

Clarification Note

Project Dragon

February 2024

Introduction

1. This Clarification Note has been prepared by Turley on behalf of LanzaTech UK Ltd (the Applicant). It provides clarifications in response to comments received from Natural Resources Wales (NRW) on the full planning application for the erection of a Sustainable Aviation Fuel (SAF) Production Facility at Crown Wharf, Port Talbot (ref. P2023/0858).
2. The information included in this Note provides clarification on the comments received and following discussions held with NRW on 9 January and 11 January. No further technical work has been required to address these comments. The clarifications submitted do not change the conclusions set out in the Environmental Statement (ES).

Consultee Response

3. Formal comments on Project Dragon were received from NRW on 21 December 2023. The topics raised are summarised in **Table 1** below. The full comments are included at **Appendix 1**.

Table 1: Summary of Response (green represents no objection and yellow represents comments that have been received and are addressed in this note).

Topic	Summary
Marine Ecology	Conclusions of Chapter 13 (Marine Ecology) of the ES have been agreed by NRW regarding marine water and sediment quality.
Water Framework Directive (WFD) Assessment	Comments raised on the detail of the WFD Assessment. Clarifications informally agreed with NRW on 11 January and included in Table 2.
European Protected Species, including: • Bats; • Otters; and • Great Crested Newts.	No objection.
Oxtongue Broomrape	Comments raised by NRW. Clarifications included in Table 2.
Groundwater and Contaminated Land	No objection.
Air Quality	Comments raised on methodology only. Clarifications informally agreed with NRW on 9 January and included in Table 2.

Noise	Comments raised on methodology only. Clarifications informally agreed with NRW on 9 January and included in Table 2.
Flood Risk	No objection.
Industry Regulation	No objection.
Contaminated and Waste Process Water	No objection.
Hydrology and Water Resources Abstraction Licence	Comments raised. Clarifications informally agreed with NRW and included in Table 2.

Clarifications

4. Meetings were held with NRW on 9 January and 11 January to discuss air quality, noise, hydrology and WFD matters. These positive discussions have informed the clarifications provided in **Table 2** below.
5. Collective agreement was reached on the extent of clarification required for planning and EIA purposes and the distinction between what may subsequently be required for associated consents/licences. **Table 2** summarises our clarifications to NRW comments, accompanied by technical details set out in **Appendices 2, 3, 4 and 5**.

Table 2: Clarifications in Response to Comments

Topic	Response/Clarification
Water Framework Directive Assessment	NRW provided comments on the WFD Assessment (Appendix 2.4 to the ES). The comments included linkages to the consideration of process water discharge (which are dealt with separately below). The comments were discussed with NRW on 11 January. It was agreed that minor clarifications could be accounted for within the WFD Assessment to address comments. These are provided at Appendix 2 and are summarised as: • Paragraphs 4.5.6, 6.4 and 7.1.2; and • Tables 5-4, 5-5, 5-6, 5-7, 5-8, 6-2, 6-3, 6-5. These do not affect any conclusions of the assessment and no further work is required for planning purposes. The clarifications to the WFD Assessment at Appendix 2 do not impact the conclusions in the ES.
Hydrology and Water Resources Abstraction Licence	NRW stated that discharge of process effluents to Port Talbot docks will need to be assessed. Greater information is required to support the environmental permit. The Applicant remains committed to ensuring that the quality of any discharge water meets NRW requirements via appropriate treatment before discharge. This will be validated during the environmental permit application process. The ES identified the proposed approach to process water (Chapter 4, Paragraph 4.76-4.79) where it was clear that the discharge to the dock will require a Water Abstraction License from NRW. This will define the necessary treatment levels and restrictions in terms of chemical consistency of any discharge. It is clear in the ES that a further stage of assessment and control would be required as part of an environmental permit application¹. This will ensure that any discharge would not result in a significant environmental effect. These conclusions fundamentally inform the scope of assessment of Chapter 13: Marine Ecology, ensuring the ES remains proportionate and focused on the assessment of likely significant effects. Volume 3: Environmental Management Plan collates all assumed mitigation and the appropriate mechanism for securing the mitigation. It clearly identifies that the environmental permit is the mechanism for securing appropriate mitigation to control or limit environmental effects to below significance for waste process water. The environmental permit application

¹ In line with Regulation 26 of the EIA (Wales) Regulations 2017.

	and other required consents (such as Marine Licence) will need to ensure that the appropriate level of assessment is undertaken. This was clarified and agreed with NRW at the meeting on 11 January.
Air Quality	NRW raised comments on the methodology associated with the air quality chapter (Chapter 11) of the ES. The comments were discussed with NRW on 9 January. It was agreed that minor clarifications could be addressed. These are provided at Appendix 3 . The clarifications do not affect any conclusions of the ES and no further work is required for planning purposes.
Noise	NRW raised comments on the methodology associated with the noise chapter (Chapter 12) of the ES. The comments were discussed with NRW on 9 January. It was agreed that minor clarifications could be addressed. These are provided at Appendix 4 . The clarifications do not affect any conclusions of the ES and no further work is required for planning purposes.
Oxtongue Broomrape	NRW raised comments on the presence of Oxtongue Broomrape at TCA1. Several options were suggested to mitigate the impact of the proposed development on the Oxtongue Broomrape. This has been raised separately by NPT and discussed collaboratively with their Biodiversity Officer. Appropriate conservation has been agreed with NPT and with consideration to the comments from NRW. This comprises a dual approach to conservation, including: • Creating a protection area in the northern-most portion of TCA1 which supports approximately 70% of the existing colonies of Oxtongue Broomrape in TCA1; • Re-locating colonies of Oxtongue Broomrape from within TCA1 to a protected area in the northern protection area; and • Experimental introduction of Oxtongue Broomrape (and the host plant species) into selected modules of the biodiversity walls in the PDZ. The above appropriately addresses the comments raised by NRW and NPT and ensures the outcomes reported on in the ES to be secured. The proposed Oxtongue Broomrape relocation plan is shown at Appendix 5. A Planning Statement Addendum: Green Infrastructure Statement (GIS) has been prepared separately for NPT in response to updates to Chapter 6 of Planning Policy Wales and demonstrates in full the response to the Oxtongue Broomrape conservation strategy.

Environmental Impact Assessment

6. There are no intended amendments to the ES beyond the submission of the updated WFD (as Appendix 12.4). As the ES assessment is not fundamentally informed by the context of the WFD, the revised document does not amend the assessment, mitigation or conclusions of the submitted ES or its suitability for determination purposes.

Summary and Conclusions

7. **Table 2** and the accompanying appendices demonstrate that comprehensive clarifications have been provided to all NRW's comments:
- The air quality and noise responses provide clarity on the approach to methodology and do not result in any impacts on existing assessment work or conclusions.
 - The updated WFD Assessment provides sufficient clarity on its intentions for the planning application stage. The Applicant remains committed to ensuring water quality standards are met before any discharge. These standards/requirements will be associated with the separate environmental permit with NRW. This is being led by ERM, who are aware of the comments provided at planning stage.
 - The proposed approach to Oxtongue Broomrape presents an appropriate dual-approach to conservation, comprising a protection area in TCA1 and inclusion of Oxtongue Broomrape in the gabion baskets proposed in the PDZ. This has been discussed collaboratively with NPTC and full details of the methodology will be subject to condition. Further detail is set out in **Appendix 6**.
8. We consider that the comments received from NRW have been suitably addressed in this Note and accompanying appendices. There are no outstanding matters that would preclude the grant of planning permission. Appropriate planning conditions which take account of NRW's feedback and which are relevant, reasonable and necessary are being discussed with NPTC.
9. NRW will be engaged separately on all other relevant consents and licences required for the project as the relevant regulatory body.

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LANT3006

Appendix 1: NRW comments comprising main response, WFD comments and oxtongue broomrape comments

Ein cyf/Our ref: CAS-243049-C8X0
Eich cyf/Your ref: P2023/0858

Neath Port Talbot County Borough Council
The Quays
Briton Ferry
SA11 2GG

Dyddiad/Date: 21 December 2023

Annwyl Syr/Madam/Dear Sir/Madam,

BWRIAD/PROPOSAL: Demolition of existing structures and erection of a Sustainable Aviation Fuel (SAF) production facility, including the production of green hydrogen and sustainable diesel, enclosed ground flare, storage tanks, installation of pipework and electrical, processing and utility equipment, administration, warehouse and laboratory buildings, new access, car parking and transport infrastructure including a truck loading area and associated works, hard and soft landscaping, areas for temporary construction laydown, and associated development.

LLEOLIAD/LOCATION: Crown Wharf, Port Talbot Docks, Port Talbot, SA13 1RA

Thank you for consulting Cyfoeth Naturiol Cymru (CNC)/Natural Resources Wales (NRW) about the above, which we received on 20 November 2023.

We have concerns with the application as submitted because inadequate information has been provided in support of the proposal. To overcome these concerns, you should seek further information from the applicant regarding Marine. If this information is not provided, we would object to this planning application. Further details are provided below.

We also advise that based on the information submitted to date, conditions requiring a CEMP and regarding Contaminated Land should be attached to any planning permission granted. Without the inclusion of these conditions, we would object to this planning application.

Our comments are made without prejudice to any comments we may wish to make for future consultations, permits, consents or licences when presented with new or different information about the scheme.

Marine

Please note we are in the process of reviewing the Water Framework Directive (WFD) Assessment and will provide you with our comments as soon as possible.

We have, however, reviewed Chapter 12 and Appendix 2.1 and our comments are provided below.

Chapter 13

We agree with the conclusions presented in Chapter 13 Marine ecology with respect to marine water and sediment quality. However, the discharge of process effluent to the dock has not been assessed and will need to be. This information is also needed to support the EPR permit.

Appendix 2.1

WFD assessment section 4.5 pp19

The designated shellfish waters have been missed from the protected areas list. Swansea Bay (East) is <2 km from the works and should be considered.

WFD assessment pp21-24 (Swansea Bay water body)

We agree with the conclusions with respect to the Swansea Bay water body given the information presented. However, the chance for elevated bacterial levels should be assessed to inform the designated shellfish water assessment. Please note that if control measures for INNS and pollution are included in the Construction Environment Management Plan (CEMP), further assessment is not required.

WFD assessment section 5.2.5 (Table 5-5) pp24

There is no concern for fish in the estuary given the proposed mitigation measures (e.g. screens on intake and closure of dock gates); we recommend these measures are included in the CEMP.

WFD assessment section 5.2.7 (Table 5-7) pp26

Further phys-chem elements need to be covered under this section. See the [Clearing the Waters for All](#) guidance.

WFD assessment section 5.2.7 (Table 5-7) pp26 and section 5.2.8 (Table 5-8) pp 27

We cannot agree the conclusions with respect to Dissolved Inorganic Nitrogen or Environmental Quality Standards Directive (EQSD) chemicals as we have not been provided information as to the content of the process water effluent. This information is required and should be used to support the Environmental Permitting Regulations permit application.

WFD assessment

Following the *Clearing the Waters for All* guidance, the applicant should calculate and provide the area of the physical footprint within the Afan Estuary incl. docks relative to the water body size. This should include any mixing zone area (i.e. where EQSs are breached) from the process effluent plume. If greater than 1%, further assessment is required as per guidance.

WFD assessment section 6.4 pp39

Each heavily modified water body mitigation measure 'in place' must be assessed to ensure it is not compromised by the construction and operation of the development. The applicant should demonstrate what actions they could undertake to ensure sediment resuspension is not enhanced e.g. vessel management could include following speed limits within the dock.

European Protected Species

Document and drawings reviewed:

- Preliminary Ecological Appraisal – Project Dragon, Port Talbot, dated 20/10/2023, by RPS Group
- Phase 2 Species Survey Report 2023 – Project Dragon, Port Talbot dated 30/10/2023 by RPS Group
- ES V1 Chapter 7 Terrestrial Ecology – Project Dragon – 08 November 2023
- ES V2 Appendix 7.2 Phase 2 Species Report – Project Dragon – 08 Nov 2023 Part 1
- ES V2 Appendix 7.2 Phase 2 Species Report – Project Dragon – 08 Nov 2023 Part 2
- Ecological Impact Assessment – Project Dragon – Rev 2 – Nov 2023 - Part 1 by RPS Group
- Ecological Impact Assessment – Project Dragon – Rev 2 – Nov 2023 - Part 4 by RPS Group
- Drawing 2143.01-IA-ZZ-ST-DR-A-0220 Rev P12 'Proposed Site Key Plan – EIA Boundary Shown' dated 27/10/2023 by Inspire Architects
- Drawing 202947C-050-DW-1632-00001 Rev 1 External Lighting Layout Drawing by LanzaTech, dated 03/11/2023
- Project Dragon - Sustainable Aviation Fuel (SAF) Production Facility - Lighting Assessment and Strategy, dated 31/10/2023 by LanzaTech UK Ltd
- LanzaTech UK Limited Project Dragon – Sustainable Aviation Fuel (SAF) Production Facility - Environmental Statement Volume 3: Environmental Management Plan, dated November 2023, by Turley
- ECO02340 Figure 7.2 Habitat Plan, dated September 2023, by RPS Group

We note that additional survey information has been provided for the following European Protected Species: otter, bats, and great crested newt, however we note that the presence of great crested newt has been discounted in the survey report conclusion.

Bats

Transect surveys carried out in 2021, 2022 and 2023, and remote static detector recording surveys in 2021 and 2022, found that bat activity of 6 species was recorded: common pipistrelle, noctule, soprano pipistrelle, Nathusius' pipistrelle and a single Myotis species, with a single brown long-eared bat also recorded on one occasion in 2023.

Separately, a preliminary roost assessment of the 19 buildings that are proposed to be demolished for the proposal was carried out and, of these, 4 were classified as having low potential to support bats. Subsequent dusk and dawn activity surveys were undertaken on these 4 buildings to assess presence/absence of bats, and a single common pipistrelle was found to be using Building B1 as a day roost; no other bats were recorded.

Overall, it was concluded that bat interest on the site is largely centred on foraging of common and widespread bat species and that the buildings are of low value to bats. Mitigation will be provided in the form of off-site habitat compensation that will benefit bat foraging, and the provision of bat boxes to offset the loss of day-roosting provision for common, crevice-dwelling species of bat. We also note that, whilst lighting proposals will have localised effects on commuting, the species recorded are not light-averse species and we therefore agree with the conclusion that lighting will have a localised impact only. We are therefore satisfied that neither the construction phase nor the operational phase of this proposal will have adverse impacts on the Favourable Conservation Status of any species of bat.

However, we advise that a derogation licence for European Protection Species will be required prior to the demolition of any structures that support bat roosting; bat activity surveys that are submitted in support of a licence application must be up-to-date, and not more than two years old.

Otter

Between 2022 - 2023, a number of walkover assessments of habitat on site with the potential to support otter were carried out; these were augmented by the installation of two trail cameras to monitor potential otter movement through parts of the site that were identified as being of potential interest to otters. Walkover surveys included searching for mammal paths within vegetation to identify potential otter use across the site. The survey report concluded that there were no features within the application site that were considered to be important to the otter population on the River Afan, which drains into the dock entrance. Whilst we note that no indication of otter usage of the site was recorded by these surveys, their absence could not be confirmed and their use of the wider dock could not be precluded. We agree with this conclusion and considers that the habitat recorded on site has good potential to be used opportunistically by otters for resting up.

We agree that the mitigation measures proposed in T12 of the Environment Management Plan should be included in the referenced Detailed Demolition Construction Environmental Management Plan. Further details are below.

Great Crested Newt

We note the conclusion that this species is likely absent from the application site and have no further comments regarding this species.

Lighting

Following the submission of detailed ecological advice, we consider that the proposed lighting at construction and operational phases will not have significant adverse impacts on bats or otters. We note the submission of the Lighting Assessment and Strategy and the proposal to agree details of mitigation in respect of lighting in a Detailed Lighting Plan via an appropriately worded condition.

We are satisfied that the Detailed Lighting Plan can be agreed in writing with the Neath Port Talbot Local Planning Authority's Ecologist. We also advise that the CEMP is updated to include the following Reasonable Avoidance Measures for precautionary working in respect of bats and otters:

Otters

- Daytime working hours, to commence no sooner than one hour after sunrise and finish no later than one hour before dusk
- Details relating to storage of construction materials and locating away from watercourse in way that prevents otters gaining access or using them to rest in (e.g. pipe ends will be capped or covered)
- Any trenches that are left open overnight will have planks of wood placed at regular intervals to allow otters a way out
- All tools, food, litter and construction materials and packaging that may constitute a hazard to otters will be removed daily from the site
- All areas and habitat that may be suitable for use by otters will be checked immediately prior to works commencing by a suitably qualified, experienced and licensed ecologist.

Bats

- A derogation licence in respect of bats must be secured from Natural Resources Wales prior to the demolition of Building B1
- An updated assessment of bat use of Building B5, B13 and B17 is to be carried out between the months of May-August prior to their demolition, to inform the requirement for a derogation licence from NRW.
- An assessment of the need for updated bat activity surveys of Buildings B5, B13 and B17 is to be carried out prior to their demolition.

Please note that we are satisfied that the updated CEMP can be agreed as a condition.

European Protected Species Licence

A European protected species (EPS) Licence is required for this development.

