










**Project Dragon – Sustainable Aviation
Fuel (SAF) Production Facility**
Volume 4: Non-Technical Summary (NTS)

August 2023

Turley

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Contact

Michael Browne
michael.browne@turley.co.uk

Chloe Patel
chloe.patel@turley.co.uk

Client

LanzaTech UK Ltd

August 2023

1. Introduction

What is an Environmental Statement and Non-Technical Summary?

- 1.1 This document, the Non-Technical Summary (NTS), is part of the Environmental Statement (ES) that has been prepared in support of the detailed planning application for a proposed new facility at Port Talbot which will produce sustainable aviation fuel (the 'Proposed Scheme'). The planning application will be submitted on behalf of LanzaTech UK Ltd, who are the 'Applicant'.
- 1.2 Details of the Proposed Scheme are provided in **Section 2**.
- 1.3 This ES has been made available as part of the statutory pre-application consultation (PAC) as required in Wales under the Planning (Wales) Act 2015. Following the completion of the PAC process (minimum of 28 days) the ES will be validated and updated in line with any comments received and submitted for determination by Neath Port Talbot County Borough Council (NPTCBC).
- 1.4 The ES, comprising of **Volumes 1 – 4**¹, has the status of a 'material consideration' during the determination of the planning application by NPTCBC, who are the determining authority² of the planning application. The ES is the output of

¹ **Volume 1: Main Text and Figures; Volume 2: Technical Appendices; Volume 3: Environmental Management Plan; and Volume 4: Non-Technical Summary.**

the Environmental Impact Assessment (EIA) process undertaken in accordance with the 'EIA Regulations'³.

- 1.5 The purpose of EIA and the ES is to assess and report the 'likely significant effects' of the Proposed Scheme on the environment, so that they can be taken into account by NPTCBC when deciding whether to grant permission for the planning application.
- 1.6 In line with the EIA Regulations, the ES should include a non-technical summary of the information presented within the ES. This should be written in plain English, so as to ensure that the findings reported in **Volume 1: Main Text and Figures** (and where applicable **Volume 2: Technical Appendices**) can be easily understood by non-experts (i.e., the general public).
- 1.7 The EIA Regulations have various requirements of what needs to be reported in the ES (and thus summarised in the NTS), which are set out in **Appendix 1**, alongside where that information is located in this document to ensure clarity that regulatory requirements have been met.

What does this NTS include?

- 1.8 As mentioned above, the NTS provides the summary of the EIA process and outputs of assessments, specifically covering the following key aspects:

² This is the local planning authority to whom the Application is submitted. They decide whether or not to grant planning permission.

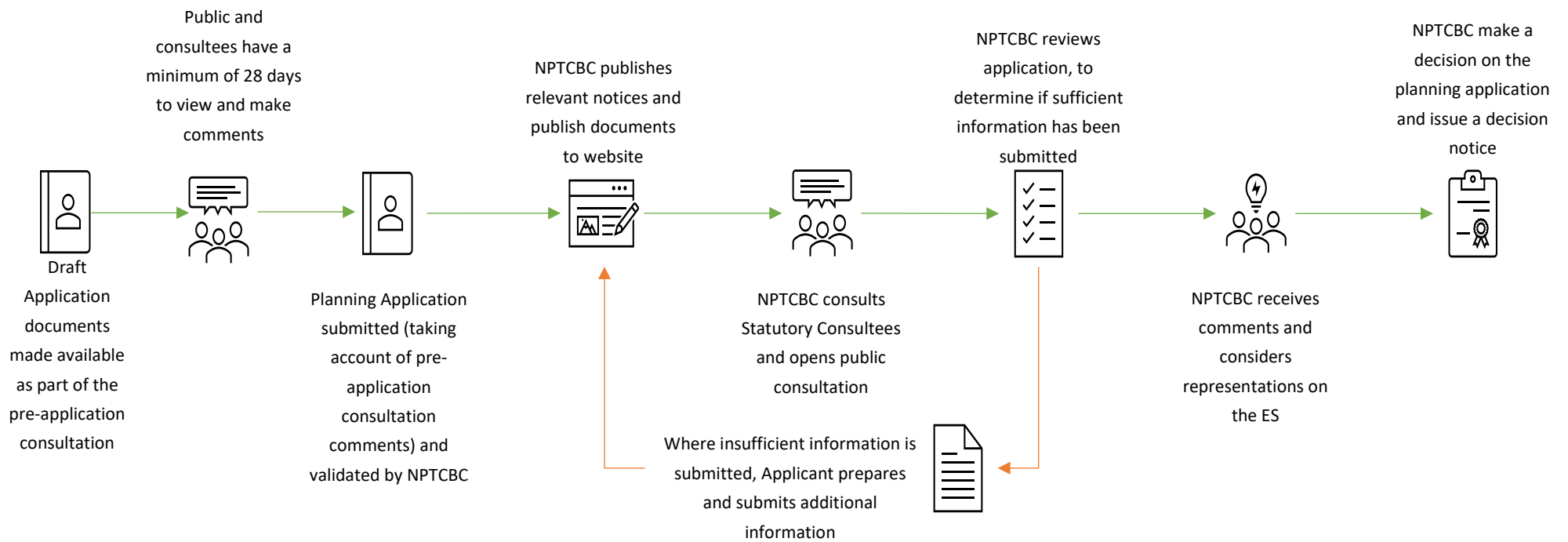
³ The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (as amended) (SI 2017/567) (W. 136).

- An overview of the Proposed Scheme and what it includes (**Section 2**);
- Outline of the 'EIA Process' and the approach taken for this specific project (**Section 3**);
- The existing baseline context of the Site and surrounding area (**Section 4**), as EIA is focused on the 'changes' caused by the Proposed Scheme (the technical specific relevant baselines are reported in **Section 5**);
- A summary of the outputs of the technical assessments undertaken to determine the 'effects' of the Proposed Scheme and if they are significant (**Section 5**); and
- Synopsis of the evaluation of 'cumulative effects' of the Proposed Scheme and with other projects (**Section 6**).

- 1.11 The ES (**Volumes 1 – 4**) has been submitted in digital format and is available on the Project Dragon consultation website – <https://www.lanzadragon.wales/>.
- 1.12 During the PAC process members of the public have an opportunity to comment on the application material via the consultation website.

What Happens Next?

- 1.9 As stated previously, this ES has been made available as part of the statutory PAC process as required in Wales under the Planning (Wales) Act 2015. During the PAC process, specialist consultees, community consultees and owners and occupiers in the nearby area are consulted on the Proposed Scheme. This period lasts a minimum of 28 days, where draft application documents are made available to view, for comments. The comments received during this period are considered before a planning application is finalised and submitted (**Extract 1**).
- 1.10 Feedback received during the PAC process will be considered and detailed within the final ES submission.



Extract 1: Overview of the determination of planning application process

Interaction of the ES with Other Applications and Consents

- 1.13 Due to the industrial nature of the Proposed Scheme (**Section 2**) and its interface with the surrounding environment (**Sections 4 and 5**), several licences and consents are required to implement the Proposed Scheme, which fall outside of the remit of the planning application⁴.
- 1.14 Where considered relevant, the interaction of the ES and these applications/consents is described below.

