plants and animals and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. Further species-specific surveys would be required.

3 ECOLOGICAL BASELINE

3.1 Desk Study

i Natural Resources Wales have yet to provide a response to the Applicant screening opinion.

ii Table 3 summarises the designated sites situated within the Desk Study Area and table 4 summarises notable habitats within the Desk Study Area.

Table 3. Designated Sites within Desk Study Area

Site Name	Designation	Location[5]	Brief Description
Severn Estuary	SSSI[1], SAC[2], SPA[3] and Ramsar	0.4km SW	The estuary has a diverse geological setting and a wide range of geomorphological features, especially sediment deposits. The estuary's overall interest depends on its large size, and on the processes and interrelationships between the intertidal and marine habitats and its fauna. Contains estuaries, sandbanks, mudflats and sandbanks, Atlantic salt meadows and reefs as habitats listed in Annex I, as well as Sea Lamprey, River Lamprey and Twaite shad species listed in Annex II. Supports internationally important wintering populations of Bewick's swan, as well as wider populations of waterfowl reaching over 20,000. The estuary is important for several species of fish that migrate between sea and river via the estuary. Furthermore, small patches of the nationally rare plant grass-poly are found within the grasslands of the estuary.
River Usk	SSSI[1] and SAC[2]	0.2km S	High-quality example of a river flowing over sandstone, with its associated habitats, plant and animal species within a linear ecosystem.
Gwent Levels – St. Brides	SSSI[1]	0.8km W	Contains reed and ditch habitat, which play host to a wide range of aquatic plants as well as a diverse community of insects and other invertebrates. Also found to be an important site for the shrill carder bee.
Newport Wetlands	NNR[4]	0.5km S	A blend of estuary, wetland and reedbed to provide habitat for wetland bird species, including nationally important breeding populations such as water rail, Cetti's warbler and bearded tit.

[5] SSSI – Sites of Special Scientific Interest
[2] SAC – Special Area of Conservation
[3] SPA – Special Protection Areas
[4] NNR – National Nature Reserve

Table 4: Notable Habitats within 1km

Habitat/ Flora Feature	Reason for Conservation Interest	Location[6]	Desk Study Comments
River	Supports fish of conservation concern	0.2km S	Supports notable fish and waterfowl populations (River Usk 200m and River Seven Estuary 400m)
Saltmarsh	Coastal and marine habitat, Local Biodiversity Action Plan	0.3km E Additional 6 parcels S and SW	Numerous parcels found along the banks of the River Usk and on either site of the Severn estuary.
Mud, mud/shingle, sand, rock.	Intertidal substrates, Local Biodiversity Action Plan	0.2km S Additional 10 parcels	2 sand parcels found either side of the estuary, and the 2 rock parcels. Mud parcels follow the edges of the two rivers and continue along the edge of the estuary.

3.1.2 The River Usk Special Area of Conservation

iii The River Usk SAC originates in the west of the Brecon Beacons National Park and flows south-east, joining the Severn Estuary at Newport. The overall form of the catchment is long and narrow, with steep tributaries inflowing along the way to the Severn Estuary. The underlying geology is primarily Devonian Old Red Sandstone resulting in well buffered low-acidity waters. This geology also drives the low-moderate nutrient that characterises the SAC. However, along its course the nutrient status of the SAC is significantly modified by land use within the catchment, which is mainly pastoral and occasional woodland forestry.

iv The ecological structure and function of the EU site is highly dependent on hydrological and geomorphological processes, as well as the quality and connectivity of riparian habitats. This is especially the case for mobile animals, such as migratory fish and otters that move throughout the SAC. For example, the maintenance of a good hydrological regime (i.e., water quality and flows) and a consequent maintenance of current velocity, water depth, dissolved oxygen levels and nutrient status are integral for fish to move around the river. Example of the species that the SAC is designated for include the sea lamprey *Petromyzon marinus*, Atlantic salmon *Salmo salar* and bullhead *Cottus gobio*. Atlantic salmon requires unmodified river channels and an obstruction-free migratory routes to spawning gravels. The River Usk SAC is also an important site for otters, acting as a refuge for the species in the 1950s and subsequently as a source population for the re-colonisation of south-east Wales (AECOM, 2023).

3.1.3 Qualifying Features[7]

v The EU site has been designated as a SAC, a site of international importance, for several features.

vi Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

[6] Where features are situated outside of the Site boundary, the distance and direction is given at the closest point of the designated site from the Site

[7] https://sac.jncc.gov.uk/site/UK0013007 [Accessed on 05/04/2024]

- Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

vii Annex II species that are a primary reason for selection of this site:

- Sea lamprey Petromyzon marinus
- Brook lamprey Lampetra planeri
- River lamprey Lampetra fluviatilis
- Twaite shad Alosa fallax
- Atlantic salmon Salmo salar
- Bullhead Cottus gobio
- Otter Lutra lutra

viii Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Allis shad Alosa alosa

3.1.4 Conservation Objectives[8]

ix The overarching conservation objectives are outlined in the Core Management Plan for the River Usk SAC published by the Countryside Council for Wales. While this document provides conservation vision statements for all Annex II species, only the conservation objectives for the water course are presented here, as this is essential to maintain the species in favourable conservation status.