This planning permission does not provide consent to undertake works that require an EPS licence. It is an offence to deliberately capture, kill or disturb EPS or to recklessly damage or destroy their breeding sites or resting places. If found guilty of any offences, you could be sent to prison for up to 6 months and/or receive an unlimited fine. To undertake the works within the law, you can obtain further information on the need for a licence from Natural Resources Wales on 0300 065 3000 or at

<https://naturalresources.wales/conservationbiodiversity-and-wildlife/european-protected-species/?lang=en>

Please note that any changes to plans between planning consent and the licence application may affect the outcome of a licence application. We advise recipients of planning consent who are unsure about the need for a licence to submit a licence application to us.

In addition, we would like to take this opportunity to highlight that there may be aspects of the proposal which we wish to refine at the time of a licence application

European Protected Species: Legislation and Policy

Bats and otters, as well as their breeding sites and resting places, are protected under the Conservation of Habitats and Species Regulations 2017 (as amended).

Where these species are present and where a development proposal is considered likely to contravene the legal protection they are afforded, the development may only proceed under licence issued by Natural Resources Wales, having satisfied the three requirements set out in the legislation. A licence may only be authorised if:

- i. The proposed works to be authorised satisfy an appropriate derogation purpose, which in the case of development are for the purposes of preserving public health or safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;
- ii. There is no satisfactory alternative; and
- iii. The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.

These requirements are translated into planning policy through Planning Policy Wales (PPW) Edition 11 dated February 2021, sections 6.4.22 and 6.4.23 and Technical Advice Note (TAN) 5, Nature Conservation and Planning (September 2009). To avoid developments with planning permission subsequently not being granted a licence, the planning authority should take them into account when considering development proposals where a European Protected Species is present.

Groundwater and Contaminated Land

Documents reviewed:

Margam Wharf GI Desk Study - Project Dragon - 2111006.006.01C - Oct 2023

Margam Wharf GI Report - Project Dragon - 2111006.006.02A - Oct 2023

PDZ GI Desk Study - Project Dragon - 2111006.002.01G - Oct 2023

PDZ GI Report - Project Dragon - 2111006.003.01D - Aug 2023

Geoenvironmental Assessment Report - Project Dragon - 2111006.005.01B – Oct 2023

We agree with the recommended further works as presented in the Geoenvironmental Assessment Report for the Production Development Zone and the Ground Investigation Report for Margam Wharf.

For the Production Development Zone, additional groundwater monitoring and sampling is required to determine the risk to controlled waters and requirement for remedial measures. It is recommended that further investigation is undertaken around the extent of the free product identified in U1, including a product test, and further delineation works. Further interpretation of the hydrogeological regime and anticipated groundwater flow direction on-site should also be undertaken.

We therefore recommend that the conditions below are applied to any permission granted:

Condition 1

No development shall commence until the following components of a scheme to deal with the risks associated with contamination at the site, has been submitted to and approved in writing by the Local Planning Authority.

1. A preliminary risk assessment which has identified:

- all previous uses
- potential contaminants associated with those uses
- a conceptual model of the site indicating sources, pathways and receptors
- potentially unacceptable risks arising from contamination at the site

2. A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.
3. The results of the site investigation and the detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
4. A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

The remediation strategy and its relevant components shall be carried out in accordance with the approved details.

Justification:

To ensure the risks associated with contamination at the site have been fully considered prior to commencement of development as controlled waters are of high environmental sensitivity; and where necessary remediation measures and long-term monitoring are implemented to prevent unacceptable risks from contamination.

Condition 2

Prior to the operation of the development a verification report demonstrating completion of works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved in writing by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include a long-term monitoring and maintenance plan for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan. The long-term monitoring and maintenance plan shall be carried out in accordance with the approved details.

Justification:

To ensure the methods identified in the verification plan have been implemented and completed and the risk associated with the contamination at the site has been remediated prior to occupation or operation, to prevent both future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors.

Condition 3

Prior to the operation of the development, a long term monitoring plan for land contamination shall be submitted and approved in writing by the Local Planning Authority.

The long term monitoring plan should include:

- Details of the methods and triggers for action to be undertaken
- Timescales for the long term monitoring and curtailment mechanisms e.g. a scheme of monitoring for 3 years unless the monitoring reports indicate that subsequent monitoring is or is not required
- Timescales for submission of monitoring reports to the LPA e.g. annually
- Details of any necessary contingency and remedial actions and timescales for actions

- Details confirming that the contingency and remedial actions have been carried out

The monitoring plan shall be carried out in accordance with the approved details, within the agreed timescales.

Justification:

A land contamination long term monitoring plan should be submitted prior to occupation or operation, to ensure necessary monitoring measures are approved to manage any potential adverse impacts as a result of development on water quality.

Condition 4

If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this unsuspected contamination shall be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be carried out as approved.

Justification:

To ensure the risks associated with previously unsuspected contamination at the site are dealt with through a remediation strategy, to minimise the risk to both future users of the land and neighbouring land, and to ensure that the development can be carried out safely without unacceptable risks.

Condition 5

No development shall commence until details of piling or any other foundation designs using penetrative methods sufficient to demonstrate that there is no unacceptable risk to groundwater have been submitted to and approved in writing by the Local Planning Authority. The piling/foundation designs shall be implemented in accordance with the approved details.

Justification:

Piling/foundation details should be submitted to ensure there is no unacceptable risk to groundwater during construction and methods/design are agreed prior to the commencement of development or phase of development.

Air Quality

Chapter 11 (848953) has listed our previous comments and the applicant's technical responses. Here are our further comments. Please note that this is still a high level and general review, the detailed review on the modelling processing and predictions and conclusions has not been undertaken at this stage.

- Footnote 2 of Table 11.3. *"² subsequent assessment has scoped out ecological receptors for this effect as the assessment of effects on ecological receptors is based on annual emissions while effects from emergency sources are short-term"* In addition to annual averaged assessment threshold, NO_x also has daily average critical level threshold.
- Figure 11.1 listed sensitive human receptors in the area. Please confirm that all the receptor sites with possible public exposure were considered, e.g., from Google map there is a Bro's café and a self-storage located north of the proposed site across the water body. Are the café and self-storage still on business? Please explain why they were not considered?

- Section 11.27. Comparing to other human receptors, C1 and C2 are further away from the proposed site. When considering the on-site construction emissions and road traffic in combination, C1 and C2 may not represent the worse case locations.
- Section 11.148 “ ... it is expected that concentrations of these pollutants will remain at current levels into the near future. However, data shows that concentrations are currently meeting the relevant objective” Most 2023 data are available now, this statement may not be correct.

Noise

Chapter 12 Noise and Vibration Table 12.2

Sensitivity classification of receptors

We are not wholly in agreement with the sensitivity classification i.e. residential medium and quiet areas as high. This may be true of daytime sound impacting on these receptors however, this will change during the night as quiet areas are absent of visitors who now reside in their homes.

Operational vibration risk

The applicant has outlined that no sources of vibration will be present both in the operational and construction phase. We point out that by considering vibration early in the risk assessment process can avoid costly mitigation retrospectively.

Soundscape

We acknowledge the applicant's reference to WG's draft TAN11 document however, we also recognise that both Planning Policy Wales and TAN11 are planning guidance. Our noise guidance specific for permit application, states that - Adding a further industrial source, even if its sound level is below a defined guidance level, may become a tipping point for an inappropriate soundscape or make it much harder to fix an existing problem. Conversely, we point out that in another place, due to an already dull soundscape and low emotional expectations, an additional industrial sound source may not be a burden, as its level may be well masked by other sounds (for example traffic). Therefore, we may require further assessment to establish the applicants position for the environmental permit application.

Ship pumps and permitted installation boundary

No further comments. Additional review will be undertaken during the environmental permit application.

Source data

For the environmental permit application, for sources which are not yet operational, the applicant can use sound power data from the manufacturer (preferably octave band) or it can be measured using appropriate standards at similar plants. If the applicant's intention is to use sound power data from the manufacturer, it will need to establish how the data was obtained and what standard was followed.

Flood Risk

We have reviewed the latest version of the FCA prepared by JBA (Doc Ref. LANT30006 Rev G). The proposed development is located within Zones B and C2 of the Development Advice Map and partly within Flood Zones 2 and 3 (Rivers and Sea) of the Flood Map for Planning.

We have no objection to the proposed development from a flood risk perspective, as the FCA demonstrates that the main area of development (Production Development Zone) will be flood free during the 0.1% fluvial and 0.1%+cc tidal scenarios and therefore compliant with TAN15, with the exception of a very small area of flooding on an existing access road adjacent to the Dock, please note that access and egress is a matter for your Authority.

Industry Regulation

The proposed development of a facility for the production of sustainable aviation fuel (SAF) in the form of Alcohol to Jet Synthetic Paraffinic Kerosene (ATJ SPK), and Renewable Diesel (ATJ-RD) at land adjacent to Tata Steel by the applicant LanzaTech will require an Environmental Permitting Regulations (EPR) Installations permit under Part A(1) Section 4.1 (a) (i) of the Regulations (Large Volume Organic Chemical activity). The installation planning application specifies the storage of hazardous substances and ethanol and other substances included in the operator's proposal are named as dangerous substances within the Control of Major Accident Hazards Regulations (COMAH). There is a requirement to notify the Competent Authority if the storage quantities fall within the COMAH threshold (Schedule 1, Part 1 and 2).

The planning application outlines environmental assessments for example noise and air quality, however the process will require an EPR Permit application which will be reviewed in line Best available technology via the permitting determination process which will also consider relevant environmental impacts including potential drainage and discharge impacts.

Contaminated and waste process water

We note that the 'contaminated' drain system will be installed for the management of contaminated water arising from the process of the Proposed Scheme and bunded areas of the PDZ. This drainage system will discharge to the on-site Effluent Wastewater Treatment Package. The Waste process water will also be directed to the on-site effluent waste water treatment package. Please confirm that a connection to the public foul sewer is not feasible.

Hydrology and Water Resources Abstraction Licence

We have concerns over the availability of water from the Docks system, there is a deficit under periods of low river flows, leading to back pumping from the sea which has serious implications for water quality in any industrial processes. This has led to the refurbishment of Greenpark weir and ABP's replacement of the Docks lock gates to enable better water management. However, we advise that you consult with the Afan Water Management Group, consisting of ABP, Tata Steel, NPTBC, Afan Anglers DCWW and NRW to better understand the situation.

As the applicant intends to apply for an abstraction licence, we advise early discussions with our Hydrology and Water Resources team.

At present there is no water available for licensing. This means that:

- Licences will only be considered for consumptive abstractions at the highest flows. These will be considered due to the economic importance of development in the area.

- Applications for new consumptive abstractions will be considered on a case-by-case basis and would need to be supported by an appropriate business case.
- Licences for non-consumptive abstractions would be considered.
- Any new licences will be issued with appropriate HOF conditions.

Groundwater licences would not normally be available unless appropriate constraints are included as part of the conditions.

Other Matters

Our comments above only relate specifically to matters included on our checklist, *Development Planning Advisory Service: Consultation Topics* (September 2018), which is published on our [website](#). We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests.

We advise the applicant that, in addition to planning permission, it is their responsibility to ensure they secure all other permits/consents/licences relevant to their development. Please refer to our [website](#) for further details.

If you have any queries on the above, please do not hesitate to contact us.

Yn gywir / Yours faithfully

Louise Edwards

Uwch Cynghorydd - Cynllunio Datblygu/Senior Advisor - Development Planning
Cyfoeth Naturiol Cymru/Natural Resources Wales

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Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi./Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

Ein cyf/Our ref: CAS-243049-C8X0 V2
Eich cyf/Your ref: P2023/0858

Neath Port Talbot County Borough Council
The Quays
Briton Ferry
SA11 2GG

Dyddiad/Date: 22 December 2023

Annwyl Syr/Madam/Dear Sir/Madam,

BWRIAD/PROPOSAL: Demolition of existing structures and erection of a Sustainable Aviation Fuel (SAF) production facility, including the production of green hydrogen and sustainable diesel, enclosed ground flare, storage tanks, installation of pipework and electrical, processing and utility equipment, administration, warehouse and laboratory buildings, new access, car parking and transport infrastructure including a truck loading area and associated works, hard and soft landscaping, areas for temporary construction laydown, and associated development.

LLEOLIAD/LOCATION: Crown Wharf, Port Talbot Docks, Port Talbot, SA13 1RA

Further to our letter dated 21 December 2023, below are our comments on the Water Framework Directive Assessment, Version C, November 2023. Please note, these comments are to be read alongside our response referenced CAS-243049-C8X0.

We have concerns with the application as submitted because inadequate information has been provided in support of the proposal. To overcome these concerns, you should seek further information from the applicant regarding Marine. If this information is not provided, we would object to this planning application. Further details are provided below.

Marine

As Competent Authority (CA), your Authority should undertake your own Water Framework Directive (WFD) Assessment. The applicant and CA should follow the Clearing the Waters for All guidance to complete a WFD assessment. This will identify which receptors and elements that need to be considered.

An assessment of the discharge of process effluent is required in the ES and WFD assessment.

Detailed Comments

The Welsh National Marine Plan Policies do not appear to have been assessed. These will need to be considered within the ES.

We agree with the conclusions presented in Chapter 13 Marine ecology with respect to marine water and sediment quality. However, the discharge of process effluent to the dock has not been assessed and will need to be. This information is also needed to support the EPR permit.

Appendix 2.4 WFD assessment section 4.5 pp19

The designated shellfish waters have been missed from the protected areas list. Swansea Bay (East) is <2 km from the works and should be considered.

Appendix 2.4 WFD assessment pp21-24 (Swansea Bay water body)

We agree the conclusions with respect to the Swansea Bay water body given the information presented. However, the chance for elevated bacterial levels should be assessed to inform the designated shellfish water assessment. Note that if control measures for INNS and pollution are included in the Construction Environment Management Plan (CEMP), further assessment is not required.

Appendix 2.4 WFD assessment section 5.2.5 (Table 5-5) pp24

The fish and fisheries advisor has agreed there is no concern for fish in the estuary given proposed measures (e.g. screens on intake and closure of dock gates); we recommend these measures are included in the CEMP.

Appendix 2.4 WFD assessment section 5.2.6 (Table 5-6) pp25

The information in the Table suggests a future WFD assessment will be undertaken. Please clarify.

We agree the conclusions with respect to the hydromorphology elements in 5.2.6 (Table 5-6).

Appendix 2.4 WFD assessment section 5.2.7 (Table 5-7) pp26

Further phys-chem elements need to be covered under this section. See the Clearing the Waters for All guidance.

Appendix 2.4 WFD assessment section 5.2.7 (Table 5-7) pp26 and section 5.2.8 (Table 5-8) pp 27

At this point we cannot agree the conclusions with respect to Dissolved Inorganic Nitrogen or Environmental Quality Standards Directive (EQSD) chemicals as we have not been provided information as to the content of the process water effluent. This information is required and should be used to support the Environmental Permitting Regulations permit application.

Appendix 2.4 WFD assessment

Following the Clearing the Waters for All guidance, the applicant should calculate and provide the area of the physical footprint within the Afan Estuary incl. docks relative to the water body size. This should include any mixing zone area (i.e. where EQSs are breached) from the process effluent plume. If greater than 1%, further assessment is required as per guidance.

Appendix 2.4 WFD assessment section 6.4 pp39

Each heavily modified water body mitigation measure 'in place' must be assessed to ensure it is not compromised by the construction and operation of the development. The applicant should demonstrate what actions they could undertake to ensure sediment resuspension is not enhanced e.g. vessel management could include following speed limits within the dock.

Other Matters

Our comments above only relate specifically to matters included on our checklist, *Development Planning Advisory Service: Consultation Topics* (September 2018), which is published on our [website](#). We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests.

We advise the applicant that, in addition to planning permission, it is their responsibility to ensure they secure all other permits/consents/licences relevant to their development. Please refer to our [website](#) for further details.

If you have any queries on the above, please do not hesitate to contact us.

Yn gywir / Yours faithfully

Louise Edwards

Uwch Cynghorydd - Cynllunio Datblygu/Senior Advisor - Development Planning
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Ffion Middleton

To: Jadine Berry
Subject: RE: P2023/0858 - Project Dragon CROWN WHARF (Major) V2 - NRW Response NRW:01261070

From: Matthew Griffiths <m.griffiths5@npt.gov.uk>
Sent: Friday, January 19, 2024 10:17 AM
To: Jadine Berry <jadine.berry@turley.co.uk>
Subject: FW: P2023/0858 - Project Dragon CROWN WHARF (Major) V2 - NRW Response NRW:01261070

Jadine,

Sorry was stuck on the phone between speaking to you and this meeting – the comments of NRW are below on the ox tongue broomrape.

Hi Matthew

Below are our **Comments on Chapter 7. Terrestrial Ecology relating to ox-tongue broomrape (*Orobanche picridis*) and the impacts and conservation of this schedule 8 species.**

Surveys have found this species to be present in TCA 1 (Temporary Construction Area 1) of Margam Wharf within the development proposal.

The report in paragraph 7.191 suggests that 80 % of Open Mosaic Habitat (OMH) will be impacted by proposals here and that the proposals are for this area to be used as an area of storage of construction materials for 2.5 years. Prior to this time the area will be cleared of vegetation and a membrane and chippings will be placed over the area. After this period the area will be returned to ABP for their use and management.

In paragraph 7.210, This area is described as a significant proportion of the colony of *Orobanche picridis* at TCA1

The colony of *Orobanche picridis* at TCA 1 is described as large in paragraph 7.209, and that it is one of several colonies within the wider Port Talbot Docks environment.

We agree that the colony is large at TCA 1, We have seen this colony in 2023 and were able to compare it visually and quickly with most of the other colonies in the wider docks area. This though is not a scientific or comprehensive assessment of the comparable sizes of each sub-population across the wider dock area. This information would be useful to obtain and could be available either from ABP commissioned surveys or from the local Vice County Recorder.