Marine Licence

- 1.15 Due to the inclusion of an extent of the marine environment of Port Talbot Docks for the construction and operation of a construction wharf and the marine unloading/loading facility (to support the import and export of materials to the Site via ship – see **Volume 1, Chapter 4: Development Specification** for more details), a marine licence is required under the Marine and Coastal Access Act 2009 (as amended)⁵ for all works occurring within the marine environment.
- 1.16 Despite these works falling under separate work streams for approval, the ‘works’ required under these applications and consents have been considered within the ES to ensure that the full nature (and environmental effects) of the Proposed

Scheme is accounted for (see **Section 2**). It should be noted that the marine licence does not form part of the planning application.

- 1.17 When the marine license is prepared and submitted by others, it will include any necessary environmental assessments and (if required by Natural Resources Wales (NRW)⁶) will be subject to a separate EIA.

Permits and Consents

- 1.18 A number of permits and consents relating to emissions, use of hazardous substances and the control of hazards will be required for the operation of the Proposed Scheme, including:

- Environmental Permit, in accordance with the Environmental Permitting Regulations (England and Wales) 2016 (as amended)⁷;
- Greenhouse Gas Emissions Permit, in accordance with the Greenhouse Gas Emissions Trading Scheme Regulations 2012;
- Water Abstraction Licence, in accordance with the Water Resources Act 1991⁸; and

⁴ I.e. Applications/consents that fall outside of the jurisdiction of the Town and Country Planning Act 1990.

⁵ The Marine and Coastal Access Act 2009 Available at: [Marine and Coastal Access Act 2009 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2009/23/section/1) [Accessed 25/05/2023].

⁶ NRW are the determining authority for Marine License applications.

⁷ The Environmental Permitting Regulations (England and Wales) 2016 (as amended) (2016 No. 1154). Available at: The Environmental Permitting (England and Wales) Regulations 2016 (legislation.gov.uk)

⁸ As amended by the Water Act 2003), Environment Act 1995, the Water Resources (Abstraction and Impounding) Regulations 2006, and the Water Resources (Transitional Provisions) Regulations 2017)

2. The Proposed Scheme

- 2.1 The Applicant is seeking planning permission for an industrial facility for the conversion of ethanol (an alcohol) into a Sustainable Aviation Fuel (SAF)¹¹ and a renewable diesel¹².
- 2.2 The Proposed Scheme is designed with the capability of adapting the ratio of the two fuels produced, but the primary focus of the facility and Proposed Scheme is the production of the SAF.
- 2.3 The location of the Proposed Scheme is shown on **Extract 2**, which also defines a 'EIA Study Area Boundary' in green. Essentially the EIA Study Area Boundary (approximately 25.13 hectares) represents the extent of all 'permanent and temporary' works required for the Proposed Scheme, inclusive of areas required temporarily during construction.
- 2.4 It should be noted that the EIA Study Area Boundary shown within **Extract 2** is bigger than the planning application boundary. This deviation occurs as the EIA Study Area Boundary includes an element of the marine environment of Port Talbot Docks, which is not included in the planning application boundary. This omission relates back to the need for works within the docks needing a Marine License, which is a separate consenting process to the planning application (see

¹¹ Formally referred to as 'Alcohol To Jet Synthetic Paraffinic Kerosene' (ATJ SPK).

'Interaction of the ES with Other Applications and Consents' within **Section 1** for more information).

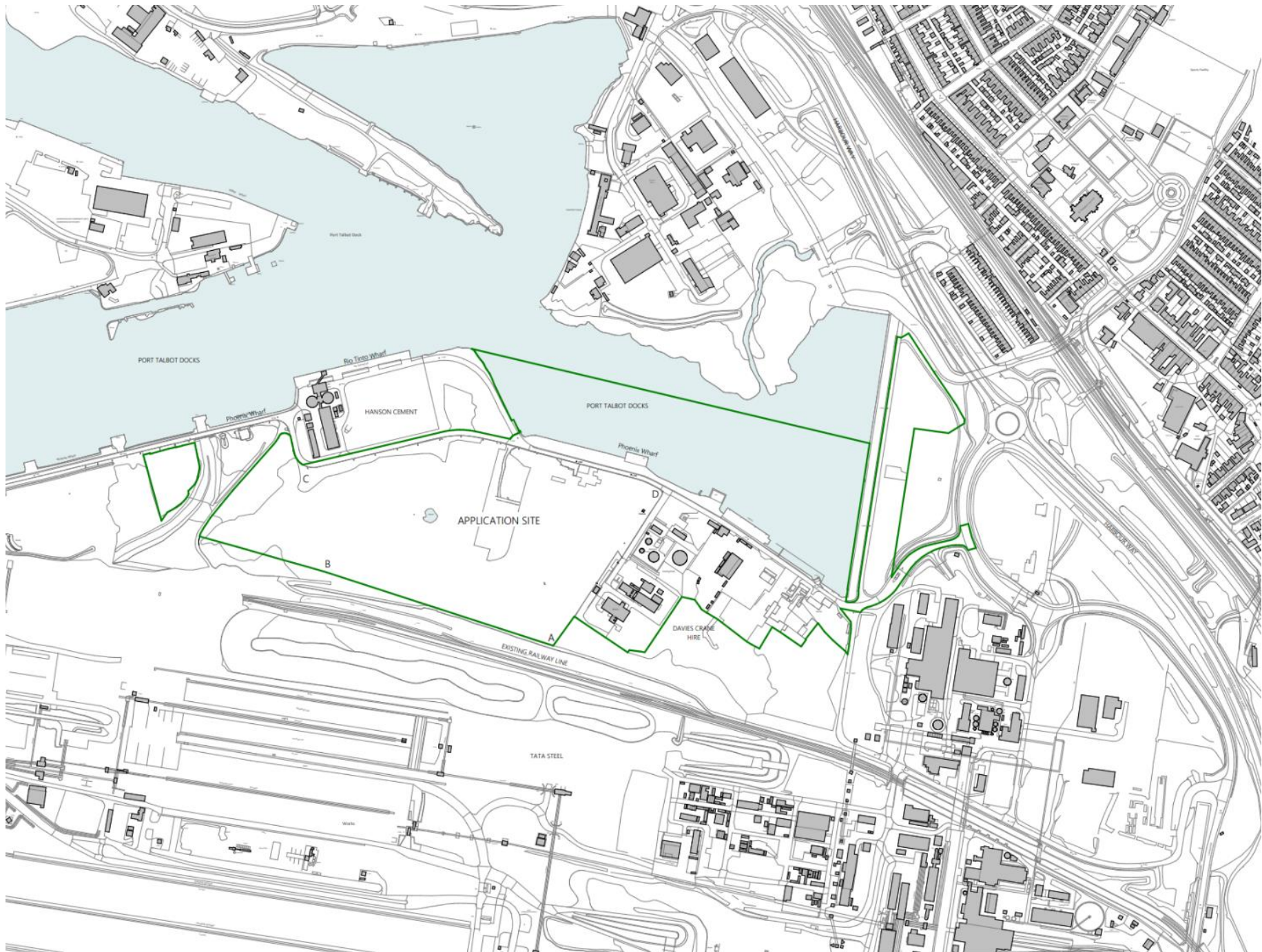
- 2.5 The assessment of all environmental effects undertaken as part of the EIA and reported in the ES are based on the EIA Study Area Boundary to ensure all environmental effects associated with the Proposed Scheme have been considered and assessed. As such, throughout the ES and within the remainder of this NTS the EIA Study Area boundary is referred to as the 'Site'.
- 2.6 The Site for the purpose of the EIA has been split into a number of areas for the purpose of describing environmental effects arising from the Proposed Scheme, and to reflect the temporary uses of some areas of land during the construction stage of the Proposed Scheme only. The following areas are used throughout the ES and this NTS and are illustrated in **Extract 3**:
- A primary parcel of land for the location of the proposed production facility (approximately 9.1 hectares), comprising bare land adjacent to Crown Wharf (Port Talbot) (referred to as the '*Production Development Zone [PDZ]*');
 - Three discrete parcels of land located within the wider Port Talbot Docks, (approximately 16ha) (referred to as '*Temporary Construction Areas [TCA] 1, East and West*');

¹² Formally referred to as 'Alcohol to Jet Renewable Diesel' (ATJ RD).