- The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary;
- The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that these limits will concur with the relevant standards used by the Review of Consents process given in Annexes 1-3;
- Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC;
- All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change;
- Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed;
- The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided;
- River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone;
- Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers;
- Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified;

[8] https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf. As published by the Countryside Council for Wales (2008). [Accessed on 04/05/2024]

- Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered;
- Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be set by Natural Resources Wales (NRW) as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 1 of this document;
- Levels of nutrients, in particular phosphate, will be set by NRW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 2 of this document;
- Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be set by NRW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the 16 standards used by the Review of Consents process given in Annex 3 of this document;
- Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects; and
- Levels of suspended solids will be set by NRW for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.

3.1.5 Threats and Pressures to Site Integrity[9]

x While there is no Site Improvement Plan for the SAC, the main pressures and threats to site integrity can be inferred from the site's Core Management Plan, which outlines the management techniques that are required to achieve the conservation objectives for the SAC.

xi The main threats and pressures to the site integrity of the SAC are the following:

- Inappropriate habitat management (e.g., barriers to migration)
- Water quality
- Water flow / level
- Noise / acoustic disturbance
- Non-marine fisheries: recreational and commercial
- Increased sedimentation / siltation

3.2 Field Survey

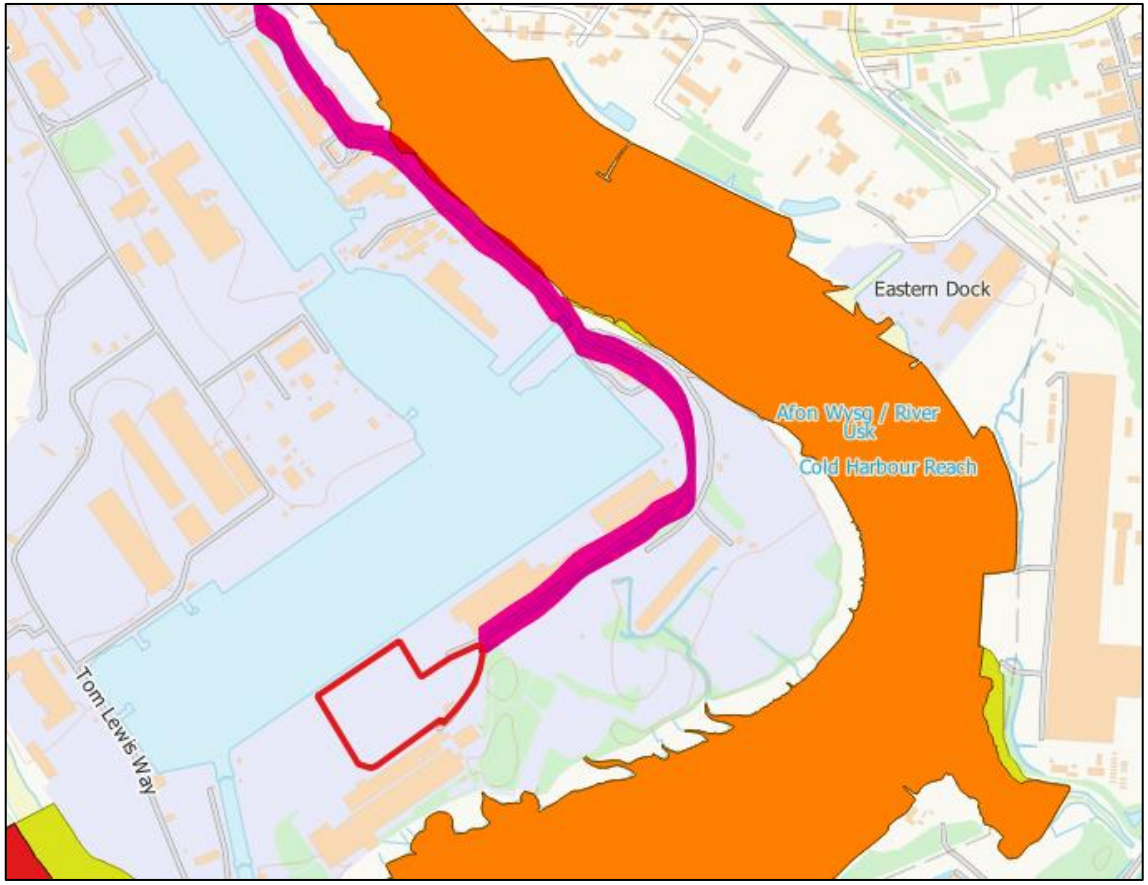
i A UKHabs habitat survey was undertaken in September 2023. This recorded bare ground, tall ruderal, hard standing and three buildings on Site (RammSanderson Ecology Ltd, 2024).

3.3 Zone of Influence

i The Site is located c200m north of the River Usk SAC/SSSI and 400m from the River Severn Estuary Ramsar/SPA/SAC/SSSI. The Scheme is the type of proposed development considered likely to impact the nature conservation status of the European sites mentioned above (Figure 2) due to increased traffic along roads adjacent to highly sensitive salt marsh habitats and the possibility of abstraction and outfalls into Alexandra Docks which flows into the River Usk.