1. It should be understood though, Size of population could vary year to year depending on host (ox-tongue hawkweed, *Picris heiracioides*) frequency, weather, and habitat condition.
2. A method statement should be done to address potential techniques to mitigate impact on *Orobanche picridis* at TCA1. Potential options could include:
3. Mapping where the core areas of the broomrape are in TCA1 (if not done already).
4. Any ground preparation / vegetation removal / levelling could be done by pushing the top layer of substrate (especially where the majority of the broomrape and host plant are known to occur from the mapping above) to the edge of the TCA1 area. This could then be returned to some / most of the area after the construction period.
5. Commitment to manage some of TCA 1 as Open mosaic habitat with the host plant and *Orobanche picridis* after the construction period.

If you have any queries please do not hesitate to contact me.

Kind Regards
Louise Edwards

Tîm Cynllunio Datblygu / Development Planning Team
Cyfoeth Naturiol Cymru / Natural Resources Wales

www.cyfoethnaturiolcymru.gov.uk / www.naturalresourceswales.gov.uk

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If you would like to use Welsh when dealing with the Council please click [here](#)

Os hoffech ddefnyddio'r Gymraeg wrth ddelio â'r Cyngor os gwelwch yn dda cliciwch [yma](#)

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Appendix 2: WFD Assessment with clarifications

Project Dragon – Sustainable Aviation Fuel (SAF) Production Facility: Water Framework Directive Assessment

Version E

January 2024

www.jbaconsulting.com

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Revision History

Revision Ref/Date	Amendments	Issued to
Version A- September 2023	First Issue	Turley
Version B – October 2023	Second Issue – revised information	Turley
Version C – November 2023	Third Issue – minor site plan changes	Turley
Version D – November 2023	Fourth Issue – updates following comments from Turley	Turley
Version E – January 2024	Fifth Issue – updates following comments from NRW	Turley

Contract

This report describes work commissioned by LanzaTech UK Limited, by an email dated 4th September 2023. Linley Hastewell and Jonathan Harrison of JBA Consulting carried out this work.

Prepared by Linley Hastewell BSc (Hons) PhD CGeog (Geomorph)
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Principal Ecologist

Purpose

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Contents

1	Introduction	6
1.1	WFD Overview	6
1.1.1	Scope of WFD Assessment	6
1.1.2	Preventing Deterioration in Status	7
1.1.3	Artificial or Heavily Modified Water Bodies	8
1.2	Purpose of this WFD Assessment	8
2	Assessment Methodology	9
2.1	Screening Assessment	9
2.2	Scoping Assessment	9
2.3	Impact Assessment	10
3	Project Description	12
3.1	Project overview	12
3.2	Proposed Works	13
4	WFD Screening Assessment	14
4.1	Overview	14
4.2	WFD Water Bodies	14
4.2.1	Current Status	15
4.3	Screening Outcome: Water Bodies	15
4.4	Baseline Status of Screened in Water Bodies	16
4.4.1	Swansea Bay - GB641008260000	16
4.4.2	Afan Estuary inc. Docks - GB541005800600	17
4.4.3	Afan - confluence with Pelenna to tidal limit - GB110058026110	18
4.4.4	Swansea Carboniferous Coal Measures - GB110058026100	18
4.5	Protected Areas	19
4.5.1	Designated Nature Conservation sites	19
4.5.2	WFD Habitats	19
4.5.3	Shellfish Waters	20
4.5.4	Nitrate Vulnerable Zones (NVZ)	20
4.5.5	Drinking Water Protected Areas (DrWPA)	20
4.5.6	Designated Bathing Waters	20
4.6	Summary	20
5	WFD Scoping Assessment	22
5.1	Overview	22
5.2	Scoping Assessment	22
5.2.1	Swansea Bay - Biological Quality Assessment	22
5.2.2	Swansea Bay - Hydromorphological Quality Assessment	23
5.2.3	Swansea Bay - Physico-Chemical Quality Assessment	23
5.2.4	Swansea Bay - Swansea Bay - Swansea Bay - Chemical substances status	24
5.2.5	Afan Estuary inc. Docks - Biological Quality Assessment	25
5.2.6	Afan Estuary inc. Docks - Hydromorphological Quality Assessment	25
5.2.7	Afan Estuary inc. Docks - Physico-Chemical Quality Assessment	26
5.2.8	Afan Estuary inc. Docks - Chemical substances status	28
5.2.9	Swansea Carboniferous Coal Measures - Quantitative and Chemical Assessment	29
6	WFD Impact Assessment	31
6.1	Overview	31
6.2	WFD Habitats - Impacts of works on WFD Sensitive Habitats	31
6.3	Impact Assessment	31
6.4	Water Body Mitigation Measures	40
6.5	WFD Assessment Objectives	41

7	Conclusions and Recommendations	43
7.1.1	Screening & Scoping Assessment	43
7.1.2	Impact Assessment	43
7.1.3	Ecological Quality Elements	44
7.1.4	Hydromorphological Quality Elements	44
7.1.5	Chemical Quality Elements	44
7.1.6	Protected Areas	45
7.1.7	Recommendations	45
	References	I

List of Figures

Figure 2-1: WFD assessment process flow chart	9
Figure 3-1: Site location, Port Talbot with area of works highlighted (red line boundary). Construction details regarding the proposed wharf/jetty are yet to be finalised.	12
Figure 4-1: WFD water bodies and current WFD status and site boundary	14

List of Tables

Table 4-1: Current WFD Status	15
Table 4-2: Water Body Screening Outcome	15
Table 4-3: Biological Quality Elements Status (Swansea Bay)	16
Table 4-4: Hydromorphological Quality Element Status (Swansea Bay)	17
Table 4-5: Physico-Chemical Quality Elements Status (Swansea Bay)	17
Table 4-6: Chemical substances status (Swansea Bay)	17
Table 4-7: Biological Quality Elements Status (Afan Estuary)	17
Table 4-8: Hydromorphological Quality Element Status (Afan Estuary)	17
Table 4-9: Physico-Chemical Quality Elements Status (Afan Estuary)	17
Table 4-10: Chemical substances status (Afan Estuary)	18
Table 4-11: Biological Quality Elements Status (Afan - confluence)	18
Table 4-12: Hydromorphological Quality Element Status (Afan - confluence)	18
Table 4-13: Physico-Chemical Quality Elements Status (Afan - confluence)	18
Table 4-14: Chemical substances status (Afan - confluence)	18
Table 4-15: Groundwater Quantitative Quality Elements Status (Swansea Carboniferous Coal Measures)	19
Table 4-16: Groundwater Chemical Quality Elements Status (Swansea Carboniferous Coal Measures)	19
Table 4-17: Bathing Waters within the Zone of Influence	20
Table 5-1: Assessment of the proposed works against the Biological quality elements of the Swansea Bay water body	22
Table 5-2: Assessment of the proposed works against the Hydromorphological quality elements of the Swansea Bay water body	23
Table 5-3: Assessment of the Proposed Works against the Physico-Chemical quality elements of the Swansea Bay water body	23
Table 5-4: Assessment of the Proposed Works against the Chemical substance status of the Swansea Bay water body	24
Table 5-5: Assessment of the proposed works against the Biological quality elements of the Afan Estuary water body	25
Table 5-6: Assessment of the proposed works against the Hydromorphological quality elements of the Afan Estuary water body	25
Table 5-7: Assessment of the Proposed Works against the Physico-Chemical quality elements of the Afan Estuary water body	27

Table 5-8: Assessment of the Proposed Works against the Chemical substance status of the Afan Estuary water body	28
Table 5-9: Assessment of the proposed works against the groundwater quality elements of the Swansea Carboniferous Coal Measures water body	30
Table 6-1 Impacts of works on WFD Sensitive Habitats	31
Table 6-2: Impacts and Mitigation Measures - Swansea Bay coastal water body	32
Table 6-3: Impacts and Mitigation Measures - Afan Estuary inc. Docks transitional water body	34
Table 6-4: Impacts and Mitigation Measures - Swansea Carboniferous Coal Measures water body	39
Table 6-5: Assessment of the Proposed Works against the Water Body Mitigation Measures - Afan Estuary inc. Docks transitional water body	40
Table 6-5: Assessment of the Proposed Works against the WFD Objectives	42

Abbreviations

DrWPA	Drinking Water Protected Areas
NVZ	Nitrate Vulnerable Zones
PEA	Preliminary Ecological Appraisal
RBD	River Basin District
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SPA	Special Protection Area
WFD	Water Framework Directive

1 Introduction

A Screening and Scoping Water Framework Directive (WFD) Assessment was completed for the proposed works on the construction and operation of a Sustainable Aviation Fuel (SAF) production facility at Crown Wharf, Port Talbot Docks. Further works are also required to construct a jetty to allow for an unloading/loading facility which will be located within Crown Wharf. The initial assessment identified a series of potential concerns with regards to the impact of the construction and operational phases of the works on WFD water bodies and designated habitats. These impacts have been addressed and mitigation measures provided to limit any such impacts that may arise. This information is presented in Section 6 - WFD Impact Assessment.

A WFD assessment addresses impacts associated with adjacent waterbodies; an Environmental Statement has also been prepared for the scheme which assesses the impacts to all relevant environmental receptors.

This assessment has been completed in the context of the accompanying planning application. It is understood that an updated WFD assessment may will be required to accompany the future environmental permitting and marine licence application. Subsequently, detail relating to specific water quality parameters including EQS (Environmental Quality Standards) values and chemical composition of process water effluent are not fully known at this stage, therefore these are not reported within this assessment.

1.1 WFD Overview

The Water Framework Directive (WFD) came into force in 2000 and is the most substantial piece of EU water legislation to date. The Directive imposes legal requirements to protect and improve the water environment. All activities in the water environment need to take the Directive into account. The EU Water Framework Directive was transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. The 2003 regulations were consolidated and replaced with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The Floods and Water (Amendment etc.) (EU Exit) Regulations 2019 ensure that floods and water legislation continue to be operable in the United Kingdom following withdrawal from the EU in January 2021. The instrument addresses deficiencies in retained EU law arising from the UK's withdrawal from the EU. The purpose of the instrument is to preserve and protect the existing policy regime rather than to introduce new policy. The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, as amended by the Floods and Water (Amendment etc.) (EU exit) Regulations 2019, are hereafter referred to as the WFD Regulations in this report.

1.1.1 Scope of WFD Assessment

The WFD Regulations require that Environmental Objectives be set for all surface and ground waters in England and Wales to enable them to achieve Good Status (or Good Ecological Potential for Heavily Modified and Artificial Water Bodies) by a defined date. These Environmental Objectives are listed below:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters.
- Aim to achieve at least good status/potential for all water bodies by 2021. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status/potential by 2027.
- Meet the requirements of Water Framework Directive Protected Areas.
- Promote sustainable use of water as a natural resource.

- Conserve habitats and species that depend directly on water.
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment.
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants.
- Contribute to mitigating the effects of floods and droughts.

1.1.2 Preventing Deterioration in Status

Any activity which has the potential to have an impact on the ecology of a water body will need consideration in terms of whether it could cause deterioration in its Ecological Status or Potential (Environment Agency, 2010).

For each water body, three different status objectives are identified within the RBMP. These are the overall status objective, the ecological status or potential objective and the chemical status objective. A default objective for all water bodies is to prevent the deterioration in the Ecological Status (or Ecological Potential for Heavily Modified and Artificial Water Bodies) of the water body. Note, the Ecological Status applies only to surface water bodies, and not ground water bodies. A separate assessment may be required to assess the impacts on the chemical and quantitative status of a ground water body, if the proposed activity is likely to cause impact.

The Ecological Status of a water body is determined through analysis of its constituent Biological Quality Elements. These elements are in turn supported by a series of Physico-Chemical and Hydromorphological Quality Elements. These Quality Elements are taken from Annex V of the WFD Regulations and are listed below. The overall Ecological Status is determined by the lowest element status.

The Biological Quality Elements assessed in the WFD include:

- Fish
- Invertebrates
- Macrophytes
- Phytobenthos

The WFD defines the flow, shape and physical characteristics of a watercourse as its 'hydromorphology'. Any in-channel works can impact upon the shape of a watercourse and the natural processes that occur within it, including, but not limited to:

- Hydrological flow patterns (tidal regime)
- Variation in channel depth
- Modification to bed structure and substrate
- Sediment availability / transport
- Ecology and biology (i.e., habitats which support plants and animals)
- The WFD considers the chemistry of a watercourse through general water quality (physico-chemical measurements) and chemical pollutants. All three environmental components; morphology, hydrology and chemistry, support the biology of a water body.

Any activity that has the potential to have an impact upon any of the quality elements will need consideration in terms of whether it could cause a deterioration in the status of a water body. The activity will also need to be considered in terms of whether it will compromise the ability of the water body to reach "Good" ecological status or "Good" ecological potential by the date specified in the Natural Resources Wales (NRW) Water Watch Wales Map Gallery website.

Any adverse impacts can cause a water body's ecology to deteriorate and prevent environmental improvements from being undertaken. Nevertheless, in-channel works can also be beneficial if they can be designed to help achieve environmental improvements included in the RBMP, thus enhancing the water environment for plants and animals.

1.1.3 Artificial or Heavily Modified Water Bodies

Whilst good ecological status is defined as a slight variation from undisturbed natural conditions in natural water bodies, artificial and heavily modified water bodies are unable to achieve natural conditions. Instead, artificial, and heavily modified water bodies have a target to achieve "Good" Ecological Potential, which recognises their important uses, whilst making sure ecology is protected as far as possible. Ecological potential is also measured on the scale high, good, moderate, poor and bad. The chemical status of these water bodies is measured in the same way as for natural water bodies.

Specific mitigation measures have been identified for each Artificial and Heavily Modified Water body and are listed in the RBMP. These mitigation measures are necessary to reduce the existing hydromorphological impacts on the water body and all measures need to be in place in order for the water body to achieve "Good" Ecological Status or Potential.

1.2 Purpose of this WFD Assessment

JBA Consulting were commissioned by LanzaTech UK Limited to undertake a WFD Screening and Scoping assessment to assess the potential impacts to WFD water bodies arising from the proposed works and associated infrastructure at Crown Wharf, Port Talbot Docks. The Proposed Scheme comprises:

Demolition of existing structures and erection of a Sustainable Aviation Fuel (SAF) production facility, including enclosed ground flare, storage tanks, installation of pipework and electrical, processing and utility equipment, administration, warehouse and laboratory buildings, new access, car parking and transport infrastructure including a truck loading area and associated works, hard and soft landscaping, areas for temporary construction laydown, and associated development.

This WFD assessment aims to determine the effects of the proposed works on ecological, hydromorphological and chemical quality elements and identify any potential impacts that could cause deterioration in the current status of the water body or could hinder the water body from meeting its WFD objectives in the future.

The proposed works are located at Crown Wharf, Port Talbot Docks which is located in the Afon Estuary transitional water body, within the Western Wales River Basin District. The environmental objectives, together with specific actions (mitigation measures) necessary to enable the water body to meet these objectives, are set out in the Natural Resources Wales (NRW) Western Wales River Basin Management Plan (RBMP) (NRW, 2022) and via data available on the NRW Water Watch Wales Map Gallery web-based interface (NRW, 2023).

2 Assessment Methodology

Figure 2-1 summarises the WFD Assessment process.

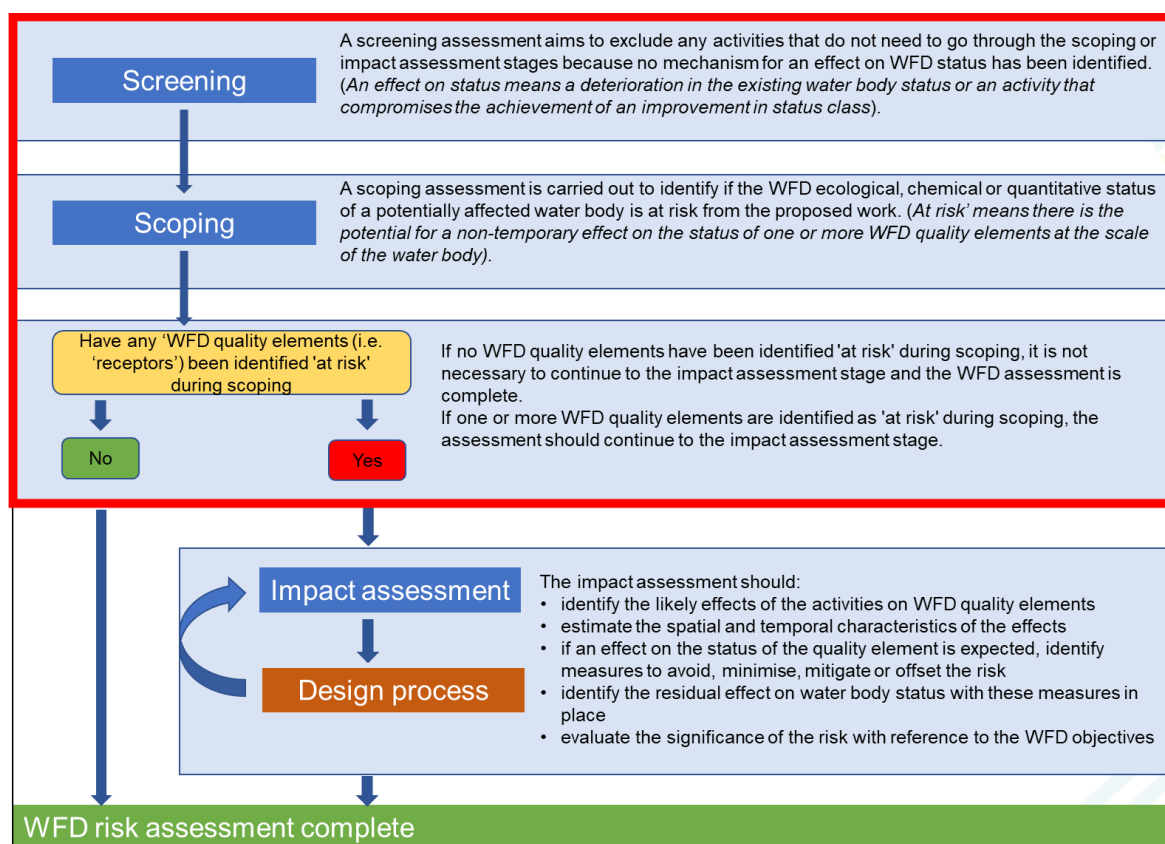


Figure 2-1: WFD assessment process flow chart

2.1 Screening Assessment

The Screening Assessment aims to exclude any activities that do not need to go through the scoping or impact assessment stages. The Water Watch Wales web-based data explorer website was used to determine which water bodies could be potentially affected by the proposed works. The names, ID numbers, designation, status classification and objectives for all relevant water bodies were obtained and downloaded from the Water Watch Wales Map Gallery website (NRW, 2023).