- Approximately 0.87km of the unnamed port road, running adjacent to the northern boundary of the PDZ; and
- An extent of the marine environment of Port Talbot Docks, located to the north of the PDZ and the unnamed port road.

2.7 As shown on **Extract 2** and **3**, the Site is broadly bound by the Hanson Cement works and the wider Port Talbot Docks to the north; Harbour Way (A4241) and the TATA Steel works to the east; an existing disused railway line associated with the port Steel to the south; and further undeveloped dockside land occupied by vegetation to the west.

2.8 The key characteristics of the Proposed Scheme, specifically the details assessed within the ES, are set out below.



Extract 2: Site Location Plan and EIA Study Area Boundary

Operational Process and Activities

- 2.9 The Production Development Zone (PDZ) in the centre of the Site (see **Extract 3**) will operate as the primary land parcel for the proposed SAF and renewable diesel production facility and therefore the focus of development. It will contain all the plant and equipment necessary for the industrial process, as well as associated infrastructure (i.e., administrative buildings, substations, storage tanks etc.)¹³.
- 2.10 The primary process that will occur at the Proposed Scheme is the conversion of ethanol (a liquid), a chemical compound comprising carbon, hydrogen and oxygen (chemically expressed as C₂H₆O) into the SAF and renewable diesel. SAF and renewable diesel are essentially hydrocarbons, which is collective terms used to describe chemicals made up of a 'string' of carbon and hydrogen. Petrol used in vehicles is an example of a type of hydrocarbon, so too is kerosene, which is the fuel used in the aviation industry and effectively the product the SAF will emulate and replace.
- 2.11 As such, the primary process on-site uses a series of chemical steps to alter the chemical composition of the ethanol into the SAF and renewable diesel¹⁴.
- 2.12 In addition to the main process equipment and plant required for the primary process, the PDZ also includes a truck loading

¹³ Further detail on the equipment located within the PDZ is provided within **Volume 1: Chapter 4: Development Specification**, and is mapped on **Figures 4.1 – 4.14**.

¹⁴ Further detail of the steps used in the process on-site is provided within **Volume 1: Chapter 4: Development Specification**.

facility where the renewable diesel generated will be piped into tankers for transportation off-site.

- 2.13 To the north of the PDZ a new marine unloading/loading facility will be constructed. This, essentially comprising a wharf extending into Port Talbot Docks, will allow for the transportation of ethanol and SAF to and from the Site via ship tanker. It will be connected to the PDZ via pipes for the movement of the ethanol and SAF between the ships and PDZ. The exact location of the facility within Port Talbot Docks is to be finalised but will be within the Site defined and assessed within the EIA.
- 2.14 The primary process requires a number of 'inputs' to operate, notably water, electricity and gas, as well as additional chemical substances such as specific catalysts¹⁵.
- 2.15 The Proposed Scheme will obtain water for the process from Port Talbot Docks¹⁶, which will then be used at various stages of the process and for cooling purposes. The Proposed Scheme has been designed so as to reuse water across the process in order to reduce water demand, albeit an element of waste water from the process will be generated. All waste water from the process will be sent to an on-site waste water treatments facility, treated and discharged back to Port Talbot Docks¹⁷.

¹⁵ A substance used to facilitate a chemical reaction without itself being used/consumed by the reaction, therefore can be reused multiple times.

¹⁶ This will require an abstraction license from ABP.

¹⁷ This will require a discharge license from NRW, which will specify necessary conditions for waste water to ensure no pollution events occur.

- 2.16 Other additional chemical substances will either be generated on-site using plant/equipment or transported to Site via road tankers / heavy goods vehicles.
- 2.17 The Proposed Scheme will take electricity and gas from the local networks. This will require new connections and therefore new cables and pipes from the respective electricity and gas networks¹⁸. These works to provide the new connections will be undertaken by the utilities network operators, specifically National Grid Electricity Distribution (NGED) and Wales and West Utilities (WWU). As such, they do not form part of the Proposed Scheme for which planning consent will be sought.
- 2.18 By virtue of the process, the Proposed Scheme will result in some waste, including waste that may be classified as hazardous substances. However, all waste from the Proposed Scheme will be handled, transported, and disposed of in line with all applicable waste regulations.

Plant, Equipment and Building Footprint and Maximum Heights

- 2.19 The plant, equipment and buildings within the PDZ will vary in height, from 3m to 46.3m above the proposed ground level, which will be set at 8m above ordnance datum (AOD) within the PDZ. Therefore the overall maximum heights will range from 11m AOD) up to 54.3m AOD. The taller elements of plant and equipment are generally located in the southern extent of the PDZ. The proposed buildings, such as the administrative







building and control room, generally range from 6m up to 15m in height (approximately 18m to 23m AOD)

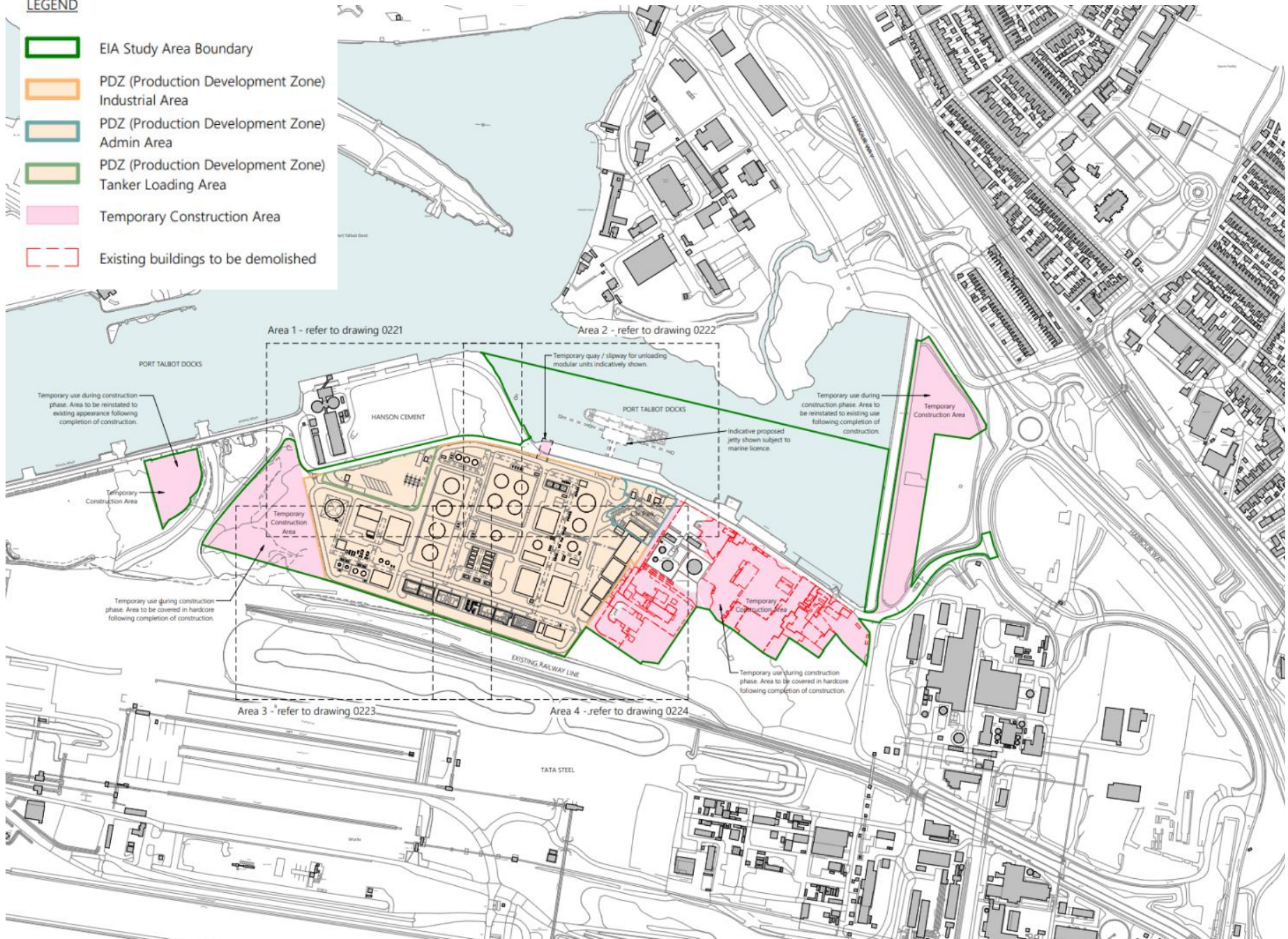
- 2.20 A key element of any industrial facility is the flare, which for the Proposed Scheme will be located within the western extent of the PDZ. The flare for the Proposed Scheme will comprise a 'ground flare' rather than a traditional stack flare, extending up to 20m in height from the proposed ground level (approximately 28m AOD in total).