[9] https://naturalresources.wales/media/673384/River_Usk%20SAC%20core%20plan.pdf. [Accessed on 05/04/2024]

Figure 2: Site Location in Relation to River Usk SAC and Main Roads (pink)

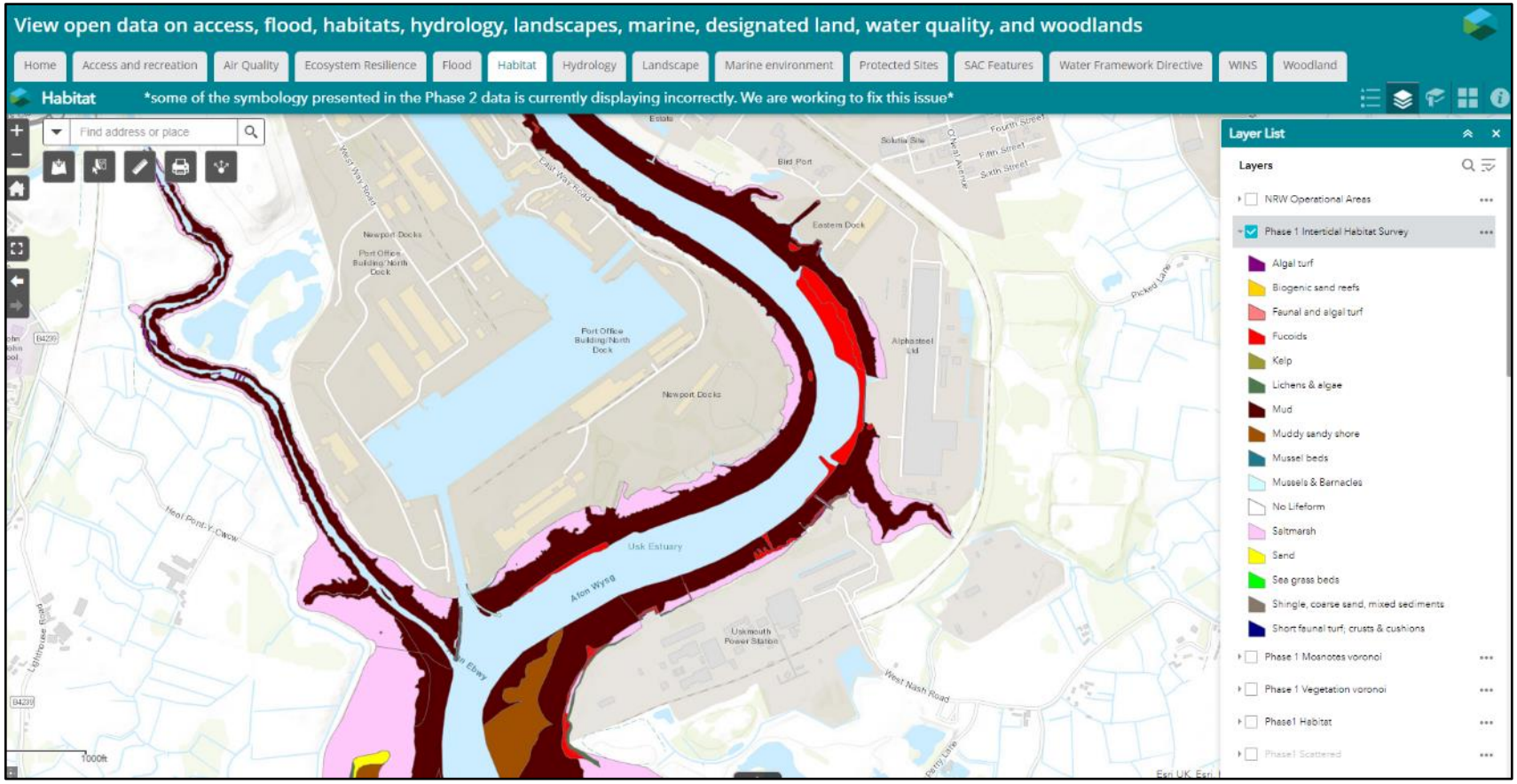


The River Usk SAC location was downloaded from https://experience.arcgis.com/experience/dd852f0e12864928973e3e165a1b4631/ and were accurate at the time of download and report authorisation.

3.4 Habitat Connectivity Analysis

i The Application Site is located c.200m north from the River Usk SAC/SSSI. The watercourse adjacent to the northern boundary of the Site is Alexandra Docks which flows into the River Usk SAC/SSSI. Therefore, the Scheme is hydrologically linked. In addition, habitats sensitive to pollution (saltmarsh) are located within 250m of the Scheme (Figure 3).

Figure 3: Habitat Connectivity[10]



[10] https://experience.arcgis.com/experience/dd852f0e12864928973e3e165a1b4631/ accessed 10/08/2024

4 STAGE 1: LIKELY SIGNIFCANT EFFECT – SCREENING

4.1 Introduction to screening

i In assessing the proposals for Likely Significant Effect (LSE), the screening stage is required to consider the direct and indirect impacts to the European Sites listed in Section 3.1 considered at risk from the proposals. The European Site Conservation Objectives and SIP were taken into consideration (where applicable) in relation to maintaining the integrity of the sites and the favourable conservation status of the qualifying features of the sites as listed under Section 3.1 of this document. The pathways identified have been included as these identified that significant effects were possible from the implementation of the Scheme. A summary of these and those screened out are:

- **Physical Damage and Loss** - Based on a review of the site options, there is no potential for direct loss of habitat from within the SAC.
- **Non physical disturbance** - Noise and vibration effects are screened out as designating features of the SAC are habitats, fish and otters. The latter can be sensitive to disturbance up to 100m from a natal den. However, no suitable habitat for this species is located within 100m. The ditches and pond to the SE of the Site are screened out due to a lack of fish reducing the likelihood of otter migrating away from the river to negligible levels.
- **Non toxic contamination (dust)** – Dust is categorised into two size classes: 'suspended dust' with diameters below 10 µm (PM10) or below 2.5 µm (PM2.5) and 'disamenity' dust with diameters between 10 µm to 75 µm. Suspended dusts remain in the air for long periods and are fine enough to be inhaled, potentially causing health effects. Disamenity dusts have a larger particle size, which deposit on surfaces more easily, may be visible to the naked eye, and can cause loss of amenity through soiling and staining, being generally associated with nuisance or environmental impacts. Given the volume of potentially dusty material to be imported and crushed, milled and blended on-site there is the potential for dust generated by the operations of the proposed development which may impact on local air quality as well as producing local disamenity. There is also the potential for the construction activities to impact upon existing local receptors.
- **Air pollution –** There is an area of saltmarsh habitat in the River Usk SAC within 200 m of the A48 which would be sensitive to nitrogen deposition. During phase 3 (when the greatest Heavy Duty Vehicles/HDV trips will be generated), it has been estimated that 9 Light Duty Vehicles/LDVs and 92 HDVs as an annual average daily traffic movements/AADT will be generated on the A48 east of the site access and thus will pass within 200 m of the River Usk SAC where sensitive saltmarsh habitat is likely to be present. The total number of existing trips on this road link in 2022 is 38,894 AADT. The proposed development HDV generated trips are 0.24% of existing flows on the A48. The increase to traffic flows caused by the proposed development on any road within 200 m of the sensitive area within this designated site therefore exceeds the Joint Nature Conservation Committee de minimus threshold/DMT criterion of 0.15% of the existing AADT flow on that road (Air Quality Consultants, 2024). As such, a full assessment of the impacts of development generated traffic on the relevant area of the River Usk SAC will need to be completed.
- **Recreation and urban impacts** – Not applicable as not a residential or holiday development.
- **Water quantity and quality** - An increase in demand for water abstraction and discharge could result in changes in hydrology at EU sites.

ii In accordance with the requirements of an HRA and following the ruling made in by the Court of Justice of the European Union, *People over Wind and Sweetman v Coilite Teoranta (C-323/17*), consideration of the LSE as part of the HRA screening (Stage 1) are made **in the absence of mitigation** that would not be adopted as routine for a development of this nature (i.e. assessment of the proposals themselves in the absence of 'additional' mitigation designed to reduce LSE on the designation criterion). Where LSE are considered as the result of a proposal, additional mitigation to avoid/minimise impacts on the designation should be fully considered as part of a Stage 2 Appropriate Assessment.

4.1.2 In Combination Assessment

iii For each potential impact pathway, other projects will be considered as to whether they act in combination with the proposed Scheme to produce an LSE on the integrity of the SAC. All proposed residential and holiday letting developments within the Norwich Local Plans within the same IRZs as the Scheme will be considered.

4.2 Air Pollution

i The main pollutants of concern for Habitats Sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2) and are summarised in Table 3. NH_3 can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[11]. NOx can also be toxic at very high concentrations (far above the annual average Critical Level). However, NOx and NH_3 exert their main impacts on ecosystems via determining the total nitrogen (N) deposition to soils, potentially leading to deleterious knock-on effects. Increases in N deposition from the atmosphere is widely known to enhance soil fertility and leading to eutrophication. This often has adverse effects on community composition and the quality of seminatural, nitrogen-limited terrestrial and aquatic habitats[12] [13].

Table 5: Main sources and effects of air pollutants on habitats and species

Pollutant	Source	Effects on habitats and species
Sulphur Dioxide (SO_2)	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. However, total SO_2 emissions in the UK have decreased substantially since the 1980's. Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.

[11] 39 http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[12] Wolseley, P. A.; James, P. W.; Theobald, M. R.; Sutton, M. A. **2006.** Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* **38**: 161-176
[13] Dijk, N. **2011.** Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: Evidence from a long-term field manipulation. *Global Change Biology* **17**: 3589-3607

Pollutant	Source	Effects on habitats and species
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels. Although future trends in S emissions and subsequent deposition to terrestrial and aquatic ecosystems will continue to decline, increased N emissions may cancel out any gains produced by reduced S levels.	Gaseous precursors (e.g. SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants. Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.
Ammonia (NH_3)	Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock. Ammonia reacts with acid pollutants such as the products of SO2 and NOX emissions to produce fine ammonium (NH4+) - containing aerosol. Due to its significantly longer lifetime, NH4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH_4+ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH3 is rapidly deposited, some of the most acute problems of NH3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	Nitrogen oxides are mostly produced in combustion processes. Half of NOX emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes. Nitrogen oxides have been consistently falling for decades due to a combination of coal fired power station closures, abatement of other combustion point sources and improved vehicle emissions technology. They are expected to continue to fall over the plan period.	Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NOx for all vegetation types has been set to 30 ug/m3. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. In addition, NO_x contributes to the eutrophication of soils and water, altering

Pollutant	Source	Effects on habitats and species
		the species composition of plant communities at the expense of sensitive species.

ii SO_2 emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as shipping (particularly on a local scale)[14]. NH_3 emissions primarily originate from agricultural practices[15], with some chemical processes and some vehicles (notably petrol cars) also making notable contributions.