The initial stage of the assessment screens the proposed works against the ecological, hydromorphological and chemical status objectives for the water bodies potentially affected by the works, together with their quality elements. The aim of this process is to determine whether the works could have an impact upon any of these criteria. Those criteria for which no potential adverse effects are identified are not considered further in the assessment. Any potential adverse effects are screened into the assessment and are carried forward to a more detailed assessment.

2.2 Scoping Assessment

A detailed assessment is then undertaken to determine the effects that the proposed works could have upon those quality elements screened into the assessment. Any impacts identified are then considered in relation to the ecological status of the water body, which comprises biology, hydrology, hydromorphology and water chemistry, and the water body objectives.

The following assessment objectives are then used to determine whether the proposed works comply with the overarching objectives of the WFD. These objectives were therefore derived from the Environmental Objectives of the Directive (as listed in section 1.1.2).

- Objective 1: The proposed scheme does not cause deterioration in the Status of the Ecological Elements of the water body.
- Objective 2: The proposed scheme does not compromise the ability of the water body to achieve its WFD status objectives.
- Objective 3: The proposed scheme does not cause a permanent exclusion or compromised achievement of the WFD objectives in other bodies of water within the same RBD.
- Objective 4: The proposed scheme contributes to the delivery of the WFD objectives.

In order to establish whether the proposed works comply with the WFD it is necessary to ascertain whether the works have the potential to result in:

- Failure of a water body to achieve "Good" Ecological Status or Potential; or
- Failure to prevent a deterioration in the Ecological Status or Potential of a water body

If the answer to these questions is 'no' the proposed works can be considered WFD compliant. If either of these failures is identified and if any receptors are identified as 'at risk', further assessment may be required to identify if the proposed works meet all of the conditions set out by the WFD Legislation.

2.3 Impact Assessment

The third stage of the WFD Assessment, if determined as necessary from the Screening and Scoping Assessments, is to undertake an Impact Assessment to consider the impacts of the proposed scheme in more detail and recommend necessary mitigation measures. An impact assessment must be carried out for each receptor identified during scoping as being at risk from the proposed activity.

The Impact Assessment describes how any identified impacts from the proposed works will be mitigated, to either avoid or minimise the impacts. The assessment shows how any impact on a WFD receptor caused by the proposed activity fits with the objectives of any affected WFD water bodies. After the works have been amended to try and avoid, minimise, mitigate or compensate for the risks to WFD receptors the following questions will need to be answered:

- Could the activity still cause a water body to deteriorate from one WFD status class to another or cause significant localised impacts that could contribute to this happening?
- Could the activity prevent or undermine action to get water bodies to "Good" status?

When these questions are answered, the following should be borne in mind:

- A water body deteriorates in status when one WFD receptor (an "element") is affected such that it drops from one WFD status class to another.
- A significant localised impact on an element is one that is either long-lasting; causes severe harm; or affects a wide area within a water body. These are likely to contribute to a water body dropping from one status to another and highly likely to prevent action to get water bodies to good status.

- Elements at high status are very sensitive. The assessment will need to demonstrate that there will be a negligible impact on those aspects of the water environment.
- Elements at bad status must not be made worse.

If it cannot be demonstrated with a high level of confidence that the activity supports the water body objectives, then in order for NRW to permit the activity it must be shown that the activity meets the criteria set out in Article 4(7) of the WFD. Article 4(7) sets out stringent environmental and socio-economic tests to assess if a scheme meets strict environmental and sustainability criteria.

3 Project Description

3.1 Project overview

The proposed development site is located on land at Crown Wharf, south of Port Talbot docks. As shown in Figure 3-1, the site is set within an established, heavily industrialised area and is bound to the north and east by a private road, a disused railway line section to the south, and existing industrial development to the west. Further to the east and south of the proposed development site lies the operational Port Talbot Steelworks, and Hanson Cement Works lies to the north. The development site forms part of the wider dock facilities of Port Talbot operated by Associated British Ports (ABP).

The red line boundary includes:

- Primary parcel of land for the location of the proposed production facility (approximately 9.12ha), comprising bare land adjacent to Crown Wharf (Port Talbot) (referred to as the Production Development Zone [PDZ]);
- Temporary Construction Areas located within the wider Port Talbot Docks, approximately 7.44ha in total (referred to as the Temporary Construction Areas); and
- An extent of the Phoenix Way, running adjacent to the northern boundary of the PDZ (referred to as Phoenix Way Supporting Infrastructure)

The PDZ comprises brownfield industrial land that has slowly re-greened over a prolonged period of no use. A significant area of hardstanding (associated with historical uses and now demolished buildings) lies in the centre of the site and connects to the main access point to the north. The site is accessed via the Phoenix Way Supporting Infrastructure from Harbour Way and the M4 to the east.

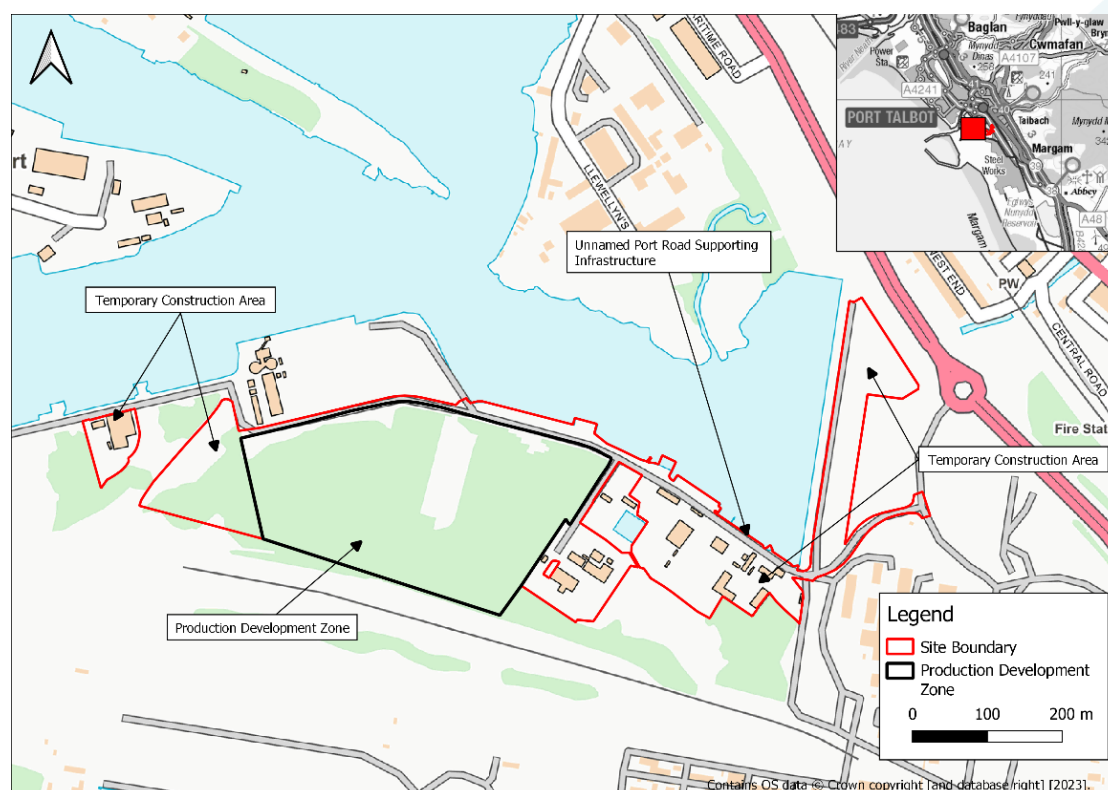


Figure 3-1: Site location, Port Talbot with area of works highlighted (red line boundary). Construction details regarding the proposed wharf/jetty are yet to be finalised.

3.2 Proposed Works

Development proposals for the site are as follows:

Demolition of existing structures and erection of a Sustainable Aviation Fuel (SAF) production facility, including enclosed ground flare, storage tanks, installation of pipework and electrical, processing and utility equipment, administration, warehouse and laboratory buildings, new access, car parking and transport infrastructure including a truck loading area and associated works, hard and soft landscaping, areas for temporary construction laydown, and associated development.

Further works are required to construct a jetty to allow for an unloading/loading facility which will be located within Crown Wharf. The new jetty will extend from the existing port wall out into dock area a suitable distance to align with the relevant Health and Safety Executive (HSE) requirements, given the flammable nature of fuel. The jetty will be required to extend a suitable distance into Crown Wharf to allow for safe passage of vessels being used to transport the fuel. The jetty will need to be a suitable width to accommodate the transfer pipe work connecting the ship unloading/loading arms to the onshore pipeline infrastructure associated with the Production Development Zone, (i.e., to connect to the fuel storage tanks).

Construction details utilised for the underwater noise assessment have been adopted to provide some means of understanding regarding the construction process.

It is suggested that up to 60 tubular and sheet piles will be installed during the construction phase of the wharf/jetty. These will back up to the existing dock wall, which may require reinforcement. The area behind the installed tubular piles and sheet piles will then be backfilled with hardcore and concrete as required to support the expected weight of plant/equipment to be offloaded. The tubular piles and sheet piles will not be installed concurrently as each method is specific to the type of jetty/wharf under construction.

Construction detail relating to the installation is assumed to be as per below:

- Tubular piles:
 - 400 mm diameter steel tubular piles to be installed within 60 days;
 - A maximum of 2 installs per day;
 - A strike rate of 60 per minute over a 5-minute period for each pile;
- Sheet piles:
 - 0.6 m sheet piles to be installed within 60 days;
 - A maximum of 10 installs per day;
 - A strike rate of 60 per minute over a 10-minute period for each pile.

4 WFD Screening Assessment

4.1 Overview

This screening assessment aims to screen in any works that require WFD Assessment and to identify which WFD water bodies are within and/or near to the proposed works and may be subject to the impacts associated with their construction and operation.

The results of the screening assessment are presented below. The baseline status of the quality elements within the water bodies screened into the assessment are discussed in this chapter. As mentioned in the Introduction and Methodology, if this section finds there is potential for the proposed works to cause deterioration in the status of a water body, or prevent it from achieving its status objectives, the relevant water body and its quality elements should be taken forward and considered further in the Scoping Assessment chapter.

4.2 WFD Water Bodies

The proposed site is located within Port Talbot Docks, the following water bodies are considered and identified in Figure 4-1:

- Swansea Bay (Water Body ID - GB641008260000) - Coastal water body
- Afan Estuary inc. Docks (Water Body ID - GB541005800600) - Transitional water body
- Afan - confluence with Pelenna to tidal limit (Water Body ID - GB110058026110) - River water body
- Ffrwd Wylt - headwaters to tidal limit (Water Body ID - GB110058026100) - River water body
- Swansea Carboniferous Coal Measures (Water Body ID - GB41002G201000) - Groundwater water body

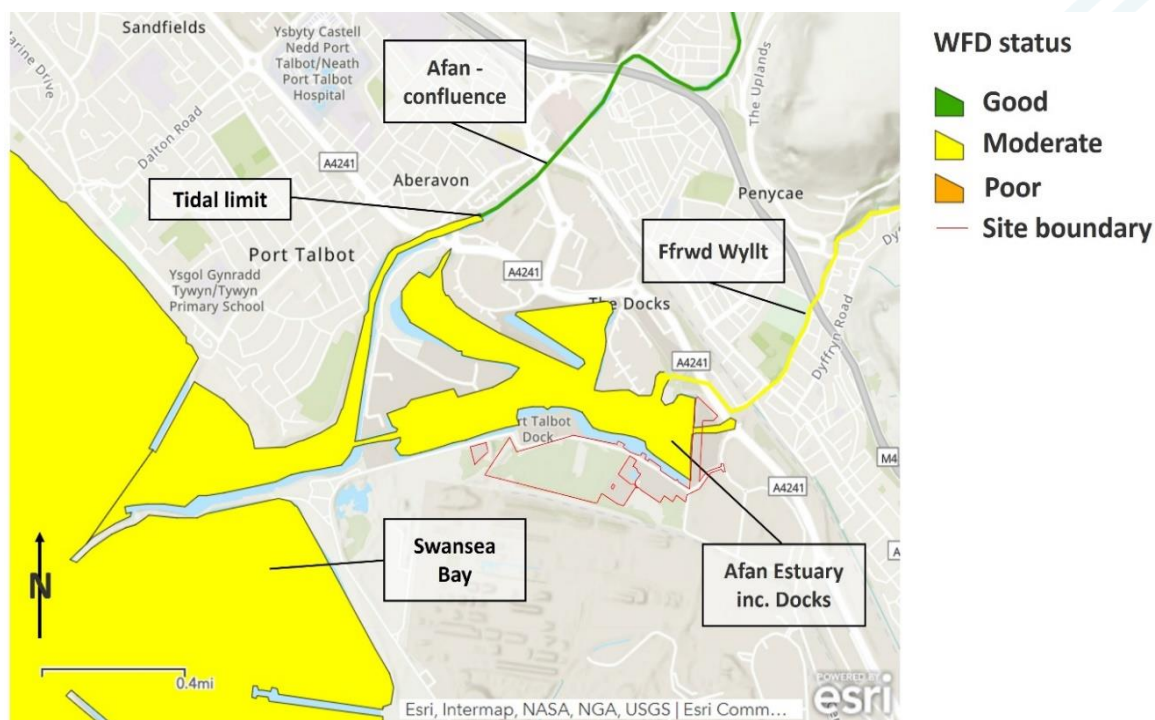


Figure 4-1: WFD water bodies and current WFD status and site boundary

4.2.1 Current Status

Details of the 2021 WFD status of the considered water bodies, as described by the Natural Resources Wales Water Watch Map Gallery, are summarised in Table 4-1.

Table 4-1: Current WFD Status

Water Body Name (and ID)	Hydromorphological Designation	Current Ecological Status	Overall Water body Status	Objective Water body Status
Swansea Bay (GB641008260000)	Heavily modified	Moderate	Moderate	Good by 2033
Afan Estuary incl. Docks (GB5410058006000)	Heavily modified	Moderate	Moderate	Good by 2027
Afan - confluence with Pelenna to tidal limit (GB110058026110)	Natural	Good	Good	Good by 2027
Ffrwd Wylt - headwaters to tidal limit (GB110058026100)	Heavily modified	Moderate	Moderate	Good by 2027
Swansea Carboniferous Coal Measures (GB41002G201000)	Natural	N/A	Poor	Good by 2027

4.3 Screening Outcome: Water Bodies

Table 4-2 indicates which water bodies have been screened in or out of the assessment and the reasons for this decision.

Table 4-2: Water Body Screening Outcome

Water Body (Type)	Reason	Screening Outcome
Swansea Bay (Coastal)	The proposed works are to be conducted adjacent to the coastal waterbody. It is considered any impacts arising from the works may enter the coastal environment via mixing between water bodies. The impacts of the works are to be further assessed relative to their ability to impact on WFD quality elements.	Screened In
Afan Estuary inc. Docks (Transitional)	The proposed works are to be conducted within the Afan Estuary which includes the Port Talbot docks area. Given the enclosed nature of docks the impacts of both the construction and operational phases of the works are expected to present potential opportunity to impact on WFD quality elements.	Screened In
Afan - confluence with Pelenna to tidal limit (River)	The Afan - confluence is adjoined to the Afan Estuary transitional water body via the dock feeder channel. However, given that the dock feeder will not allow for upstream transfer this element does not require further consideration. The Afan is separated from the downstream Afan Estuary by a large tidal weir which prevents upstream	Screened Out

Water Body (Type)	Reason	Screening Outcome
	interaction between water bodies. However, it is considered that the works may impact on fish populations downstream that are able to migrate between water bodies via the fish passes that are incorporated into the tidal weir. These impacts will be dealt with in consideration of impacts upon fish downstream.	
Ffrwd Wyllt - headwaters to tidal limit (River)	The Ffrwd Wyllt is located next to the Afan Estuary transitional water body, approximately 0.5 km from the proposed site. There is lack of connectivity between the water bodies relating to connection via a single outfall pipe. The limited tidal influence within the Afan Estuary inc. docks means that interaction between the two water bodies is not expected to be sufficient enough to have a detrimental impact on the WFD quality elements of the Ffrwd Wyllt. This is considered to be applicable during both the construction and operational phases of the work.	Screened Out
Swansea Carboniferous Coal Measures (Groundwater)	The proposed works are to take place in an area that is located upon the Swansea Carboniferous Coal Measures groundwater water body. Given the nature of the proposed scheme that includes chemical processing and transportation of chemical products there is the potential for impacts to groundwater source during the construction and operational phases of the works.	Screened In

4.4 Baseline Status of Screened in Water Bodies

For the water body screened into the assessment, details on the status of each element, as described by the Natural Resources Wales Water Watch Map Gallery, are given below.