¹⁸ Engagement with NGED has identified the need for a new electricity supply connection extending from the Site (the north-eastern corner of the PDZ) to Pyle primary substation. Engagement with WWU is ongoing but it is

understood a possible connection points to the high-pressure gas mains is possible to the north-west of the Site.

LEGEND

-  EIA Study Area Boundary
-  PDZ (Production Development Zone) Industrial Area
-  PDZ (Production Development Zone) Admin Area
-  PDZ (Production Development Zone) Tanker Loading Area
-  Temporary Construction Area
-  Existing buildings to be demolished



Extract 3: Layout of the Proposed Scheme

Access

- 2.21 As already noted above, ships will be used to transport the ethanol and SAF to and from the Site, utilising the proposed marine unloading/loading facility. Ships will use the existing lock entrance at the western end of Port Talbot Docks, with onward access to Swansea Bay and strategic shipping routes.
- 2.22 Road access will be taken from Harbour Way (A4241) to the east and the existing ABP western access gatehouse, which directly connects to the unnamed port road. Three new accesses junctions will be created from the unnamed port road to the PDZ (**Extract 3**).
- 2.23 The main access will be at the northeast of the PDZ and will include a new gatehouse. The main access will allow vehicular access for staff and visitors, as well as for deliveries, maintenance, and collections. Car parking for the Site will be accessible from the main access.
- 2.24 The access in the west of the PDZ will be for road tankers collecting the renewable diesel via the truck loading facility. This access will also include a gatehouse.
- 2.25 The final access will comprise a gated emergency vehicles access located adjacent to the western access (close to the truck loading facility) and used to allow entry for firefighting purposes and other emergency vehicles when necessary.
- 2.26 In the short term, pedestrians and cyclists will not be permitted to enter the area of the Site owned by ABP (i.e., all but the eastern extent of the unnamed port road). However, a system will be implemented whereby staff wanting to walk/cycle to

the Site can call to be picked up from the vicinity of the ABP western security gate and transported to the Site. In the long-term, facilities will be provided to enable improved access for pedestrians and cyclists.

Landscape and Biodiversity Strategy

- 2.27 As an industrial facility, the Proposed Scheme has been designed and laid out to ensure compliance with relevant health and safety regulations and remove potential risks, including fire risk. As such, there has been limited areas within which to allocate 'landscaping' features.
- 2.28 However, there is some landscaping provided at the boundary of the Site and on the external surfaces (including around the administrative building and roads), which includes flower-rich grassland; biodiverse walls; inset hotels; gravel rain gardens; large rock features; and biodiverse green/brown roofs.
- 2.29 Japanese Knotweed (an invasive species) is present in the PDZ and is currently subject to a long-term management strategy (by APB) to restrict its growth. Management will continue throughout the operation of the Proposed Scheme.

Flood Risk and Drainage Strategies

- 2.30 The majority of the PDZ is at a low risk of flooding, however a portion of the northern extent and areas of the marine unloading/loading facility adjacent to Port Talbot Docks is at higher risk of flooding from rivers/the sea.
- 2.31 To safeguard the PDZ from flooding, the ground will be raised and levelled to 8m AOD. The majority of the unnamed port

road will remain at its existing level with its western extent gradually raised to meet the PDZ.

- 2.32 Dockside structures have the potential to be flooded, however these will be designed to cope with these conditions and will safely tolerate extreme water levels.
- 2.33 To manage surface water from rainfall, a Sustainable Drainage System (SuDS) will be installed, meeting national requirements¹⁹.
- 2.34 Two water streams will be adopted for wastewater produced by the Proposed Scheme's production process. A 'clean water' drain will utilise SuDS measures including permeable paving and drainage swales and discharge into Port Talbot Docks via a newly created outfall.
- 2.35 A 'contaminated' drain will convey contaminated water arising from the production process to an on-site Effluent Waste Water Treatment facility. Once treated, this water will also discharge to Port Talbot Docks²⁰.

Operational Hours and Lighting

The Proposed Scheme will be operational 24 hours a day, 365 days a year. As such, the Proposed Scheme will include operational lighting required for the safe operation of the Proposed Scheme. However, the proposed on-site lighting has been designed so as to ensure light spill – essentially the

spillage of light outside of task areas requiring lighting – does not extend beyond the Site.

Construction of the Proposed Scheme

- 2.36 Site preparation and construction of the Proposed Scheme is anticipated to commence in 2024 and require up to 2.5 years to construct, inclusive of commissioning of the facility. As such, the Proposed Scheme is expected to be operational by late 2026.
- 2.37 Construction working will take place between 07:00 and 19:00 across all days. There may be requirements within the construction process for works to occur beyond these hours, however, if required these will be agreed with NPTCBC in advance.
- 2.38 As identified previously and within **Extract 3**, construction of the Proposed Scheme requires the use of other areas of land outside of the PDZ, specifically within three Temporary Construction Areas (TCAs). These are located east and west of the PDZ (TCAs East and West) and to the east of Port Talbot Docks at Margam Wharf (TCA 1).
- 2.39 These TCAs will be used for lay-down areas, storage of materials, location of construction compounds and other amenity facilities, car parking and some degree of pre-fabrication works for plant / equipment to be installed within

¹⁹ The Welsh Government Statutory Standards for Sustainable Drainage Systems and SuDS Manual (C753).

²⁰ A discharge license will be required from NRW for this and will be secured through the appropriate consenting process.

the PDZ, etc for use during construction. As such all activities within these areas will be temporary.