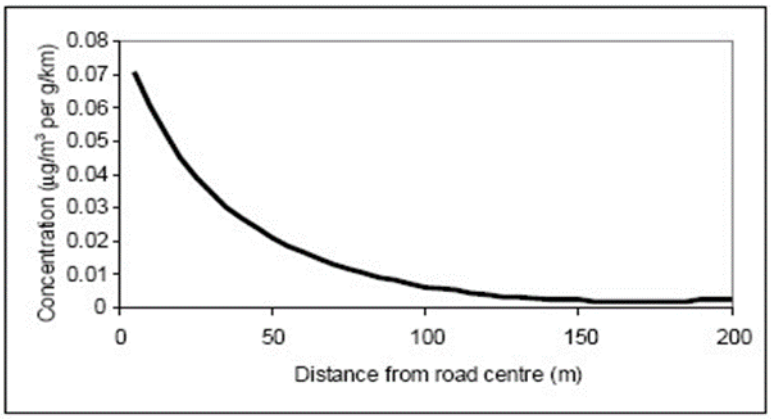
iii In contrast, NOx emissions are dominated by the output of vehicle exhausts (more than half of all emissions). A 'typical' housing development will contribute by far the largest portion to its overall NOx footprint (92%) through its associated road traffic. Other sources, although relevant, are of minor importance (8%) in comparison[16]. Therefore, the emerging RLDP, which will increase the population of Newport, can be reasonably expected to increase emissions of NOx and NH_3, and thus total N deposition through an increase in vehicular traffic.

iv The World Health Organisation stipulates the critical NOx concentration (Critical Level) for the protection of vegetation is 30 μgm^{-3}; the threshold for sulphur dioxide is 20 μgm^{-3}. In addition, ecological studies have determined Critical Loads (CLs) [17] for atmospheric nitrogen deposition (that is, NOx combined with NH_3).

v According to advice provided by Institute of Air Quality Management[18], beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is insignificant (Figure 4). Therefore, this is the distance that is used in this HRA to identify major transport routes which may be significantly affected by the Scheme.

[14] http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.
[15] Pain, B.F.; Weerden, T.J.; Chambers, B.J.; Phillips, V.R.; Jarvis, S.C. 1998. A new inventory for ammonia emissions from U.K. agriculture. *Atmospheric Environment* **32**: 309-313
[16] Proportions calculated based upon data presented in Dore CJ et al. 2005. UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. http://www.airquality.co.uk/archive/index.php
[17] The critical load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[18] https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2019.pdf

Figure 4: Generalised depiction of traffic contribution to concentrations of pollutants at different distances from a road (Atkins, 2015)



vi This is especially relevant when considering the highly sensitive habitats forming the SAC. The SAC designation includes Atlantic pioneer salt marsh. Within a salt marsh, various zones can be distinguished based on flooding frequency. The pioneer zone is flooded twice daily, the low marsh zone is inundated during mean spring tides (100-400 floods each year), and the middle/high marsh zone is flooded less than 100 times per year. The latter are more sensitive to N and P deposition as the tide doesn't wash away pollutants as frequently. Therefore, this habitat is assuming to be highly sensitive following the precautionary approach. In contrast, salt marsh is not thought to be sensitive to acid deposition (https://www.apis.ac.uk/).

4.2.2 Summary

vii The following European site sensitive to atmospheric pollution arising from a significant increase in the number of two-way vehicle trips through or within 200m of these sites.:

- **River Usk SAC**

4.2.3 In combination air pollution

viii The proposed Scheme could impact upon the qualifying habitats (Atlantic saltmarsh) of the SAC due to an increase in N and P from an increase in emissions. As such these affects could act in synergy with other plans/proposals locally within the residential allocations of the adopted Local Plan. Further data is required to assess impacts, and this pathway is taken through to Test 2. As the Scheme is likely to have a significant effect, assessment in combination is not required at Stage 1.

4.3 Water Quality

i The River Usk SAC is a riverine freshwater system of plain to montane levels with *Ranunculion fluitan*tis and *Callitricho Batrachion* vegetation. While this is a non-primary feature of the SAC it is essential in supporting the primary Annex II species, such as the qualifying fish and the otter. The Core Management Plan published by Natural Resources Wales (NRW) highlights the water quality in the system as a primary determinant of its ecological status, which is currently classified as unfavourable. While the main water quality impact in this catchment originates from agriculture, pollutants from sewage effluent, particularly increases in phosphorus concentrations, have the potential to increase the abundance of filamentous algae and to decrease the aquatic flowering plants. Eutrophication can lead to reduced dissolved oxygen concentrations, which in turn reduces the viability of fish populations. However, an increase in P is not considered likely from the Scheme and is screened out.

ii There is the potential for the heat cooling systems to require abstraction and discharge into the Alexandra Docks, which then flows into the River Usk. This will require licencing through NRW and assessment for the potential to impact fish populations within the watercourse which is connected to the River Usk SAC. The abstraction and discharge is going to be intermittent as it is part of a heat exchange cooling system that will use captured rainwater as well as abstracted water. This will not be needed until Phase 3 when the mill is operational. It will be below the daily level threshold for an abstraction licence and the water will come out of the dock and go back into it. Any abstraction will be subject to a separate consenting process. Due to the extremely low volumes expected, impacts upon the River Usk are not likely to cause a significant effect as these will likely be de minimis as they are below the licencing threshold.

4.3.2 In combination water quality

iii As the Scheme is unlikely to have any effect, assessment in combination is not required at Stage 1.