4.4.1 Swansea Bay - GB641008260000

Table 4-3 to

Table 4-6 describe the current status of the key classification elements according to the most recent WFD cycle for the Swansea Bay water body (2021).

Table 4-3: Biological Quality Elements Status (Swansea Bay)

Biological Quality Element	Current Status (2021)
Ecology	Good
Angiosperms	Not assessed
Fish	Not assessed
Invertebrates	Good
Macroalgae	High
Opportunistic macroalgae	High
Imposex	Not assessed
Phytoplankton	Good

Biological Quality Element	Current Status (2021)
Infaunal Quality Index	Good

Table 4-4: Hydromorphological Quality Element Status (Swansea Bay)

Hydromorphological Quality Element	Current Status (2021)
Hydrological Regime	Not assessed
Morphology	Not assessed

Table 4-5: Physico-Chemical Quality Elements Status (Swansea Bay)

Physico-Chemical Quality Element	Current Status (2021)
Dissolved Inorganic Nitrogen (DIN)	Moderate
Dissolved Oxygen (DO)	High

Table 4-6: Chemical substances status (Swansea Bay)

Chemical substances	Current Status (2021)
Priority hazardous substances	Moderate
Priority substances	High
Specific Pollutants	High
Other Pollutants	High

4.4.2 Afan Estuary inc. Docks - GB541005800600

Table 4-7 to

Table 4-10 describe the current status of the water body classifications according to the most recent WFD cycle for the Afan Estuary inc. Docks water body (2021).

Table 4-7: Biological Quality Elements Status (Afan Estuary)

Biological Quality Element	Current Status (2021)
Ecology	Moderate
Angiosperms	Not assessed
Fish	Not assessed
Invertebrates	Good
Macroalgae	High
Opportunistic macroalgae	High
Infaunal Quality Index	Good

Table 4-8: Hydromorphological Quality Element Status (Afan Estuary)

Hydromorphological Quality Element	Current Status (2021)
Hydrological Regime	High
Morphology	Not High

Table 4-9: Physico-Chemical Quality Elements Status (Afan Estuary)

Physico-Chemical Quality Element	Current Status (2021)
Dissolved Inorganic Nitrogen (DIN)	Good
Dissolved Oxygen (DO)	High

Table 4-10: Chemical substances status (Afan Estuary)

Chemical substances	Current Status (2021)
Priority hazardous substances	Not Assessed
Priority substances	Not Assessed
Specific Pollutants	High
Other Pollutants	Not Assessed

4.4.3 Afan - confluence with Pelenna to tidal limit - GB110058026110

Table 4-11 to

Table 4-14 describe the current status of the water body classifications according to the most recent WFD cycle for the Afan - confluence water body (2021).

Table 4-11: Biological Quality Elements Status (Afan - confluence)

Biological Quality Element	Current Status (2021)
Ecology	Good
Angiosperms	Not assessed
Fish	Not assessed
Invertebrates	Good
Macroalgae	Not assessed
Opportunistic macroalgae	Not assessed
Macrophyte and phytobenthos combined	Not assessed

Table 4-12: Hydromorphological Quality Element Status (Afan - confluence)

Hydromorphological Quality Element	Current Status (2021)
Hydrological Regime	Moderate
Morphology	Not assessed

Table 4-13: Physico-Chemical Quality Elements Status (Afan - confluence)

Physico-Chemical Quality Element	Current Status (2021)
Dissolved Inorganic Nitrogen (DIN)	High
Dissolved Oxygen (DO)	High
pH	High
Temperature	High

Table 4-14: Chemical substances status (Afan - confluence)

Chemical substances	Current Status (2021)
Priority hazardous substances	Not Assessed
Specific Pollutants	Not Assessed
Priority substances	Not Assessed
Other Pollutants	Not Assessed

4.4.4 Swansea Carboniferous Coal Measures - GB110058026100

Table 4-15 and

Table 4-16 describe the current status of the water body classifications according to the most recent WFD cycle for the Swansea Carboniferous Coal Measures water body (2021).

Table 4-15: Groundwater Quantitative Quality Elements Status (Swansea Carboniferous Coal Measures)

Groundwater Quantitative Element	Current Status (2021)
Groundwater quantitative tests	Low
Quantitative Groundwater Dependent Terrestrial Ecosystems test	Low
Quantitative Dependent Surface Water Body Status	High
Quantitative Saline Intrusion	Low
Quantitative Water Balance	High

Table 4-16: Groundwater Chemical Quality Elements Status (Swansea Carboniferous Coal Measures)

Groundwater Chemical Element	Current Status (2021)
Chemical Groundwater tests	High
Chemical Drinking Water Protected Area	Low
General Chemical Test	Low
Chemical Groundwater Dependent Terrestrial Ecosystems test	Low
Chemical Dependent Surface Water Body Status	High
Chemical Saline Intrusion	Low
Trend Assessment - Groundwater supporting element	Low

4.5 Protected Areas

The WFD specifies that areas requiring special protection under other retained EC Directive and waters used for the abstraction of drinking water are identified as protected areas. These areas have their own objectives and standards. Article 4 of the WFD requires Member States to achieve compliance with the standards and objectives set for each protected area by 22nd December 2015, unless otherwise specified in the legislation under which the protected area was established. WFD Protected Areas

include Nitrate Vulnerable Zones (NVZ), Drinking Water Protected Areas (DrWPA) and European Sites (designated for the conservation of habitats and species).

4.5.1 Designated Nature Conservation sites

There are no statutorily designated conservation sites within 2 km of the proposed works.

4.5.2 WFD Habitats

Downstream of the harbour a number of higher sensitivity WFD habitats have been identified, including, polychaete reefs, native oyster beds and mussel beds. Lower sensitivity habitats of intertidal rocky shore, intertidal soft sediments and intertidal gravel and cobbles are also present and bound the River Afan immediately downstream of the confluence with the harbour.

4.5.3 Shellfish Waters

The coastal waters approximately 1500m from the harbour entrance are protected shellfish waters and are part of the Swansea Bay East shellfish waters designation. The waters are currently failing due to levels of *Escherichia coli* (E.coli) in the shellfish flesh. The objective is for <300 colony forming units/100ml of E.coli in the shellfish flesh and intravalvular fluid.

However, the proposed construction and operational phases of the works are not expected to lead to any increase in bacteriological concentrations of faecal indicator bacteria (FIB) e.g., *Escherichia coli* and *Intestinal Enterococci*.

4.5.4 Nitrate Vulnerable Zones (NVZ)

The retained European Commission Nitrates Directive requires areas of land that drain into waters polluted by nitrates to be designated as Nitrate Vulnerable Zones (NVZs). There are no reported NVZ's within the vicinity of the proposed works.

4.5.5 Drinking Water Protected Areas (DrWPA)

Drinking Water Protected Areas (DrWPA) are designated under the Water Framework Directive, with the aim of avoiding deterioration in their quality in order to reduce the level of purification treatment required in the production of drinking water. The proposed works are located within the Swansea Carboniferous Coal Measures DrWPA. The DrWPA was considered not at risk at the time of its most recent assessment conducted in 2020. The proposed works are not expected to cause significant impact on the current or future status of the DrWPA.

4.5.6 Designated Bathing Waters

The area of the proposed works is located approximately 3.0 km from the nearest bathing area, at Aberafan. This site is designated under the Bathing Water Regulations 2013 (2013/1675). Water quality assessments at the location in 2023 recorded the site as being 'Good' with few incidents of elevated bacterial levels. The distance of the Aberafan bathing water location from the site of proposed works is considered to be beyond the zone of influence of any associated impacts and is therefore screened out and not considered further. The current bathing water classification is indicated in Table 4-17.

Additionally, the proposed construction and operational phases of the works are not expected to lead to any increase in bacteriological concentrations of faecal indicator bacteria (FIB) e.g., *Escherichia coli* and *Intestinal Enterococci*.

Table 4-17: Bathing Waters within the Zone of Influence

Designated Bathing Water	Current Classification (2021)	Distance from scheme
Aberafan	Good	3.0 km

4.6 Summary

To conclude, the screening assessment has identified the following water bodies as needing further consideration within the Scoping Assessment.

- Swansea Bay (Water Body ID - GB641008260000) - Coastal water body
- Afan Estuary inc. Docks (Water Body ID - GB541005800600) - Transitional water body
- Afan - confluence with Pelenna to tidal limit (Water Body ID - GB110058026110) - River water body
- Swansea Carboniferous Coal Measures (Water Body ID - GB41002G201000) - Groundwater water body

The coastal, transitional and river water bodies will be considered in terms of the potential impacts to the following WFD quality elements:

- Biological Elements
- Hydromorphological Elements*
- Physico-chemical Elements*
- Chemical Substances*

* These WFD quality elements do not require consideration for the Afan - confluence with Pelenna to tidal limit as the large tidal weir separates the water bodies preventing such impacts.

5 WFD Scoping Assessment

5.1 Overview

This scoping assessment identifies whether the water body's receptors, identified during the screening assessment, are at risk from the proposed works discussed in Section 3. The proposed development works are being appraised in terms of their impact on WFD status and objectives. If any quality elements are found to be at risk of detrimental impact, further assessment and/or mitigation may be required. However, this additional assessment and the stating of appropriate mitigation is beyond the scope of this screening and scoping assessment.

Some WFD quality elements have not been formally assessed as part of the classification for these water bodies. However, due to the scale and nature of the proposed works, all WFD quality elements have been included in the previous screening and any identified impacts have been considered in relation to the status of the water body and the status objectives.

Article 4.7 of the Directive defends deterioration in status or failure to meet WFD objectives resulting from new modifications or sustainable human development activities (if all conditions set out under this Article are met). If the assessment procedure predicts that an activity will cause deterioration in water body status or prevent a water body from meeting its ecological objectives, then an assessment is also required against the conditions listed in Article 4.7 of the WFD. If all the assessment conditions are met, there will not be a breach of the WFD and compliance will be attained.

5.2 Scoping Assessment

As part of the Scoping Assessment the impacts associated with the proposed works on the WFD status of the previously stated water bodies are to be considered further.

5.2.1 Swansea Bay - Biological Quality Assessment

Table 5-1 presents an assessment of the proposed works against the biological quality elements of the Swansea Bay coastal water body.

Table 5-1: Assessment of the proposed works against the Biological quality elements of the Swansea Bay water body

WFD Biological Quality Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Ecology	Good	All of the biological quality elements of the coastal water body have the potential to be affected by the proposed scheme, indirectly through release of pollution or spread of INNS.	Yes
Angiosperms	Not assessed		
Fish	Not assessed		
Invertebrates	Good		
Macroalgae	High		
Opportunistic macroalgae	High		
Imposex	Not assessed		
Phytoplankton	Good		
Infaunal Quality Index	Good		

5.2.2 Swansea Bay - Hydromorphological Quality Assessment

Table 5-2 presents an assessment of the proposed works against the hydromorphological quality elements of the Swansea Bay coastal water body.

Table 5-2: Assessment of the proposed works against the Hydromorphological quality elements of the Swansea Bay water body

WFD Hydromorphological Quality Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Depth variation	Not assessed	The WFD hydromorphological quality elements are not expected to be significantly modified by the proposed works being undertaken in the adjacent Afan Estuary inc. Docks water body. The scale of the coastal water body relative to the proposed works being undertaken in the docks are expected to have a negligible impact on the WFD quality elements. It is assumed that any additional vessel transportation that enters the dock via the dock gates will not require additional channel dredging and maintenance above that which is already undertaken to ensure safe passage.	No
Structure and substrate of the coastal bed	Not assessed		
Structure of the intertidal zone	Not assessed		
Direction of dominant currents	Not assessed		
Wave exposure	Not assessed		

5.2.3 Swansea Bay - Physico-Chemical Quality Assessment

Table 5-3 presents an assessment of the proposed works against the physico-chemical quality elements of the Swansea Bay coastal water body.

Table 5-3: Assessment of the Proposed Works against the Physico-Chemical quality elements of the Swansea Bay water body

WFD Physico-Chemical Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Dissolved Inorganic Nitrogen (DIN)	Moderate	The construction and operational phases of the proposed works are not expected to result in increased concentrations of DIN or a change to the WFD status that may lead to nutrient enrichment of the water body.	No

WFD Physico-Chemical Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Dissolved Oxygen (DO)	High	The proposed works being undertaken within the docks are not expected to have a significant impact on the DO levels in the adjoining coastal water body. However, there is the potential for indirect impacts via accidental pollution spillages from plant machinery operating in the vicinity of the docks during the construction phase. Additionally, the operation of the jetty and the transfer of potentially harmful contaminants to/from the production plant has the potential to accidentally transfer contaminants that may impact on DO concentrations within the water body. Any such contamination may be transferred to the coastal water body via dispersal and mixing between water bodies subsequently impacting on the physico-chemical status of the coastal water body.	Yes - appropriate mitigation measures are to be included within the Construction Environmental Management Plan (CEMP) . Any spillages into the dock which is operated by ABP shall also need to follow the protocols set out in the ABP South Wales Oil Spill Contingency Plan

5.2.4 Swansea Bay - Swansea Bay - Swansea Bay - Chemical substances status

Table 5-4 presents an assessment of the proposed works against the Chemical substance status of the Swansea Bay coastal water body.

Table 5-4: Assessment of the Proposed Works against the Chemical substance status of the Swansea Bay water body

WFD Chemical Substances	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Priority hazardous substances (inc. Cadmium, Mercury, Noyphenol)	Moderate	Although the proposed works are to be conducted in the adjoining water body (Afan Estuary) there is the potential for impacts on the chemical status of the coastal water body via dispersal of accidental pollution spillages from plant machinery operating in the vicinity of the Afan Estuary water body	Yes - appropriate mitigation measures are to be included within the CEMP. Any spillages into the dock which is operated by ABP shall also need to follow the protocols set out
Priority substances (inc. Benzene, 1,2-dichloroethane, Dichloromethane, Lead, Nickel, Trichloromethane)	High		

WFD Chemical Substances	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Specific Pollutants (inc. Arsenic, Chromium (VI), Copper, Iron, Zinc)	High	during the construction phase. Additionally, the operation of the jetty and the transfer of potentially harmful contaminants to/from the production plant presents an opportunity for the input of hazardous substances and/or pollutants into the water body that may be transferred to the coastal water body via dispersal and mixing between water bodies, potentially impacting on the chemical status of the water body.	in the ABP South Wales Oil Spill Contingency Plan
Other Pollutants (inc. Carbon Tetrachloride, DDT, para - para DDT)	High		

5.2.5 Afan Estuary inc. Docks - Biological Quality Assessment

Table 5-5 presents an assessment of the proposed works against the Afan Estuary inc. Docks transitional water body.

Table 5-5: Assessment of the proposed works against the Biological quality elements of the Afan Estuary water body

WFD Biological Quality Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Ecology	Moderate	All of the biological quality elements of the transitional water body have the potential to be affected by the proposed scheme, indirectly through release of pollution or spread of INNS. Underwater noise assessments have identified a low potential for damage to fish within the harbour. Further assessments have been recommended.	Yes - Pollution prevention and biosecurity measures
Angiosperms	Not assessed		
Fish	Not assessed		
Invertebrates	Good		
Macroalgae	High		
Opportunistic macroalgae	High		
Infaunal Quality Index	Good		

5.2.6 Afan Estuary inc. Docks - Hydromorphological Quality Assessment

Table 5-6 presents an assessment of the proposed works against the hydromorphological quality elements of the Afan Estuary inc. Docks transitional water body.

Table 5-6: Assessment of the proposed works against the Hydromorphological quality elements of the Afan Estuary water body

WFD Hydromorphological Quality Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Depth variation	Not assessed	The majority of the listed WFD hydromorphological quality elements are not expected to be significantly modified by the proposed works being undertaken in the water body. However, although localised in terms of possible impact, the piling works required to accommodate the proposed jetty may have the potential to alter the structure and substrate of the bed during the construction phase of the works.	No
Structure and substrate of the bed	Not assessed		Yes - appropriate mitigation measures are to be included within the CEMP. The existing jetty design is yet to be finalised, any additional design detail relating to this will be incorporated in to any future WFD Assessment that may be required as part of a marine license. will accompany the future environmental permitting application.
Structure of the intertidal zone	Not assessed		No
Freshwater flow	Not assessed		No
Wave exposure	Not assessed		No

5.2.7 Afan Estuary inc. Docks - Physico-Chemical Quality Assessment

Table 5-7 presents an assessment of the proposed works against the physico-chemical quality elements of the Afan Estuary inc. Docks transitional water body.