- 2.40 TCA East is currently occupied by several buildings and above ground structures, some of which are occupied. As such, to utilise TCA East, occupied buildings will be vacated²¹ and the building and above ground structures demolished.
- 2.41 Following the use of the TCAs for construction, all temporary infrastructure and facilities will be removed. TCA East will be returned to ABP (as landowner) as cleared land. TCA West and TCA 1 will be returned to ABP in an agreed condition.
- 2.42 The construction stage will include various stages of works, broadly in chronological order but with a degree of overlap, set out below:
- Securement of the Site, including Temporary Construction Areas (TCAs);
 - Preliminary site preparation works within PDZ, including (where applicable) protection of retained features, invasive species management practices, clearance works, ground investigation works, localised remediation activities (if required), utilities diversions, etc;
 - Preparation of Temporary Construction Areas (i.e., ground conditions survey and report, vegetation

clearance and lay down of ground protective measures where necessary) and formation of associated construction compound(s), amenities and associated material stores/pre-fabrication areas;

- Formation of construction access(s) to PDZ and implementation of associated road traffic management practices on Unnamed Port Road (if required);
- Construction of a construction jetty for the purpose of bringing in large scale plant/equipment via barge²². The construction jetty will comprise sheet piling of an area approximately 15m wide and 2-4m deep dockside to the north of the PDZ. The area will then be backfilled with hardcore and concrete as required to support the weight of plant/equipment for offloading;
- Construction of new operational access junctions to PDZ and marine unloading/loading facility;
- Earthworks (including levelling), material management and establishment of foundations;
- Construction of internal road(s) infrastructure;
- Delivery of process equipment modules by ship via new construction jetty;

²¹ Notice to existing tenants has been served by ABP as landowner and it is understood they will be offered alternative facilities within Neath Port Talbot or supported in their relocation.

²² Expected requirement for a small number of plant / equipment proposed.

- Construction and installation of plant/equipment, buildings and associated infrastructure (i.e. services, utilities and plant);
- Implementation of proposed landscaping (including boundary features), lighting, internal and external finishing; and
- Returning of TCAs to ABP in line with agreed condition.

2.43 A commitment has been made to adopt a series of environmental management best practices to avoid, offset and reduce environmental effects associated with the construction of the Proposed Scheme. These measures will be provided within a Construction Environmental Management Plan (CEMP) and submitted to NPTCBC for approval²³ in advance of construction activities occurring. These measures are derived from best practice measures or technical specific guidance / recommendations. As such, these measures are 'tried and tested' to effectively mitigate construction related environmental effects.

2.44 The measures committed to within the CEMP cover:

- General health and safety practice, site security and crime prevention measures;
- The management of construction related traffic;

- Dust suppression / management and control of non-road mobile machinery emission in line with defined standards;
- In addition, a communication strategy with local community will be set out in relation to dust and air quality;
- Management of noise in line with Control of Pollution Act 1974 and other best practice measures;
- Appropriate siting, use and control of temporary construction lighting;
- Management of construction activities in and around key retained or created ecological habitat in line with correct British Standards and best practice measures;
- Adoption of waste management strategies and practices in line with the waste hierarchy principles; and
- The management of soils and materials, including adoption of measures to control potential pollution events occurring.

²³ The CEMP will be maintained and updated (as required) throughout the construction process

Reasonable Alternatives

- 2.45 The EIA Regulations require “a description of the reasonable alternatives studied by the developer”, including in relation to alternative sites; design; technology or a ‘do nothing scenario’.
- 2.46 Due to the industrial nature of the Proposed Scheme, ‘alternative designs’ are limited as the primary consideration is a safe layout/arrangement. Therefore, no detailed assessment of alternative designs has been undertaken.
- 2.47 The ‘do nothing scenario’ (i.e., the Proposed Scheme not coming forward) has also not been considered in detail, as there are limited natural changes to the future baseline. For clarity, the Site and surrounding area is anticipated to remain as per the current baseline, apart from:
- Continued growth of existing vegetation on-Site, including Japanese Knotweed;
 - Changes in employment trends; and
 - Projected reduction in greenhouse gas emissions.
- 2.48 The consideration of the ‘do nothing scenario’ does not account for any other form of proposed development or human derived changes to the Site, as the potential scenarios of such instances could be endless. Although it is noted that ABP have publicly identified ambitions to regenerate Port Talbot Docks, including the Site. However, any evaluation of

such ambitions has not been undertaken as there is limited environmental information available for future options to inform a robust assessment.

- 2.49 Regarding ‘alternative technologies’, the industrial nature of the Proposed Scheme means that an environmental permit²⁴ (see **Section 1**) will be required to operate the facility, which will directly influence the ‘technology’ adopted as part of the Proposed Scheme. ‘Best Available Technology’ (BAT) will be considered as part of the environmental permitting process, to ensure the protection of human health and the environment. The detailed engineering design is continuing to evolve, and therefore a detailed assessment of alternative technologies has not been undertaken.
- 2.50 Therefore, only ‘alternative sites’ was considered in detail in the ES.

Alternative Sites

- 2.51 At the outset of the project, the Applicant considered a number of potential alternative sites for the Proposed Scheme. The primary factors influencing site selection were commercial and viability factors, with some environmental constraints being identified.
- 2.52 The ES evaluated and reported two potential alternative sites (Option A and B) for the Proposed Scheme and considered how the likely effects of the Proposed Scheme at these sites may differ to those for the Site of the Proposed Scheme. Option A

²⁴ To be sought in accordance with Environmental Permitting Regulations (England and Wales) 2016 (as amended)

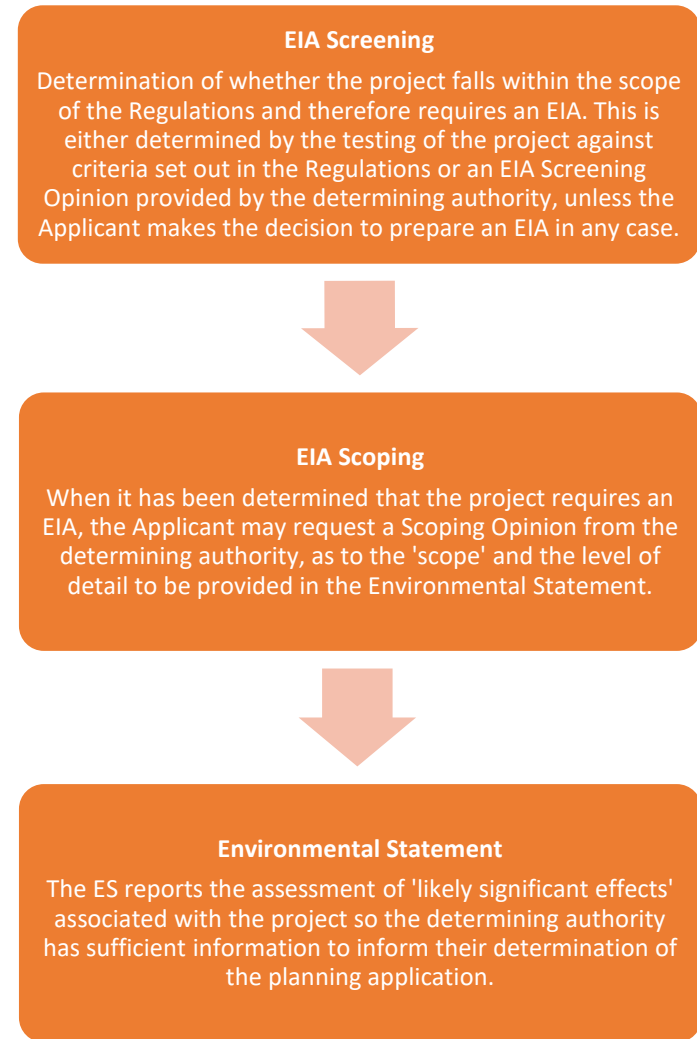
was to the west of the Site, also connected to Port Talbot Docks. Option B was further to the south, to the north of Eglwys Nunydd Reservoir. The location of these options in relation to the Site are shown on **Extract 4**.