4.4 Dust

i The main pollutants of concern related to construction activities are dust and PM10/particulate matter (Air Quality Consultants, 2024). Where there are relevant human and/or ecological receptors within 200 m then a disamenity dust impact assessment will almost always be required. For construction dust assessment, the potential for impacts is within 200 m of the site boundary, or within 50 m of roads used by construction vehicles are considered. There are no sensitive habitats that are part of a European designated site within 50m of affected roads. The parts of the SAC within 200m of the Site is not sensitive to dust deposition as the habitats are washed daily due to the intertidal nature of the river (Appendix 2). Therefore, these four areas were awarded a sensitivity of medium in the dust magnitude assessment (Air Quality Consultants, 2024). These ecological receptors were then analysed against distance and wind direction. This found potential pathways to be ineffective and dust effects were deemed 'negligible on all receptors'. Therefore, impacts from dust are not likely to cause a likely significant effect.

4.4.2 In combination dust

ii As the Scheme is unlikely to have any effect, assessment in combination is not required at Stage 1.

4.5 Summary of LSE Test

i The below table summarises the appraisal in respect to Likely Significant Effects of the proposals on the Conservation Objectives of the European Sites. Where any impacts are considered not to be neutral or appreciable and nugatory, these are taken forward into Test 2 (Stage 2): Appropriate Assessment.

Table 6: Summary of LSE (in absence of mitigation)

Impact	Likely Significant Impact in Isolation	Likely Significant Impact in Combination	Taken into Test 2: Appropriate Assessment
Physical Damage/Loss	No	No	No
Non Physical Disturbance	No	No	No
Non Toxic Contamination	No	No	No
Air Quality	Yes	N/A	Yes
Recreation/Urban Impacts	No	No	No
Water Quality/Quantity	Yes	N/A	No

5 STAGE 2: APPROPRIATE ASSESSMENT

5.1.1 Air Pollution

i An air quality assessment report for air quality effects on biodiversity associated with operational phase traffic of the proposed industrial development at South Dock, Alexandra Docks, Newport was produced (Air Quality Consultants, 2024a). It accompanies AQC report J10/14834A/10/F3 which considers the air quality effects of the proposed development during both the construction and operational phases. Since the main air quality assessment was originally prepared, the project transport consultants provided revised traffic data that was greater. Therefore, further consideration of potential air quality effects on biodiversity have been considered necessary.

ii The proposed development will lead to changes in traffic flows on roads which pass within 200 m of the River Usk SAC. Road traffic can emit nitrogen oxides (NOx) and ammonia, and some sensitive vegetation may be affected by elevated concentrations of these pollutants. Furthermore, the deposition of both NOx and ammonia can alter the nutrient and acidity balance of some ecosystems, causing changes to their composition and health. The only part of the SAC within 200m of the relevant roads which is sensitive to nitrogen deposition is an area of salt marsh habitat, extending up to the A48. The assessment of traffic-related impacts focuses on 2028, which is the anticipated year of operation for phase 3 of the proposed development. Phase 3 is when the greatest heavy-duty vehicle (HDV) movements are anticipated for the proposed development.

iii Critical levels (CLes) and critical loads (CLos) are the ambient concentrations and deposition fluxes below which significant harmful effects to sensitive ecosystems are unlikely to occur. Some of the CLes are set at the same concentrations as the objectives but do not have the same spatial constraints on where they apply (relevant CLes and CLos for assessment provided in Table 7 and 8 respectively). Exceedances of the CLes and CLos are considered in the context of preventing harm to sites which are protected under the various designation frameworks. The River Usk SAC designation includes Atlantic salt marsh, and within a saltmarsh, different zones can be distinguished based on flooding frequency. As the flooding frequency of the study area is unknown, the more conservative CLos (i.e. lower) for upper-mid & mid-low salt marshes have been selected for use within this assessment.

Table 7: Vegetation and Ecosystem CLes

Pollutant	Time period	CLe
Nitrogen oxides (NOx)	Annual mean	30 µg/m^3
	24 hour mean	75 (200d[19]) µg/m^3
Ammonia (NH_3)	Annual mean	3 µg/m^3

[19] The CLe is 75 □g/m3 but Natural England and the Institute of Air Quality Management (IAQM) both recommend that a value of 200 □g/m3 is usually more appropriate for current UK conditions. The current assessment considers values of both 75 g/m3 and 200 g/m3.

Table 8: Vegetation and Ecosystem Clos

Habitat Type	Nutrient Nitrogen (kgN/ha/yr)	Acid Deposition 'N_{max}' (keq/ha/yr)
Atlantic upper-mid & mid-low salt marshes	10	4.0

iv NOx and ammonia concentrations, and nitrogen and acid deposition fluxes were predicted for the following scenarios:

A) 2022 base year;

B) 2028 without any increase in traffic from 2022 (including future-year emissions factors and future-year background concentrations and fluxes but base-year traffic within the dispersion model). This is a counterfactual scenario used to determine the in-combination impacts;

C) 2028 without the development but with the forecast background increase in traffic from 2022 to 2028 (also including future-year emissions factors and background concentrations and fluxes); and

D) 2028 with both the proposed development and background traffic growth (also including future-year emissions factors and background concentrations and fluxes).

v The three 2028 scenarios have been compared to derive the impacts of the proposed development alone and in-combination with other projects and plans:

- the difference between scenarios C and D represents the change caused by the proposed development which, for consistency with other regimes, is termed the Process Contribution ('PC'); and
- the difference between scenarios B and D represents the In-Combination Change ('ICC').

vi The background concentrations of NOx are predicted to be well below the CLe in both 2022 and 2028. Predicted background concentrations of NH3 are below the CLe of 3 µg/m^3 in both years. Predicted background nutrient nitrogen deposition rates exceeded the lower CLo in both years. The predicted background acid nitrogen deposition rates were below the Clo in both years (Air Quality Consultants, 2024a).

vii Predictions are presented for the modelled receptor which is 2m away from the road, as this location had the highest Predicted Concentrations (PC) and fluxes, maximum PC and maximum ICC. The CLo for nitrogen deposition is exceeded at the worst-case location in all scenarios. The CLes for annual mean and 24-hour mean NOx concentrations, annual mean ammonia concentrations and acid deposition are achieved in all scenarios. Annual mean NOx concentrations are less than 70% of the Cle in all future scenarios but not in the 2022 Existing Baseline scenario.

viii All of the PC's (when rounded) are 0% (i.e. less than 0.5% when unrounded) of the CLos and CLes. Thus, according to the guidance, the effects of the proposed development, when viewed in isolation, will be not significant and not give rise to an LSE. All of the ICC's are no greater than 1% of the CLos and CLes, except for nitrogen deposition where the ICC is predicted to be 2% of the CLo at the worst-case receptor. The effect in-combination with other projects (based on conservative assumptions on traffic growth) on annual mean ammonia, annual and 24-hour NOx and acid deposition, will not be significant and not give rise to an LSE. However, as the ICC for nitrogen deposition is greater than 1% of the CLo at some transect locations, the effects in-combination with other relevant projects cannot be immediately discounted for nitrogen deposition.

6 SUMMARY

i The proposed development will increase concentrations of NOx and ammonia, and nitrogen deposition fluxes within the salt marsh area of the River Usk SAC within 200 m of the A48. However, there is only a very small part of the site where the increase for nitrogen deposition in combination with other projects and plans, cannot readily be discounted as insignificant through application of commonly accepted screening criteria. For all other pollutants, the increases can be discounted as insignificant at every modelled location. Additionally, the slight exceedance of the screening criteria for nitrogen deposition is only seen when assessing effects in combination with future traffic growth, not when assessing the effects of the proposed development in isolation. Furthermore, the percentage of the River Usk SAC where the exceedance of the screening criterion is seen is very low (approximately 0.01% of the SAC's area).