Table 5-7: Assessment of the Proposed Works against the Physico-Chemical quality elements of the Afan Estuary water body

WFD Physico-Chemical Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Dissolved Inorganic Nitrogen (DIN)	Good	The construction and operational phases of the proposed works are not expected to result in increased concentrations of DIN or a change to the WFD status that may lead to nutrient enrichment of the water body. There are expected to be process water effluent inputs to the water body. However, these will originate from water extracted from the dock. The process water will be passed through reverse osmosis prior to discharge back to the dock. These discharges will comprise a concentrated solution of the original dock water. These discharges will not contain any treated sewage that may be expected to impact negatively on water quality parameters. As such, there is no expectation that the process water effluent inputs will impact upon DIN levels within the water body.	No

WFD Physico-Chemical Element	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Dissolved Oxygen (DO)	High	The proposed works being undertaken within the docks have the potential to impact on the DO concentrations within the water body. Increased turbidity, as a result of piling operations, may increase water turbidity having a detrimental impact on DO. The discharge of processed water into the dock following treatment may have an impact of DO concentration in the water body. However, as stated above, process water effluent inputs will originate from water extracted from the dock. The process water will be passed through reverse osmosis prior to discharge back to the dock. Subsequently, any discharges will comprise a concentrated solution of the original dock water. These discharges will not contain any treated sewage that may be expected to impact negatively on water quality parameters. As such, there is no expectation that the process water effluent inputs will impact upon DO concentrations within the water body. There is the potential for indirect impacts via accidental pollution spillages from plant machinery operating in the vicinity of the water body during the construction phase. The operation of the jetty and the transfer of potentially harmful contaminants to/from the production plant has the potential to accidentally transfer contaminants that may impact on DO concentrations within the water body.	Yes - appropriate mitigation measures are to be included within the CEMP. Any spillages into the dock which is operated by ABP shall also need to follow the protocols set out in the ABP South Wales Oil Spill Contingency Plan

5.2.8 Afan Estuary inc. Docks - Chemical substances status

Table 5-8 presents an assessment of the proposed works against the Chemical substance status of the Afan Estuary transitional water body.

Table 5-8: Assessment of the Proposed Works against the Chemical substance status of the Afan Estuary water body

WFD Chemical Substances	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Priority hazardous substances	Not Assessed	The proposed works within the Afan Estuary water body have the potential to impact on the chemical status via accidental pollution spillages from plant machinery operating in the vicinity of the water body during the construction phase. Additionally, the operation of the jetty and the transfer of potentially harmful contaminants to/from the production plant presents an opportunity for the input of hazardous substances and/or pollutants directly into the water body impacting negatively on the chemical status of the water body.	Yes - appropriate mitigation measures are to be included within the CEMP. Any spillages into the dock which is operated by ABP shall also need to follow the protocols set out in the ABP South Wales Oil Spill Contingency Plan
Priority substances	Not Assessed		
Specific Pollutants (inc. Copper)	High		
Other Pollutants	Not Assessed		

5.2.9 Swansea Carboniferous Coal Measures - Quantitative and Chemical Assessment

Table 5-9 presents an assessment of the proposed works against the Swansea Carboniferous Coal Measures groundwater water body.

Table 5-9: Assessment of the proposed works against the groundwater quality elements of the Swansea Carboniferous Coal Measures water body

WFD Groundwater Quality Elements	Current Status	Potential Impact	Further Assessment and/or Mitigation Required?
Quantitative Status Element	Low	Contamination and reduced groundwater quality may result from intrusion to the groundwater body as a result of piling works required to accommodate construction of the jetty. Accidental pollution spillages from plant machinery operating in the vicinity of the docks during the construction phase may also act to transfer pollutants to the groundwater source. Additionally, the operation of the production plant and any accidental leaks during the operational phase have potential to transfer harmful contaminants to the groundwater aquifer.	Yes - appropriate mitigation measures are to be included within the CEMP. Any spillages into the dock which is operated by ABP shall also need to follow the protocols set out in the ABP South Wales Oil Spill Contingency Plan
Chemical Status element	High		

6 WFD Impact Assessment

6.1 Overview

The Scoping Assessment presented in Section 5 identified some receptors may potentially be at risk from the proposed works. A WFD Impact Assessment is therefore required to describe how these identified impacts will be mitigated.

The Impact Assessment needs to consider if there is a pathway linking the pressure to the receptor. If there is no pathway there can be no impact on the receptor and there is no need for any further assessment of that receptor to be carried out. If there is a potential pathway the assessment should consider if the activity, and the pressure it creates, may cause deterioration of the receptor.

In order to effectively assess the potential impacts of the proposed works and decide upon suitable mitigation measures, a good understanding of the proposed scheme and design is required. Should any revisions be made to the proposed works that could impact any of the WFD Quality Elements, this section of the assessment should be revised.

6.2 WFD Habitats - Impacts of works on WFD Sensitive Habitats

Table 6-1 Impacts of works on WFD Sensitive Habitats

Name	Sensitivity	Potential Impact	Further assessment and/or mitigation required
Mussel Beds (D_00247_175053)	Higher	These habitats are all located outside of the harbour. There will be no direct impacts upon these habitats, however, there is the potential for impacts through pollution events or increases in sediment.	Yes
Intertidal Soft Sediments (D_00376_176506)	Lower		Yes
Subtidal Soft Sediment (D_00247_175801)	Lower		Yes
Subtidal Rocky Reef (NE_1848_6448; NE_1848_6465; NE_1848_6466; NE_1848_6475; NE_1848_220640)	Lower		Yes

Downstream of the harbour a number of higher sensitivity WFD habitats have been identified, including, polychaete reefs, native oyster beds and mussel beds. Lower sensitivity habitats of intertidal rocky shore, intertidal soft sediments and intertidal gravel and cobbles are also present and bound the River Afan immediately downstream of the confluence with the harbour.

6.3 Impact Assessment

Table 6-2 to Table 6-4 discuss the receptors identified as being potentially at risk in the scoping assessment. Mitigation measures are recommended to eliminate and/or reduce the effects of the proposed works. It should be noted that these mitigation measures differ to the Mitigation Measures identified for any Heavily Modified water body, as detailed in section 6.4.

Table 6-2: Impacts and Mitigation Measures - Swansea Bay coastal water body

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
Biological - Invertebrates	Indirect	Temporary impact: The works could have an indirect impact on invertebrate habitat through pollution events or spread of INNS. Mitigation: Pollution prevention measures will be required to be implemented throughout construction in order to prevent a pollution event (e.g., sediment release, fuel leaks etc.). A biosecurity management plan will be developed to ensure that INNS are not spread
Fish	Indirect	Temporary impact: The temporary works may impact fish, macroalgae and phytoplankton through pollution events. Mitigation: Pollution prevention measures will be required to be implemented via a Construction Environmental Management Plan (CEMP) throughout construction in order to prevent a pollution event (e.g. sediment release, fuel leaks etc.).
Macroalgae		
Phytoplankton		
Physico-chemical (DO), Priority Hazardous Substances, Priority Substances & Specific Pollutants	Direct & Indirect	Temporary Direct Impact The coastal water body (Swansea Bay) is connected to the transitional water body (Afan Estuary) where the proposed works are being conducted. Depending on tidal conditions and the flow of water through the dock gates there is potential for the transfer of suspended sediment from the Afan Estuary into the adjacent Swansea Bay. The primary source of sediment is expected from the construction work for the jetty/wharf. This has the potential to mobilise sediments that may present a direct impact on turbidity and DO concentrations within the docks. This bed material may also harbour specific pollutants and/or hazardous substances adsorbed to the sediment surfaces. The resuspension of potentially contaminated sediments could act as an active pathway for the dispersion of pollutants into the adjoining Swansea Bay.

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
		Tidal conditions and water flow via the dock gates will influence dispersal from the Afan Estuary into Swansea Bay. However, whilst it is anticipated that any suspended and/or contaminated sediments would be readily dispersed in the wider coastal water body measures should be taken to mitigate the potential for (re)suspension of sediments during construction. This should be addressed within the CEMP and the implementation of an appropriate sediment management plan (e.g., the use of a suitable membrane barrier which will limit/reduce sediment dispersal). Temporary Indirect Impact Accidental pollution events are possible during the construction phase and could lead to chemical pollutants (e.g., fuel) entering the Afan Estuary and subsequently being transferred to Swansea Bay resulting in a temporary reduction in DO concentrations and/or increased concentrations of hazardous substances & specific pollutants. Depending on tidal conditions and the flow of water through the dock gates mobilisation of any pollutants have the potential to impact on DO concentrations. Whilst it is anticipated that any pollutants would be readily dispersed within the wider coastal water body measures should be taken to mitigate the potential for contaminants entering the water. Mitigation should include the implementation of standard industry practices such as pollution prevention measures and additional measures as detailed: • All fuel will be kept securely in the works compound and will be stored in bunded fuel bowers. • The works compound will be securely fenced off using Heras fencing which will be double clipped and securely locked. • Spill kits will be available on site in the event of any fuel/chemical spillage. • Daily machinery checks will be undertaken to ensure any plant used is in good working condition. • Contractors should also comply with the latest version of the Guidance for Pollution Prevention GPP 5 - Works and maintenance in or near water.

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
		• Larger-scale pollution events and/or spillages may be contained within the docks by ensuring the two dock gates remain closed until such time that the spill has been remediated. This will require cooperation and coordination with other dock users and relevant harbour authorities. Impacts associated with the operational phase of the facility are likely to arise from chemical spillages. The operators of the facility will be required to implement and adhere to the relevant health and safety protocols and legislation for dealing with large-scale industrial spillages (e.g., Control of Major Accidents and Hazards [COMAH] requirements) and the implementation and adherence to the appropriate risk assessments and safe system of works. Furthermore, as above, extensive pollution events and/or spillages may be contained within the docks by ensuring the two dock gates remain closed until such time that the spill has been remediated. This will require cooperation and coordination with other dock users and relevant harbour authorities. Permanent Impact It is not anticipated that there will be any permanent impacts on the WFD status of physico-chemical quality elements (namely DO), Priority Hazardous Substances and/or Specific Pollutants during the construction and operational phase of the facility.

Table 6-3: Impacts and Mitigation Measures - Afan Estuary inc. Docks transitional water body

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
Angiosperms	Indirect	Temporary impact: The works could have an indirect impact on Angiosperms through pollution events or spread of INNS. Mitigation: Pollution prevention measures will be required to be implemented throughout construction in order to prevent a pollution event (e.g., sediment release, fuel leaks etc.). A biosecurity management plan

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
		will be developed to ensure that INNS are not spread
Fish	Indirect and Direct	Temporary Direct Impact The proposed work for the construction (piling/sheet pile) of the jetty/wharf is expected to result in localised noise disturbance. An underwater noise study has been undertaken to inform the works. This study concluded that the impacts to fish are likely to be negligible, however, it has recommended that this conclusion is reviewed in line with any changes in equipment. Temporary impact: The works could have an indirect impact on fish through pollution events or spread of INNS. Mitigation: Pollution prevention measures will be required to be implemented throughout construction in order to prevent a pollution event (e.g., sediment release, fuel leaks etc.). A biosecurity management plan will be developed to ensure that INNS are not spread
Invertebrates	Indirect	Temporary impact: The works could have an indirect impact on invertebrate, macroalgae, and infaunal species through pollution events or spread of INNS.
Macroalgae	Indirect	
Opportunistic macroalgae	Indirect	
Infaunal Quality Index	Indirect	Mitigation: Pollution prevention measures will be required to be implemented throughout construction in order to prevent a pollution event (e.g., sediment release, fuel leaks etc.). A biosecurity management plan will be developed to ensure that INNS are not spread
Hydromorphology: Structure and substrate of the bed	Direct	Temporary Direct Impact The proposed work for the construction (piling/sheet pile) of the jetty/wharf is expected to result in localised, temporary modification to the

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
		structure and substrate of the bed. Whilst the bed of the dock area has already been subject to extensive geomorphic modification from previous harbour/dock construction and existing structures mitigation should still be applied where possible. Mitigation should include the implementation of standard industry practices and should aim to minimise disturbance of the bed at the time of installation. The operational impact of the structure and substrate of the bed is not expected to alter significantly in the long term. The limited flow within the dock area is not expected to be significant enough to create sufficient shear stress forces to generate scour and further modification of the bed and/or substrate.
Physico-chemical: (DO), Priority Hazardous Substances, Priority Substances & Specific Pollutants	Direct & Indirect	Temporary Direct Impact The proposed works required to complete the construction of the facility are taking place adjacent to the transitional water body (Afan Estuary inc. Docks). Construction of the jetty/wharf will be conducted within the water body. The jetty/wharf construction, specifically the insertion of pilings and sheet piles, is considered to be the primary source of remobilised sediments that may lead to increased turbidity impacting on DO concentrations within the docks. The bed material disturbed during piling works may also harbour specific pollutants and/or hazardous substances adsorbed to the sediment surfaces. The resuspension of potentially contaminated sediments could act as an active pathway for increasing the concentration of specific pollutants and/or hazardous substances within the water body. Mitigation measures should be implemented to reduce the potential for (re)suspension of sediments during construction phase of the operation. These measures should be addressed within a piling method statement and the implementation of an appropriate sediment management plan (e.g., the use of a suitable membrane barrier which will limit/reduce sediment dispersal). Contractors should also comply with the latest version of the Guidance for

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
		Pollution Prevention GPP 5 - Works and maintenance in or near water. Temporary Indirect Impact The proposed works present an indirect impact to the Afon Estuary inc. Docks water body via the potential for diffuse accidental pollution spillages from plant machinery during the construction phase of the works. Should these contaminants enter the water body this may lead to a temporary reduction in DO concentrations and/or increased concentrations of hazardous substances & specific pollutants within the water body. Mitigation measures should be adopted to reduce the potential for contaminants entering the water body. These should include the implementation of standard industry practices and pollution prevention measures in addition to the following: • All fuel will be kept securely in the works compound and will be stored in bunded fuel bowers. • The works compound will be securely fenced off using Heras fencing which will be double clipped and securely locked. • Spill kits will be available on site in the event of any fuel/chemical spillage. • Daily machinery checks will be undertaken to ensure any plant used is in good working condition. • Contractors should also comply with the latest version of the Guidance for Pollution Prevention GPP 5 - Works and maintenance in or near water. • Larger-scale pollution events and/or spillages may be contained within the docks by ensuring the two dock gates remain closed until such time that the spill has been remediated. This will require cooperation and coordination with other dock users and relevant harbour authorities. The industrial nature of the facility also presents opportunity for contaminants to enter the water body during the operational phase. Mitigation is proposed via the measures outlined in the site drainage strategy. In areas, where contamination risk is low, SuDS will be used for water quality treatment of runoff. This includes hardstanding around operational buildings, roads, amenity spaces and all areas outside of bunded storage. Following SuDS water quality treatment, the site surface water will be discharged to the Afon

WFD Quality Element	Pathway (Direct/In direct)	Potential Impact / Mitigation Measures
		Estuary. Water treatment processes have been designed to meet the Welsh Government Statutory Standards for Sustainable Drainage Systems and The SuDS Manual (C753) as appropriate for the industrial nature of the Site. In areas where contamination is anticipated, surface water shall be directed to the on-site wastewater treatment works. Water with the potential to be significantly contaminated by process operations will be treated as process water. This will require treatment via an on-site wastewater treatment works and will not be discharged as surface water into the SuDS surface water drainage system. The Proposed Scheme will include pollution prevention and control measures to mitigate the risk of acute water pollution from spillage events. These include bunding of hydrocarbon tanks and storage equipment used for potentially contaminating substances and the use of sumps or bunds for all equipment with the potential for leaks. The operators of the facility will be required to implement and adhere to the relevant health and safety protocols and legislation for dealing with large-scale industrial spillages (e.g., Control of Major Accidents and Hazards [COMAH] requirements) and the implementation and adherence to the appropriate risk assessments and safe system of works. Furthermore, extensive pollution events and/or spillages may be contained within the docks by ensuring the two dock gates remain closed until such time that the spill has been remediated. This will require cooperation and coordination with other dock users and relevant harbour authorities. Any spillages into the dock which is operated by ABP shall also need to follow the protocols set out in the ABP South Wales Oil Spill Contingency Plan. Permanent Impact It is not anticipated that there will be any permanent impacts on the WFD status of physico-chemical quality elements (namely DO), priority hazardous substances and/or specific pollutants for the Afan Estuary Inc. Docks during the construction and operational phase of the facility.

Table 6-4: Impacts and Mitigation Measures - Swansea Carboniferous Coal Measures water body

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
Quantitative & Chemical Status Element	Direct/Indirect	Temporary Direct/Indirect Impact The Swansea Carboniferous Coal Measures water body is identified as a potential receptor as it is hydrologically linked to the site as a result of the potential infiltration of pollutants and/or contaminated surface runoff into the underlying superficial and bedrock aquifers. Accidental pollution events during the construction phase could lead to chemical pollutants (e.g., fuel) being transferred via surface infiltration to the Swansea Carboniferous Coal Measures ground water body. This has the potential to result in a deterioration of the groundwater quantitative & chemical status elements. Mitigation measures should be adopted to reduce the potential for mobilisation of contaminants. These should include the implementation and adherence to standard industry practices and pollution prevention measures to be detailed in the CEMP. Additional measures should also be applied including: • All fuel to be kept securely in the works compound and stored in bunded fuel bowsters. • The works compound will be securely fenced off using Heras fencing which will be double clipped and securely locked. • Spill kits will be available on site in the event of any fuel/chemical spillage. • Daily machinery checks will be undertaken to ensure any plant used is in good working condition. • Contractors will comply with the latest version of the Guidance for Pollution Prevention GPP 5 - Works and maintenance in or near water. It is anticipated that much of the site will be laid to hardstanding thus reducing permeability and subsequently infiltration. This will limit access to potential pollution pathways and reduce the likelihood of contaminants reaching the underlying groundwater source. Additional consideration should be given to mitigating potential pathways via storage of surface water in SuDS. This should involve the lining of SuDS assets to reduce infiltration in the underlying groundwater body.