- 2.53 Overall, the environmental effects of Option A were considered to be largely similar to the Site of the Proposed Scheme. They were, however, considered to have the potential to be worse at Option A in relation to landscape and visual as that site may have been more visually prominent to nearby residential receptors
- 2.54 For Option B, the effects were considered to be largely similar to the Site of the Proposed Scheme, albeit, for air quality and noise it was considered that a comparison could not be made as it would require detailed modelling to reach a conclusion. For marine ecology, effects were considered to have the potential to be worse than the Site of the Proposed Scheme, given the higher ecological quality/value of Eglwys Nunydd reservoir (albeit it is noted this wouldn't necessarily be a marine ecology effect, rather it would be an aquatic ecological environment effect).

3. The EIA Process and Approach

The EIA Process

- 3.1 The aim of EIA is to protect the environment by ensuring that a determining authority (in this case NPTCBC) when deciding whether to grant planning permission for a project, does so in the full knowledge of the likely significant environmental effects of the project and takes them into account in the decision-making process.
- 3.2 As such, EIA is a tool to assess and report likely significant environmental effects.
- 3.3 The EIA process generally comprises a series of steps, which are summarised in **Extract 5**. It should be noted that the first step (Screening) is not mandatory, and the second stage (Scoping) is voluntary. For this project the Scoping and Environmental Statement stages of the EIA process were completed.
- 3.4 The EIA Regulations specify that EIA must “*identify, describe and assess the direct and indirect significant effects*” of the Proposed Scheme on a number of ‘factors’. These factors, generally broken down into specific sensitive receptors, have been considered/assessed within a number of technical topics and appraised at each stage of the EIA process.



Extract 5: Overview of EIA Process

EIA Screening

- 3.5 As indicated in **Extract 5**, the purpose of the EIA Screening process is to establish if the Proposed Scheme for which consent is being sought is considered 'EIA Development', principally due to the presence of likely significant effects.
- 3.6 The project team considered the potential for likely significant effects at the outset of the project. For several topics, likely significant effects were unable to be ruled out and it was therefore considered the Proposed Scheme was an EIA Development.
- 3.7 As such, the EIA Screening process was not completed, and the project moved forward to the EIA Scoping stage.

EIA Scoping

- 3.8 The EIA Scoping process, informed by a series of baseline studies, undertook a preliminary assessment in order to identify technical topics and/or specific effects which were considered 'not significant'. This process commenced in June 2022 and took place over a year, to allow for engagement with NPTCBC and NRW (**Extract 6**) where additional comments raised were incorporated. This process was used to 'scope' the ES, thereby ensuring only those topics and/or effects that were likely to be significant would be subject to further assessment and reported as part of the ES.
- 3.9 The EIA Scoping process and pre-application consultation, culminating in an EIA Scoping Report²⁵ submitted to NPTCBC,

²⁵ The EIA Scoping Report has been submitted with the ES, as **Volume 2: Appendix 2.1**.

proposed scoping out the following technical topics because no likely significant effects were anticipated.

- Built Heritage and Archaeology;
- Ground Conditions;
- Flood Risk and Hydrology;
- Transport;
- Marine Navigation and Marine Recreational Resource;
- Lighting; and
- Waste.

- 3.10 At the time of submission of the PAC documents (for pre-application consultation), the EIA Scoping Opinion from NPTCBC is pending. Comments raised as part of the EIA Scoping Opinion will be addressed in the ES for the final submission of the planning application.

Evolution of Scope

- 3.11 Following the submission of the EIA Scoping Report to NPTCBC, the EIA Study Area Boundary used to define the Site was extended to include two additional parcels of land for the purpose of temporary construction areas²⁶.

²⁶ Identified as Temporary Construction Area East and West on **Extract 3**.

3.12 As a result, a review and validation of the previous scoping exercise was undertaken as part of the preparation of the ES to consider the identified changes upon the scope of the ES (**Extract 6**). This review and validation process concluded that no amendments to the breadth of topics proposed by the EIA Scoping Report were necessary.

Final Scope of the ES

3.13 As such, the ES has reported the assessment of '*likely significant effects*' for the following technical topics:

- Major Accidents and/or Disasters;
- Terrestrial Ecology;
- Landscape and Visual;
- Socio-Economics and Human Health;
- Climate Change;
- Air Quality;
- Noise and Vibration; and
- Marine Ecology.

3.14 The precise approach to the assessment of likely significant effects varies somewhat between the various technical topics, reflecting relevant industry and technical guidance/regulations. The adopted methodology for each technical topic was confirmed through the EIA Scoping process. The methodologies

adopted are clearly outlined for each technical topic within **Volume 1** of the ES.

3.15 Nonetheless an overarching approach, required by the EIA Regulations that covers all technical topics is set out in **Extract 7**. The steps within **Extract 7** are colour coded, with the subsequent sections of this NTS following a similar colour coding, allowing readers to understand how each step within the assessment approach (**Extract 7**) has been completed as part of the ES.

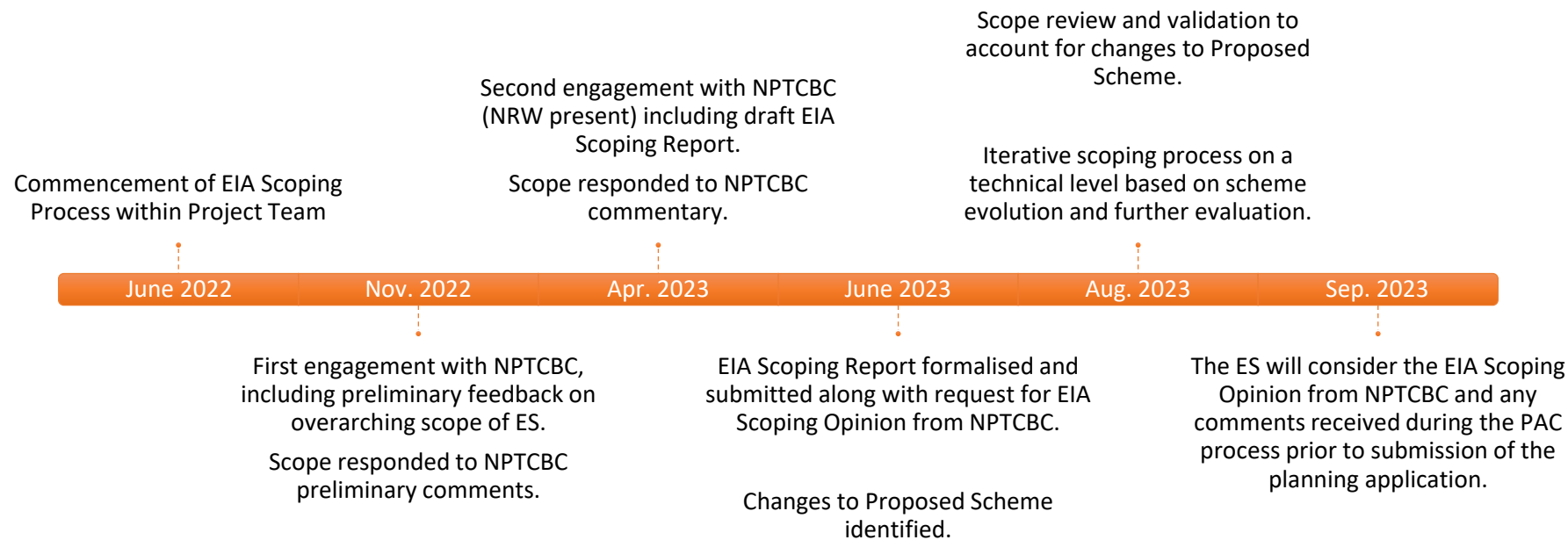
3.16 A summary of the entire EIA Scoping process undertaken is set out in **Extract 6**.