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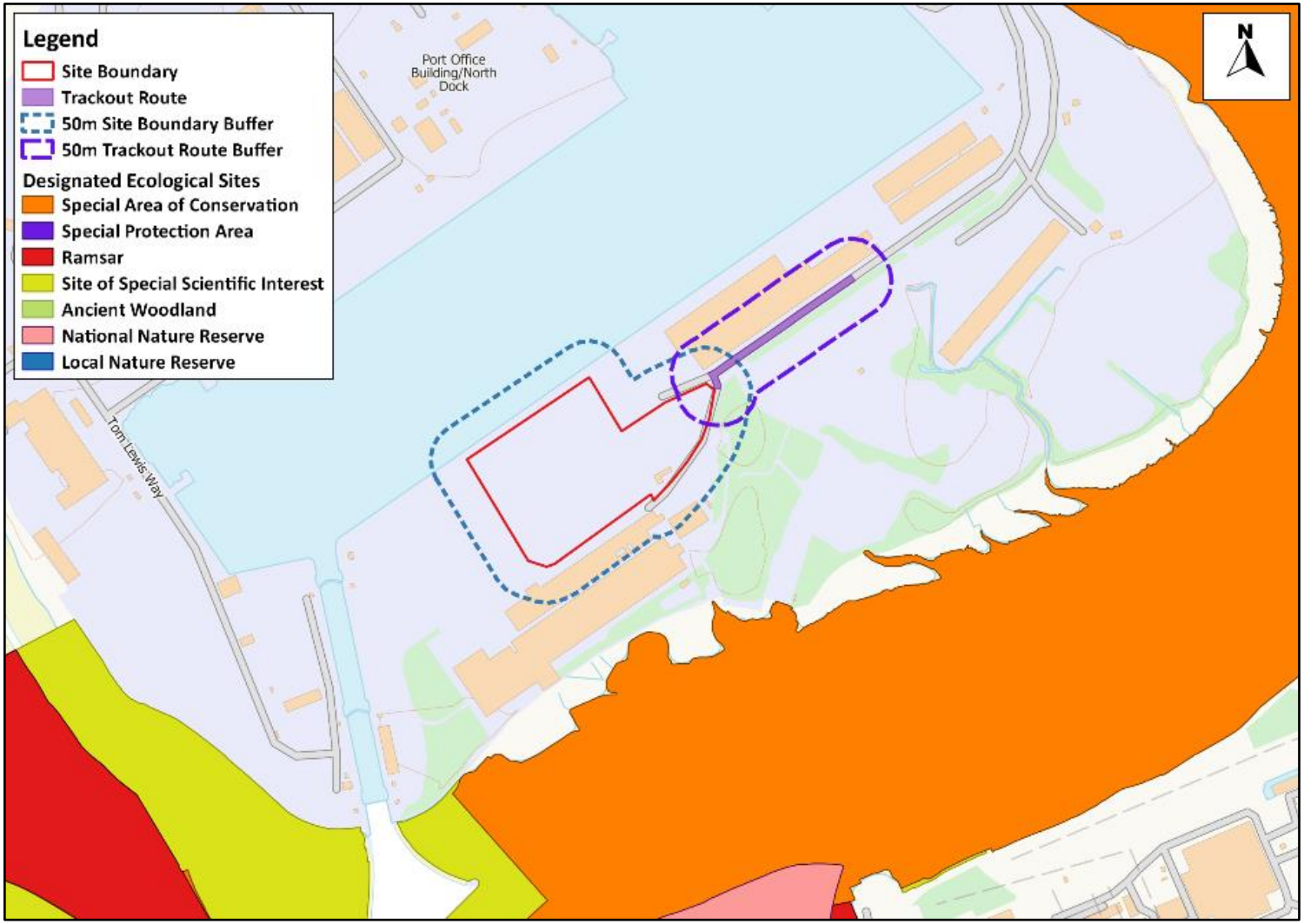
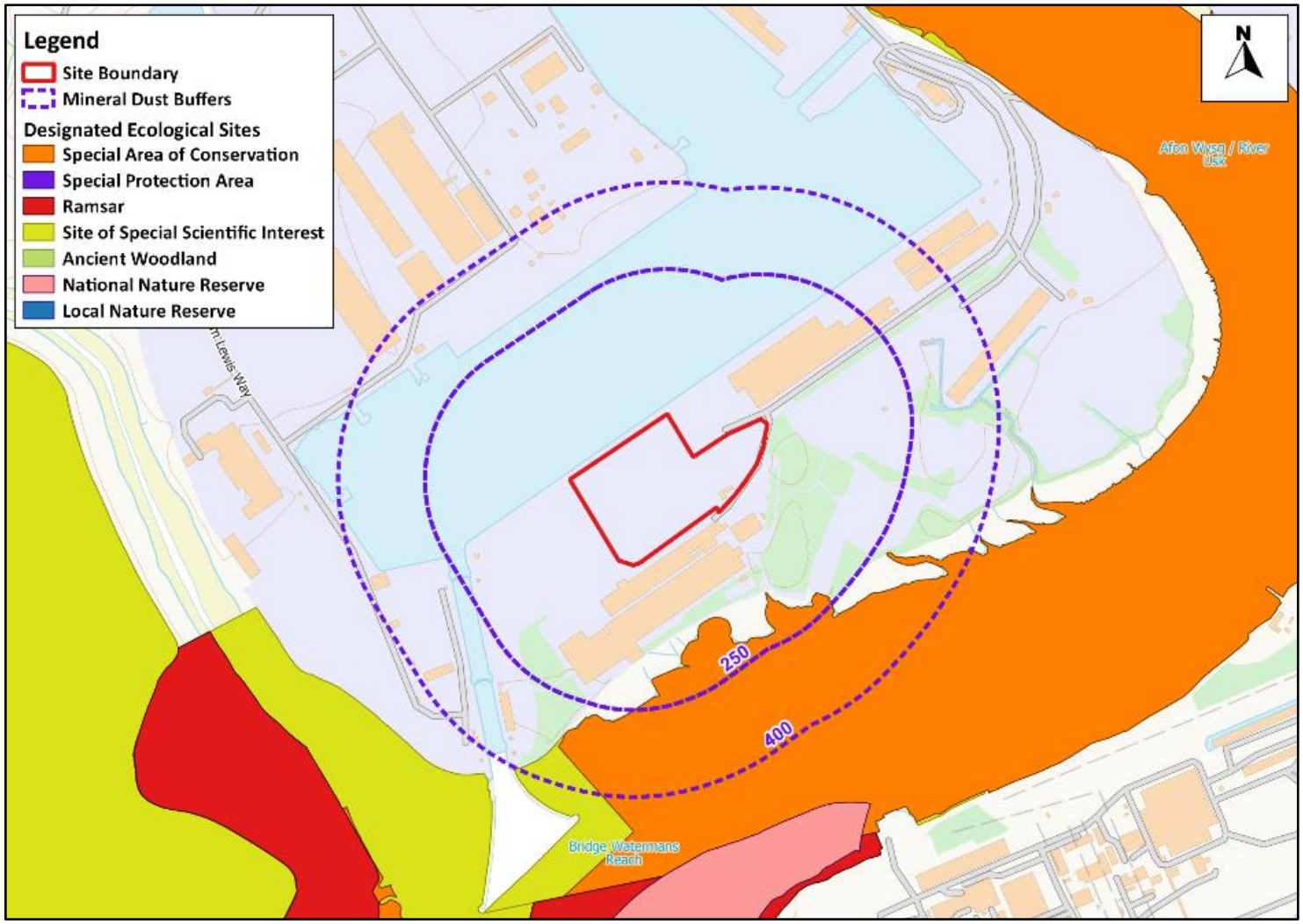
xx https://ukhab.org/ accessed 12/12/2023

8 APPENDIX 1: CLIENT PROPOSALS

9 APPENDIX 2: DUST SCREENING (FROM AIR QUALITY ASSESSMENT REPORT)




Legend
Site Boundary
Mineral Dust Buffers
Designated Ecological Sites
Special Area of Conservation
Special Protection Area
Ramsar
Site of Special Scientific Interest
Ancient Woodland
National Nature Reserve
Local Nature Reserve
N
Afon Wysg / River Usk
250
400
Bridge Watermans Reach