WFD Quality Element	Pathway (Direct/Indirect)	Potential Impact / Mitigation Measures
		The storage of chemicals on-site should be compliant with the necessary regulations. Additionally, the bunding of all chemicals on-site will mitigate the spread of any potential pollutants in the event of a spillage limiting infiltration to groundwater sources. Permanent Impact It is not anticipated that there will be any permanent impacts on the WFD status of Quantitative & Chemical Status Elements of the Swansea Carboniferous Coal Measures water body during the construction and operational phase of the facility.

In addition to the above mitigation measures work undertaken during the construction phase should also comply with the latest version of the following:

- Guidance for Pollution Prevention GPP 5 - Works and maintenance in or near water
- CIRIA guidance for consultants and contractors (C532) - Control of water pollution from construction sites
- ABP South Wales Oil Spill Contingency Plan

The ABP South Wales Oil Spill Contingency Plan should also be adhered to as part of the operational phase of the scheme.

6.4 Water Body Mitigation Measures

Specific mitigation measures are applied to each Artificial (AWB) and Heavily Modified Water (HMWB) Water Body. Mitigation measures are necessary to reduce the existing impacts on the water body and all measures need to be adopted in order for the water body to achieve "Good" Ecological Status or Potential.

Mitigation measures for the Swansea Bay coastal water body are all listed as either Not in Place and/or Not Applicable. As a result, these have not been included within the table below. Those mitigation measures listed as 'In Place' for the Afan Estuary, inc. Docks are reported in the table below. The ability of the proposed works to deliver these mitigation measures, or the risk that the works could prevent their implementation is considered further in Table 6-5.

Table 6-5: Assessment of the Proposed Works against the Water Body Mitigation Measures - Afan Estuary inc. Docks transitional water body

Mitigation Measure Tier 1	Mitigation Measure Tier 2	Will the proposed works contribute towards the implementation of the mitigation measure?	Will the proposed works prevent the mitigation measure from being implemented?
Modify vessel design	Navigation	Yes, navigation and vessel management will include adherence to existing by-laws, regulations, and guidelines of the Port Authority. This could be reflected in following speed limits within the dock.	No
	Vessel Management		
Operations and maintenance	Dredging disposal strategy	Not applicable (dredging activity is not included in the construction and/or operational phases of the proposed works)	Not applicable
	Reduce impact of dredging		
	Retime dredging or disposal		
	Dredge disposal site selection		
	Reduce sediment resuspension	Yes, construction works will be undertaken in accordance with standard industry practices and the CEMP. These will address any impacts relating to sediment resuspension/management and will minimise any disturbance.	No
	Sediment management		
	Manage disturbance		

By adhering to best working practices, a robust sediment management plan and the stated mitigation measures detailed in Table 6-2 to Table 6-4 the impacts on the water bodies in question will be significantly reduced. Subsequently, any short-term impacts associated with the works should not prevent the implementation of the key mitigation measures stated above.

The Afan - confluence with Pelenna and Swansea Carboniferous Coal Measures are considered Natural water bodies and are therefore not subject to designated mitigation measures.

6.5 WFD Assessment Objectives

Following consideration of the potential impacts and proposed mitigation measures, assesses whether the proposed works comply with the overarching objectives of the WFD.

Table 6-6: Assessment of the Proposed Works against the WFD Objectives

WFD Assessment Objective	Assessment of the Proposed Works
Objective 1: The proposed works do not cause deterioration in the status of the ecological elements of the water body	By adopting good working practices, adhering to the relevant legislation/ regulation, implementing the measures detailed in the CEMP and the stated mitigation measures highlighted herein the proposed works are not expected to cause a deterioration of the status of the ecological elements of the scoped in water bodies.
Objective 2: The proposed works do not compromise the ability of the water body to achieve its WFD status objectives	By adopting the measures detailed above in Objective 1, the proposed works are not expected to compromise the ability of the scoped in water bodies to achieve their WFD status objectives.
Objective 3: The proposed works do not cause a permanent exclusion or compromised achievement of the WFD objectives in other bodies of water within the same RBD	The proposed works will not result in exclusion or compromise the current and/or future WFD status of water bodies within the Western Wales River Basin Management Plan District.
Objective 4: The proposed works contribute to the delivery of the WFD objectives	By adhering to the proposed mitigation measures highlighted herein the works are not expected to impact on the delivery and/or prevent the achievement of the WFD objectives of the scoped in water bodies.

7 Conclusions and Recommendations

JBA Consulting were commissioned by LanzaTech UK Limited to undertake a WFD Assessment to establish the potential impacts to WFD water bodies arising from the proposed works and associated infrastructure at Crown Wharf, Port Talbot Docks. The works also includes the construction of a wharf/jetty to facilitate the unloading/loading of materials during the construction and operational phase of the works. The Proposed Scheme will comprise a new facility for the production of sustainable aviation fuel (SAF).

7.1.1 Screening & Scoping Assessment

The Screening Assessment identified elements of the proposed works that require WFD Assessment and the local water bodies that may be subject to the impacts associated with construction and operation phase of the works. The Screening Assessment identified the following water bodies as needing further consideration, this was addressed within the Scoping Assessment.

- Swansea Bay (Water Body ID - GB641008260000) - Coastal water body
- Afan Estuary inc. Docks (Water Body ID - GB541005800600) - Transitional water body
- Afan - confluence with Pelenna to tidal limit (Water Body ID - GB110058026110) - River water body
- Swansea Carboniferous Coal Measures (Water Body ID - GB41002G201000)

The Scoping Assessment identified various receptors that were considered to be at risk from the proposed works at Crown Wharf, Port Talbot. The Scoping Assessment details how these impacts may arise and the subsequent impact on a range of WFD Quality Elements. The coastal, transitional and river water bodies were considered in terms of the potential impacts to the following WFD quality elements:

- Biological Elements
- Hydromorphological Elements*
- Physico-chemical Elements*
- Chemical Substances*

* These WFD quality elements do not require consideration for the Afan - confluence with Pelenna to tidal limit as a large tidal weir separates the water bodies preventing such impacts.

The Swansea Carboniferous Coal Measures water body was also considered in terms of WFD impacts and status.

In addition, Protected Areas and WFD sensitive habitats were also identified and subsequently assessed accordingly.

7.1.2 Impact Assessment

This assessment has been undertaken based on the most recent scheme information. The proposed works were appraised for potential impacts upon the water bodies' quality elements and Protected Areas. A summary of these assessments is provided in the sections below.

It should be noted that this assessment has been completed to support the accompanying planning application. There may be the potential for submission of an updated WFD assessment that may will be required for the future environmental permitting and marine licence application. These submissions may be required to address any concerns regarding water quality parameters including EQS (Environmental Quality Standards) values, composition of, and any associated impacts with regards to discharge of process water effluent into the Afan Estuary inc. Docks water body.

7.1.3 Ecological Quality Elements

Adopting the recommendations detailed will ensure that any impacts are localised and temporary in nature. As such, no significant impact on the WFD water body status for hydromorphology is expected during either during the construction or operational phases of the scheme.

7.1.4 Hydromorphological Quality Elements

An assessment has identified that given the distance and the scale of the works relative to the size of the Swansea Bay coastal water body there is not likely to be a significant risk to the status of hydromorphology quality elements. Conversely, the proposed construction methodology required for the wharf/jetty (i.e., installation of tubular piles and sheet piles) within the Afan Estuary inc. Docks water body has the potential to modify the structure and substrate of the bed due to disturbance of bed sediments. However, all construction work will be undertaken in accordance with best practice and adherence to a robust sediment management plan, as detailed in a CEMP. This will reduce the extent of sediment mobilisation and bed modification which may impact on WFD hydromorphological supporting elements. Furthermore, the proposed mitigation measures will also act to reduce the associated impacts identified herein during the construction phase of the scheme.

Adopting the recommendations detailed will ensure that any impacts are localised and temporary in nature. As such, no significant impact on the WFD water body status for hydromorphology is expected during either during the construction or operational phases of the scheme.

7.1.5 Chemical Quality Elements

An assessment has identified that there is potential for the mobilisation of chemical contaminants from the construction and operational phases of the proposed works. Any such impacts arising have the potential to impact on both the Swansea Bay and Afan Estuary inc. Docks water bodies. Although the scale of the works relative to the size of the Swansea Bay coastal water body are considered insignificant construction of the jetty/wharf has the potential to remobilise contaminated sediments. Additionally, the operational nature of the facility and use of potentially harmful chemicals presents an opportunity for pollutants to enter and be transferred between water bodies.

As such, a series of mitigation measures are to be implemented to reduce any impacts. These involve implementing and adhering to construction best practices and a robust sediment management plan, as detailed in a CEMP. Additional measures have also been recommended to reduce the likelihood of creating a pathway for contamination to the identified receptors. These proposed measures are applicable to both impacted water bodies, Swansea Bay and Afan Estuary inc. Docks.

Furthermore, the Swansea Carboniferous Coal Measures groundwater water body was also identified as being at risk from the mobilisation of contaminants. A range of mitigation measures have been detailed which are expected to reduce any impacts that may arise during the construction and operational phases of the project.

Collectively, the water quality parameters identified under the Clearing the Waters for All guidance are not expected to be negatively impacted by the proposed works. Water clarity has been addressed in terms of sediment management and the associated mitigation measures proposed. Similarly, any impacts on dissolved oxygen levels within the assessed water bodies have been identified as temporary in nature and as such impacts will be reduced by adhering to the mitigation measures detailed. There are no known sources of nutrient and/or microbial inputs to any water bodies during either the

construction or operational phases. Salinity and temperature levels are also not expected to be altered significantly as a result of the proposed works.

Subsequently, by adhering to the stated mitigation measures any impacts to the chemical status of the mentioned WFD water bodies will be reduced. This is not expected to result in any significant change in chemical quality elements and as such, no significant impact on water body status is expected during either the construction or operational phases of the scheme.

7.1.6 Protected Areas

There are no statutory designated conservation sites located within 2km of the proposed scheme. The Swansea Bay East protected shellfish waters is located approximately 1500m from the harbour entrance, however, as the works will not raise the levels of E.coli potential impacts to shellfish have been ruled out as detailed in the above sections.

7.1.7 Recommendations

This WFD Impact Assessment has aimed to address the potential impacts that may arise during the construction and operational phases of the proposed works at Crown Wharf, Port Talbot. The assessment presents a broad range of mitigation measures that should be employed to reduce any of the potential impacts highlighted herein.

If the appropriate mitigation measures are not implemented there is the potential that the impacts arising from either the construction and/or operational phases of the works may lead to a deterioration in the current status of the WFD Quality Elements.

Key to the recommended mitigation measures is the completion of the Construction Environmental Management Plan (CEMP). This should set out the actions that will be implemented to control construction of the proposed scheme to avoid adverse impacts on the wider environment. The CEMP should be completed in accordance with construction best practice and include a robust sediment management plan.

Mitigation measures that have been detailed for the piling and associated marine works should be detailed separately as part of a piling method statement.

In addition to the mitigation measures identified within the assessment work undertaken during the construction phase should also comply with the following:

- Guidance for Pollution Prevention GPP 5 - Works and maintenance in or near water
- CIRIA guidance for consultants and contractors (C532) - Control of water pollution from construction sites

This WFD Assessment has drawn conclusions based on the information available to date. Should the design of the proposed works alter significantly, this report would require revision to ensure the specified mitigation measures and recommendations outlined remain relevant and appropriate and the final scheme remains WFD-compliant.

References

- ABP (2018) Oil Spill Contingency Plan
https://www.southwalesports.co.uk/Marine_Information/Emergency_Plans/Oil_Spill_Co ntingency_Plan/ Accessed 26th October 2023
- Environment Agency (2010) Assessing new modifications for compliance with WFD: detailed supplementary guidance: 488_10_SD01
- Natural Resources Wales (2022) Western Wales River Basin Management Plan 2021 – 2027
- Natural Resources Wales (2023) <https://environment.data.gov.uk/catchment-planning>Water Watch Wales Map Gallery. Accessed 1st August 2023 via: <https://waterwatchwales.naturalresourceswales.gov.uk/en>

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Appendix 3: Full clarification and response to air quality comments from NRW, prepared by Kairus

**Response to Comments on Air Quality ES Chapter Received from NRW
December 2023. Prepared by Kairus Ltd****1. Footnote 2 of Table 11.3 – NRW has queried why impacts were not considered in relation to the 24 hr NO_x limit**

The 24-hr NO_x limit was not presented within the Environmental Statement (ES) chapter because guidance states that this limit value only applies where there are high concentrations of SO₂ and Ozone, which is not generally the current situation in the UK.

As detailed in the IAQM guidance which quotes comments from the 2000 WHO guidelines, *‘experimental evidence existing that the CLE decreases from around 200 µg/m³ to 75 µg/m³ when in-combination with O₂ or SO₂ at or above their critical levels. In the knowledge that short-term episodes of elevated NO_x concentrations are generally combined with elevated concentrations of O₃ or SO₂ 75 µg/m³ is proposed for the 24 hour’*. However, the IAQM guidance goes on to state that *‘Ozone and SO₂ are typically low in the UK compared to many other countries. If a regulator does require the use of the short-term NO_x critical level, given the low UK SO₂ concentrations IAQM consider it is most appropriate to use 200 µg/m³ as the short-term critical load’*.

The short-term NO_x outputs from the modelling undertaken as part of the ES have been used to considered in relation to the limit of 75 µg/m³, however based on the above quote set out within the IAQM guidance a limit of 200 µg/m³ is considered more appropriate to use, therefore consideration against the lower limit value represents a cautious assessment of potential effects.

The data from Scenario 3 has been used to undertake a sensitivity test of short-term NO_x emissions given that this operating scenario resulted in the highest emissions from the Site. The sensitivity test shows that at all the ecology receptors considered in the ES the Process Contribution (PC) is less than 10% of the 75 µg/m³ 24 hr limit value. The additional sensitivity test shows that the outcomes set out within the ES remain appropriate and are not required to be updated or amended.

2. Please confirm that all receptor sites with public exposure were considered

During further consultation with NRW both the Bros Café and Box-self-storage were identified as receptors closer to the site than those assessed within the ES chapter.

Neither of these were identified as receptors with the ES screening assessment. However, due to the nature of these receptors, they would be considered in respect of short-term exposure. The contour plots presented in Figures 11.8 to 11.30 show that the predicted PC for all pollutants for annual mean and short-term emissions are negligible at these receptors.

All other receptors selected represent worst-case locations of long-term exposure at high sensitivity receptors. There are no other sensitive receptors located within closer proximity to the Site than the receptors considered in the ES and the two identified above.

3. Section 11.27 – compared to other human receptors C1 and C2 are further away from the proposed site. When considering the onsite construction emissions and road traffic in combination, C1 and C2 may not represent the worst-case locations

C1 and C2 have been selected to assess effects from construction traffic emissions. A comprehensive screening assessment has been carried out to screen locations at risk of significant effects resulting from construction emissions using the IAQM screening criteria. This identified Harbour Way adjacent to C1 and C2 as exceeding the screening criteria, therefore modelling was carried out for this location. C1 and C2 were selected as being closest to Harbour Way and the 'Affected' Road. There are no other locations within 200 m of the 'affected' road where there are sensitive receptors. There are sensitive receptors closer to the Site and these have been screened out as not experiencing significant effects as a result of construction traffic. They are also located over 200 m from any on-site construction activities, meaning cumulative/in-combination effects from construction traffic and on-site construction activities would be negligible.

4. Section 11.148 – it is expected that concentrations of these pollutants will remain at current levels into the near future. However, data shows that concentrations are currently meeting the relevant objective. Most 2023 data are now available, this statement may not be correct

2023 data is not yet publicly available from the Local Authority, and the full year's data set would not have been ratified by the Local Authority at this stage. However, based on long-term trends in concentrations in the area it is very unlikely that any of the limit values are being exceeded as this would require a significant increase in local concentrations of more than 50% for the majority of pollutants above prior-year results.

Tweaked comment – *'concentrations will remain below the objectives in the near future'*

Appendix 4: Full clarification and response to noise comments from NRW, prepared by Hunter Acoustics

Ffion Middleton

Turley
18 Windsor Place
Cardiff
CF10 3BY

05/02/2024

Our Ref: 6387/L7_Rev2

Dear Ffion,

Re: Project Dragon, Port Talbot – Response to NRW Noise Comments

The below provides our response to NRW comments dated 21/12/2023, along with discussions in meeting with NRW held on 09/01/2024.

Whilst the majority of the note concurs with our proposed assessment methodology, we would set out the following clarifications:

1. NRW Comments

Sensitivity classification of receptors

We are not wholly in agreement with the sensitivity classification i.e. residential medium and quiet areas as high. This may be true of daytime sound impacting on these receptors however, this will change during the night as quiet areas are absent of visitors who now reside in their homes.

As detailed within the noise chapter, sensitivity categorisation for receptors has been based on professional judgement. The categorisations and magnitude of change ratings have been set so as the effect level aligns with outcomes of BS 4142:2014+A1:2019 (i.e. a major impact is considered to align with background +10dB significant adverse impact under BS 4142). If receptor sensitivity classification changes, then magnitude of change ratings would be adjusted to maintain alignment with BS 4142 outcomes and therefore would have no bearing on the outcome of the assessment.