Environmental Statement

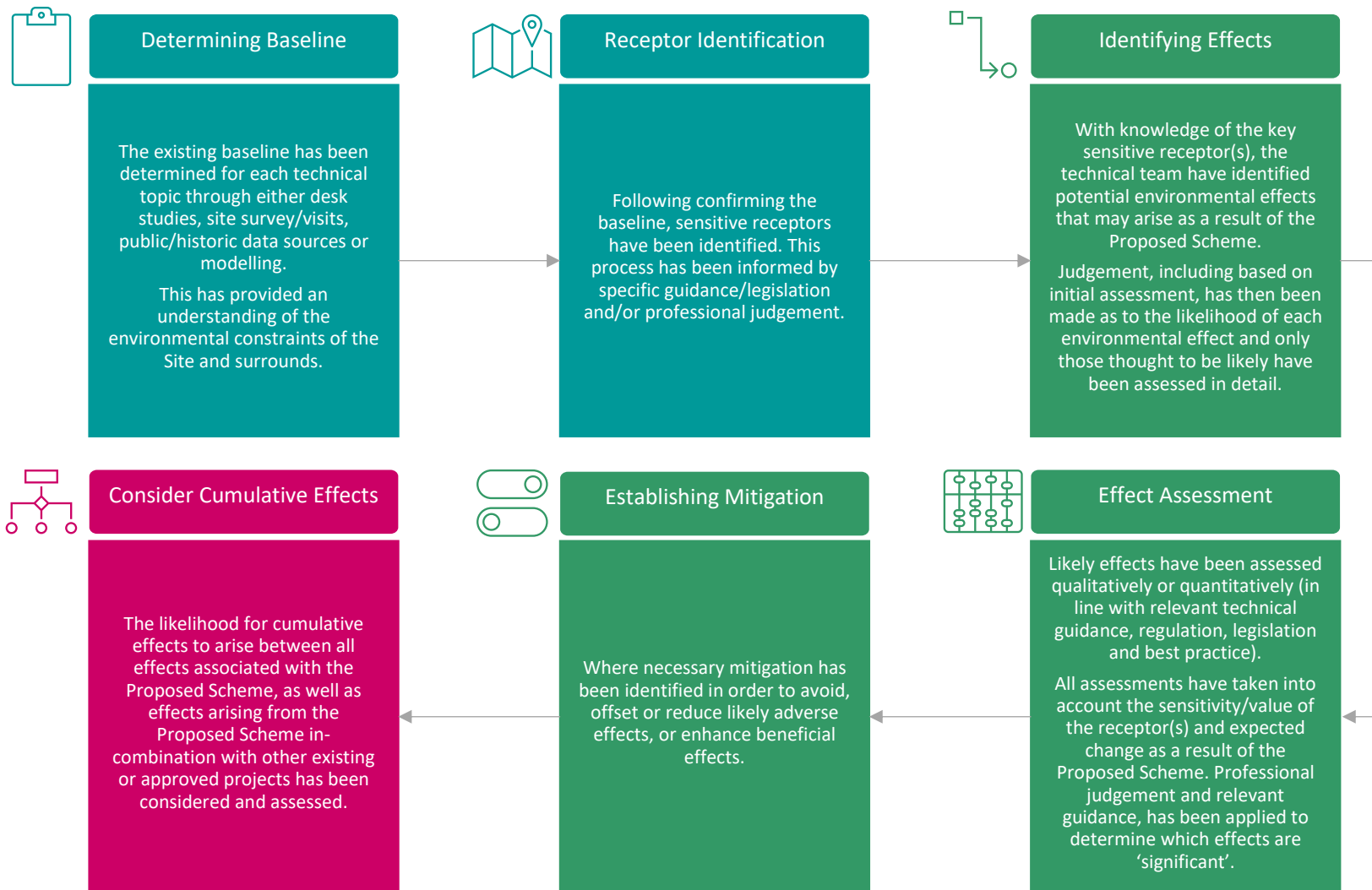
3.17 As set out within **Section 1** the purpose of EIA and the ES is to assess and report the '*likely significant effects*' of the Proposed Scheme on the environment. On this basis the summary of the technical assessments presented within this NTS (**Section 5**) concludes with respect to if an effect was considered '*significant*' or '*not significant*'.

3.18 Furthermore, where the determination of '*significant*' or '*not significant*' is linked to the implementation of specific mitigation, this proposed mitigation has been noted as part of the summary within **Section 5**.

3.19 An overview of the overarching approach to assessment for the ES and each technical assessment (i.e. steps taken in the assessment) is provided in **Extract 7**.



Extract 6: Overview of EIA Scoping process



Extract 7: Approach to Assessment Process

4. Site Context

- 4.1 As set out within **Extract 7**, in order to determine the environmental effects of the Proposed Scheme it was necessary to establish the existing characteristics of the Site and surrounding area (i.e., the existing baseline conditions).
- 4.2 A summary of relevant baseline information for the various technical topics scoped into the assessment²⁷ are provided in **Section 5**. However, a summary of the general context of the Site and surrounding area is presented here.

Context

- The Site is within Port Talbot Docks;
- As set out in **Section 2**, the Site for the purpose of the EIA is formed of the following areas:
 - Primary parcel of land for the location of the proposed production facility (approximately 9.1 hectares), comprising bare land adjacent to Crown Wharf (Port Talbot) (referred to as the '*Production Development Zone [PDZ]*');
 - Three discrete parcels of land located within the wider Port Talbot Docks, (approximately 16ha)

(referred to as '*Temporary Construction Areas [TCA] 1, East and West*');

- Approximately 0.87km of the unnamed port road, running adjacent to the northern boundary of the PDZ (referred to as '*Unnamed Port Road Supporting Infrastructure*'); and
 - An extent of the marine environment of Port Talbot Docks, located to the north of the PDZ and the unnamed port road (referred to as the '*Marine Unloading/Loading Facility*').
- The PDZ is currently unused and vacant;
 - TCA East contains a number of existing structures associated with historic and on-going industrial/commercial activities; and
 - TCA1 and TCA West comprise vacant land colonised by vegetation.

Natural Evolution of the Site

- 4.3 The EIA Regulations require the provision of, as far as reasonably possible, an estimation of the future natural evolution of the Site (i.e., future baseline) were the Proposed Scheme not to go ahead (i.e., no development scenario).