Operational vibration risk

The applicant has outlined that no sources of vibration will be present both in the operational and construction phase. We point out that by considering vibration early in the risk assessment process can avoid costly mitigation retrospectively.

There are not indicated to be any significant sources of vibration on the site likely to cause risk of vibration off-site (mainly pumps and compressors as opposed to any plant generating large impacts). Given the distance to receptors, an assessment of operational vibration is not therefore considered necessary for this site. Construction vibration has also been scoped out – as detailed in the EIA scoping review.

This was discussed in meeting with NRW on 09/01/2024 and there were no further comments.

Soundscape

We acknowledge the applicant's reference to WG's draft TAN11 document however, we also recognise that both Planning Policy Wales and TAN11 are planning guidance. Our noise guidance specific for permit application, states that - Adding a further industrial source, even if its sound level is below a defined guidance level, may become a tipping point for an inappropriate soundscape or make it much harder to fix an existing problem. Conversely, we point out that in another place, due to an already dull soundscape and low emotional expectations, an additional industrial sound source may not be a burden, as its level may be well masked by other sounds (for example traffic). Therefore, we may require further assessment to establish the applicants position for the environmental permit application.

We maintain our position that the draft TAN11 issued by Welsh Government (not current policy) states the following: "Whilst a soundscape design approach is supported in this TAN, it should only be required by planning authorities instead of, or in addition to, a conventional noise control or acoustic design where it is considered necessary to create an appropriate soundscape and is likely to result in better placemaking in accord with PPW and section 4.3.3 of this TAN." The supporting document 1 of the draft TAN11 entitled "Soundscape Design", provides further guidance, in the form of Table 1, which suggests that for a scheme with 'Low Potential for better placemaking through soundscape design' and that has a medium to high noise risk, one should "Achieve good acoustic quality through good acoustic design."

Given the nature and location of this development, an industrial processing site in a heavily industrialised port area, a conventional noise control assessment demonstrating good acoustic design has been provided.

Soundscape in practice is still an emerging area and recent IOA conferences have highlighted the need for more research in this area to move it out of academia and into real world practice. There are currently no IOA training programmes on the implementation of soundscape assessment in real world applications. Ultimately, a heavily industrialised port area is the correct location for this type of development and minimising noise impact by means of conventional noise control and good acoustic design is the way forward we would suggest.

The above was discussed in the meeting with NRW on 09/01/2024.

Ship pumps and permitted installation boundary

No further comments. Additional review will be undertaken during the environmental permit application. **Noted.**

Source data

For the environmental permit application, for sources which are not yet operational, the applicant can use sound power data from the manufacturer (preferably octave band) or it can be measured using appropriate standards at similar plants. If the applicant's intention is to use sound power data from the manufacturer, it will need to establish how the data was obtained and what standard was followed.

No octave band spectra have been provided or measured at this stage. Octave band spectra have however been provided for the flare, cooling tower, cooling water pumps, CW dosing package and HP boiler package.

The project engineering team have provided sound pressure level estimates for the remaining plant as manufacturer selections have yet to be confirmed for all plant. Our assessment has therefore used spectra shapes from the Predictor database for representative plant and limits have been set in the report at this stage.

This approach was agreed acceptable in the meeting with NRW held on 09/01/2024.

Regards,

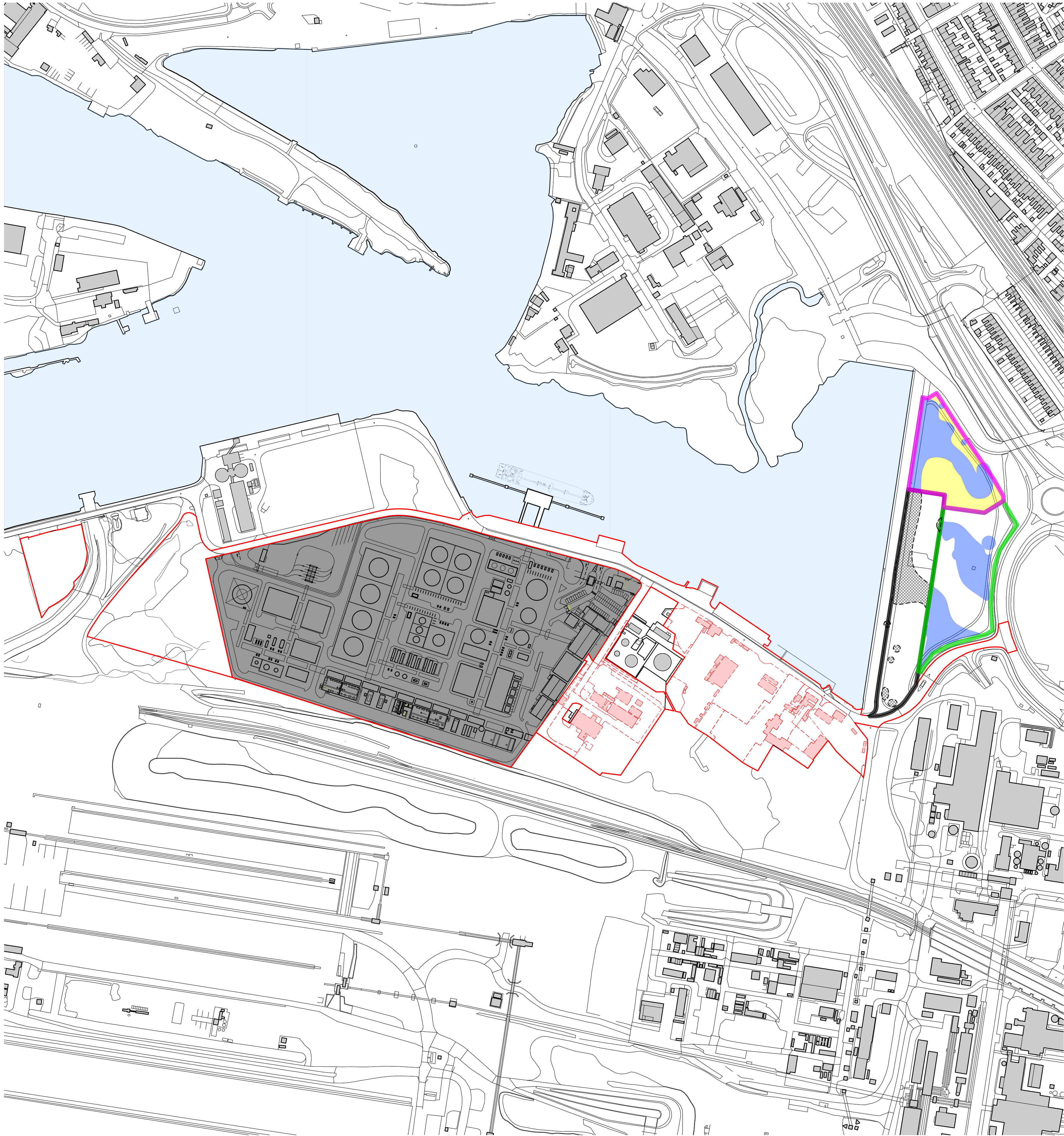
A handwritten signature in black ink, appearing to read 'M. Townsend', with a stylized flourish at the end.

Meirion Townsend

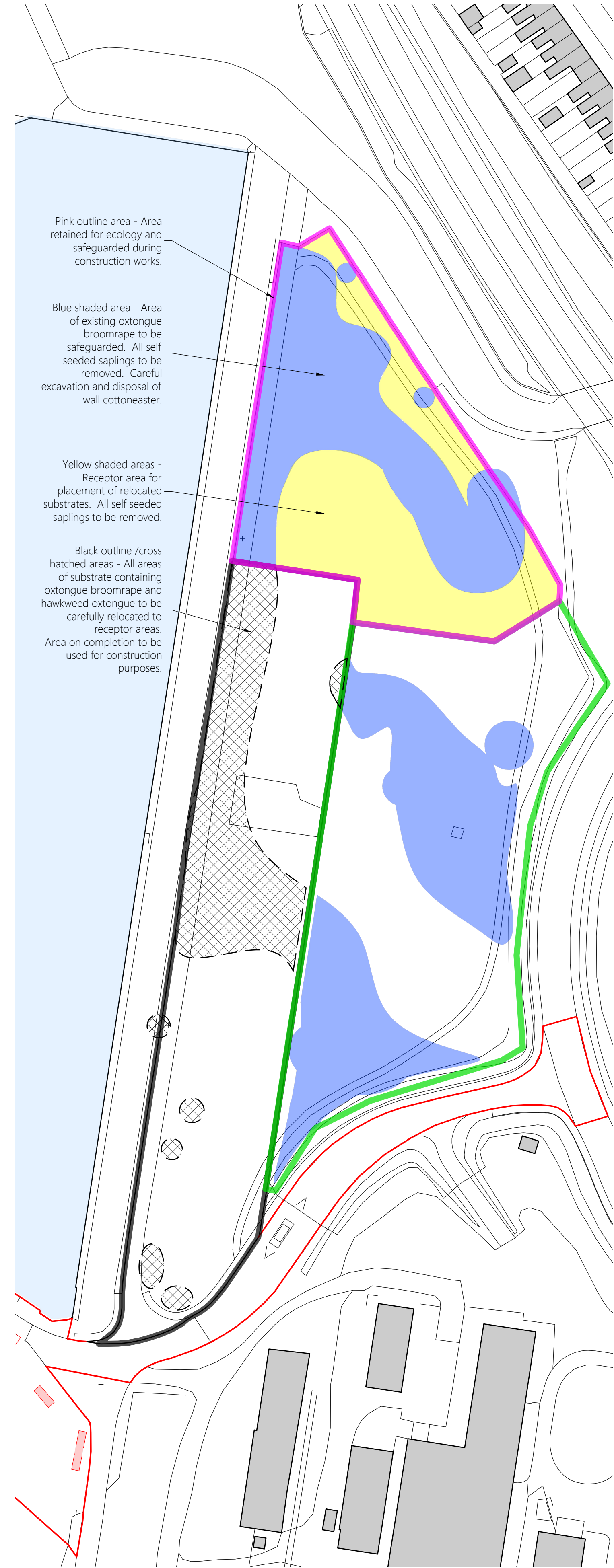
BSc(Hons) MIOA | Director

Hunter Acoustics

Appendix 5: Oxtongue Broomrape clarifications and protection area

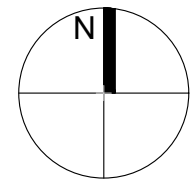


1 General Site Area - Proposed arrangement
1:2000 @ A1
SK30



2 Temporary Construction Area 1 - Proposed Works
1:1000 @ A1
SK30

INSPIRE ARCHITECTS
1 Northumberland Buildings
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GENERAL NOTES

All works proposed shall be conducted in accordance with the related H&S / CDM regulations. Where doubt arises over any aspect of safety, consult the principal designer.

Should any discrepancy be found on this drawing or related project information then the matter must be brought to the attention of Inspire Architects for resolution as soon as possible.

Do not scale from this drawing unless for planning purposes. All dimensions are in millimetres unless otherwise stated. All information and layouts detailed on this drawing are subject to site dimension checks. This drawing may be based on a measured survey or Ordnance Survey information.

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- Application boundary
- TCA Area: Retained for ecology
- TCA Area: Used for construction purposes
- Adjoining land in the ownership of Tata Steel, shown for context
- Existing, nearby buildings
- PDZ AREA
- Buildings to be demolished
- Existing areas of oxtongue broomrape
- Receptor area for relocated oxtongue broomrape and substrate
- Substrate and planting in this area to be relocated to receptor area.

P2	NC	NC/RT	17.01.24
P1	NC	NC/RT	17.01.24
Revision	Drawn	Checked	Date



PROJECT NAME

Project Dragon

CLIENT

LanzaTech

SHEET NAME

Oxtongue Broomrape
Proposed Relocation Option Plan
(TCA1)

STATUS

Planning

SHEET SIZE
A1

SCALE
As shown

PROJECT NUMBER
2143.01

DRAWING NUMBER
SK31

Appendix 6: Oxtongue Broomrape Conservation Strategy - Technical Note

Distribution

1. The assessment of the distribution of Oxtongue Broomrape was undertaken in 2022 for ABP and XLCC during and following the site visit by the national experts Dr Chris Thorogood and Fred Rumsey. Transects were walked with visible flower spikes counted and mapped using a GPS to assess the distribution in different areas of the docks.
2. The Oxtongue Broomrape is a parasitic plant growing on the sole host species, hawkweed oxtongue. The vast majority of the broomrape plants grow on sparsely vegetated ground with a high percentage of bare ground/mosses and a very low percentage cover of grass.
3. Within Margam Wharf the plant was most frequently found in the northern section, located within the Temporary Construction Area and the eastern section outside the application site on land owned by Tata Steel.
4. Notably fewer flower spikes and more scattered smaller colonies were generally found in the southern section of Margam Wharf. The density of spikes varied with localised areas of high flower spike density in the northern and eastern areas. It is estimated that 70% of the Oxtongue Broomrape flower spikes were present in the northern part of TCA1 or on the land owned by Tata Steel in 2022.

Oxtongue Broomrape Protection Area

5. The northern part of TCA1 will be designated an Oxtongue Broomrape Protection Area for the duration of LanzaTech's temporary construction works, estimated to be 2.5 years. The revision to extent of TCA1 that will be used for construction activities will retain a substantial percentage of the total Oxtongue Broomrape population in Margam Wharf.
6. On the establishment of the Oxtongue Broomrape Protection Area young self-sown shrubs and trees will be removed. Actions to remove wall cotoneaster will also be implemented at the outset of the establishment of TCA1 to improve the condition of the habitats for the Oxtongue Broomrape.

Species Relocation

7. It is understood that as a Schedule 8 plant, a NRW conservation licence will need to be obtained for the use of part of TCA1 for construction.
8. A proportion of the Oxtongue Broomrape colony at Margam Wharf will unavoidably fall within areas that will be require for construction activities.
9. As compensation, substrate containing the Oxtongue Broomrape and hawkweed oxtongue will be relocated to prepared receptor areas within the Oxtongue Broomrape Protection Area, shown in yellow in Figure 2 (Reference 2143.01 SK31). The establishment of the construction area on top of substrates supporting Oxtongue Broomrape will be mitigated through relocation of selected areas of surface substrate containing the plant (seeds and host plant roots and seeds) to prepared receptor areas where the species is currently absent.

10. All the Oxtongue Broomrape colonies in TCA1 will be remapped in June 2024 in the middle of flowering season. The location of colonies will be marked out on the ground physically indicating the areas of substrate that will be relocated.
11. Lower biodiversity value receptor areas will be identified in the Oxtongue Broomrape Protection Area in June 2024 ensuring they are located outside colonies to be protected.
12. The surface of the areas of selected substrate would be stripped and placed in a shallow layer on the identified receptor areas prior to any other works to establish the construction working area. Heras fencing will be installed around the boundary of the Oxtongue Broomrape Protection Area clearly defining the exclusion area for construction contractors. Heras fencing will also be installed on the boundary between TCA1 and Tata Steel owned land to create a physical barrier between the construction area and off-site colonies.

Experimental Translocation

13. Experimental translocation will be attempted to introduce Oxtongue Broomrape into selected modules of the biodiversity gabion walls.
14. The biodiversity walls in the PDZ will be created towards the end of the construction period. Experimental gabion modules will be established in TCA1 for the duration of the construction period. It is anticipated that different types of fill materials, depths of relocated TCA1 substrate and plant translocation methods will be compared.
15. In general terms, the experimental biodiversity wall modules in TCA1 will be filled with free draining stony substrates mixed with layers of nutrient poor subsoil, with at least the top 50-100mm of the fill material to be substrate from selected areas of TCA1.
16. It is anticipated that individual plants or the roots of hawkweed oxtongue will be lifted from TCA1 and planted in the substrate in the upper section of the module. In addition, seed will be collected from Oxtongue Broomrape plants in TCA1, mixed with a carrier material, and spread on the surface adjacent to the host plant species, hawkweed oxtongue. It will be essential for the host plant to have established prior to introducing seed.
17. Successful gabion wall and translocation specifications would be adopted for selected modules of the permanent biodiversity gabion wall in the PDZ to establish new colonies of Oxtongue Broomrape within the operational site.

Management

18. The establishment of the Oxtongue Broomrape Protection Area will involve the removal of all colonising self-sown shrubs, primarily butterfly bush, willow and birch. In a few locations wall cotoneaster, a invasive non-native plant listed on Schedule 9, has colonised the open mosaic habitat. Where it occurs it is spreading and adversely affecting the habitat. All wall cotoneaster plants within the Oxtongue Broomrape Protection Area will be removed with the appropriate off-site disposal / incineration of all arisings.
19. Very limited follow up management is envisaged over the 2.5 year construction period following the felling of the shrubs. Any significant shrub regrowth would be cut back in autumn/winter. Any colonising wall cotoneaster plants will be dug out in autumn/winter.
20. Maintenance actions will include the frequent removal of any rubbish from the Oxtongue Broomrape Protection Area.

Monitoring

21. Annual monitoring of the Oxtongue Broomrape Protection Area will be carried out in June. During each monitoring survey the distribution and density of Oxtongue Broomrape flower spikes will be recorded along with distribution of host species, hawkweed oxtongue.
22. Experimental gabion walls will be subject to regular monitoring providing comparisons between the different techniques and materials used. The internal structure of gabion wall structure, presence/absence of host plant, and presence/absence of Oxtongue Broomrape will be recorded. A photographic record will be made during each monitoring visit.