²⁷ Baseline data for topics scoped out have not been set out and was provided in full as part of the EIA Scoping Report (included as **Volume 2, Appendix 2.1** and **Volume 1, Chapter 3**).

- 4.4 It was determined that the future baseline would be broadly as existing for major accidents and disasters; air quality; noise and vibration and marine ecology.
- 4.5 For socio-economics there is anticipated to be further changes in the levels of employment in relevant industries / sectors. In addition, without the Proposed Scheme there is likely to be the continued growth of existing trees and scrub on Site. GHG emissions across NPTCBC, Wales and the UK are anticipated to reduce. Regarding the vegetation on-Site, this would be anticipated to continue to grow, if left unmanaged.

5. Effects of the Proposed Scheme

- 5.1 A summary of the assessment in the ES and the identified 'likely significant effects' reported within **Volume 1: Main Text and Figures**, taking each topic in turn, is provided below.
- 5.2 The Terrestrial Ecology assessment has not been provided for PAC submission and is still pending finalisation. On that basis the conclusions set out in this Section also exclude Terrestrial Ecology and will be updated for submission of the planning application.
- 5.3 The summary is reflective of the scope of assessments, as discussed within **Section 3** and therefore technical topics or effects 'scoped out' have not been discussed. Assessments within **Volume 1** have considered effects arising from the construction and operational stages of the Proposed Scheme, however, where the text only considers a single stage this is due to that fact that effects associated with the other stage where also 'scoped out'.
- 5.4 As with the requirements of the Non-Technical Summary, to be written in plain English, the summaries of assessment presented below are not overly detailed and parties interested in understanding the specifics of an assessment process or output are directed to **Volume 1**.
- 5.5 A summary of the technical topics is provided in the table below, where:

- No significant effects were identified – denoted by ✖;

- Significant adverse effects were identified – denoted by ✔;
- Significant beneficial effects were identified – denoted by ✔; and
- A mixture of significant adverse and beneficial effects were identified – denoted by ✔ (albeit not used on this occasion).

Technical topic	Significant effects?
Major Accidents and/or Disasters	✖
Terrestrial Ecology	Not evaluated for PAC submission
Landscape and Visual	✔
Socio-Economics and Human Health	✔
Climate Change	✔
Air Quality	✖
Noise and Vibration	✖
Marine Ecology	✖

Major Accidents and/or Disasters

What is the summary of the technical baseline?

- 5.6 The Site is within 3 miles of two establishments which could be a potential source of a major accident or disaster – BOC Limited (Margam) circa. 3.4km south east of the PDZ and Tata Steel UK Limited (Port Talbot Steelworks) adjacent to the Site.
- 5.7 The undeveloped nature of the Site means there are no pre-existing sources of potential major accidents and/or disasters.

What effects were considered?

- 5.8 The assessment within the ES considered the following effects during the operational stage:
- Operational plant/infrastructure failure (i.e. structure/building collapse, human error, explosion, non-descriptive accident);
 - Fire event occurring during ship transportation of ethanol and SAF; and
 - Fire event occurring on-site and impacting operational activities on-site, as well as consequential chain reaction events.
- 5.9 No construction stage effects were assessed in the ES, as they were all scoped out as being unlikely to be significant (due to known control measures).

What receptors were considered?

- 5.10 The sensitive receptors considered were future on-site users and members of the public. These are human receptors considered to be sensitive if there were any major accident and/or disaster associated with the Proposed Scheme.

What did the assessments identify?

- 5.11 As part of the engineering design process, a 'Health and Safety Executive (HSE)²⁸ Design Philosophy' report was prepared, which set out control measures to reduce exposure to operational hazards, and therefore risks of major accidents and disasters. Measures within the HSE Design Philosophy included preventative measures associated with design, as well as additional engineering or administrative controls. The measures were considered an integral part of the design of the Proposed Scheme and therefore used within the assessment of the effects.
- 5.12 The measures identified aligned with existing legislation, regulation and HSE specific guidance and documentation for industrial facilities such as the Proposed Scheme. Alignment with such aspects were therefore considered to ensure that the identified control measures reduce risks of major accidents and disasters to 'as low as reasonably practicable' (ALARP). Ultimately across all the effects, it was identified that with the limitation of risk to ALARP, the resulting effects would not be significant, albeit it was noted that the risks (and thus effects) were removed entirely as they are inherently always present.

²⁸ A body responsible for regulating safety.

Landscape and Visual

What is the summary of the technical baseline?

5.13 The Site largely comprises self-seeded trees and shrubs, as well as Japanese Knotweed, and Leyland cypress trees on the eastern boundary of the PDZ. The Site is located in the context of existing industrial development in and around Port Talbot Docks, including TATA Steelworks.

What effects were considered?

5.14 The following effects were considered during the construction and operational stage:

- Change to the character and amenity of views; and
- Changes to landscape components within the Site.

What receptors were considered?

5.15 Regarding landscape receptors, only 'vegetation on Site' (inclusive of the PDZ and TCAs) was considered during construction and operation.

5.16 Regarding visual receptors, only users of the Wales Coast Path were considered during construction and operation. Users of the Wales Coast Path on Margam Mountain were considered during construction only²⁹.

What did the assessments identify?

5.17 Vegetation has colonised the Site and during the construction stage will be removed. The assessment of changes to

²⁹ Whilst this receptor was also proposed to be assessed during operation in the EIA Scoping Report, on receipt of further information it was determined

vegetation within the Site during the construction stage concluded that the removal of the vegetation would result in a reduction in greenery that currently encloses the industrial nature of the landscape. This was considered to be a significant adverse effect. During operation, it was determined that there would be some potential to improve landscape features given the proposed landscaping on-site (as described in **Section 2**), however, as a whole, there would be a noticeable reduction in the greening to the Site. Therefore, an adverse effect was concluded, albeit it was only deemed significant at the PDZ and TCA East.

5.18 During construction, there will be changes to views due to a change of use of the Site from brownfield land colonised by vegetation/some limited existing buildings (in TCA East), to a construction site. Largely this would not result in significant effects, due to the extent of the view to the Site. However, the effect was considered to be significant for direct views across TCA1 (users of the Wales Coast Path to the north and west of Margam Wharf) and where construction works block views of Port Talbot Docks (users of the Wales Coast Path on Margam Mountain), where the clearance of vegetation and construction plant/compound, etc would be more noticeable.

5.19 During operation, there would be built form and lighting present which will reinforce the industrial context of the Site and result in changes to existing views. Overall, given the existing industrial nature, this effect was largely not considered to be significant. However, it was considered to be significant

this receptor would not experience significant effects during operation due to the built form being lower than assumed at the EIA Scoping stage.

for users of the Wales Coast Path to the north and west of Margam Wharf with direct views across TCA1 only, due to the large structures that would be visible alongside Port Talbot Docks.

Socio-Economics and Human Health

What is the summary of the technical baseline?

5.20 Relevant elements of the existing socio-economic baseline include:

- Economic activity rates amongst the working age population (16-64 years old) of NPTCBC is 73%, whereas in Wales it is 76% and in Great Britain it is 79% (between January 2022 – December 2022);
- As of April 2023, 2,815 people in NPTCBC were claiming out of work benefits;
- As of 2021 NPTCBC supported employment for 2,000 people in the construction sector, equating to 3.8% of total employment in the area, which is lower than the sector's 4.5% contribution to the total workforce in Wales; and
- Employment in 'Water supply; sewerage, waste management and remediation activities and the transportation and storage sector has increased per annum.

What effects were considered?

5.21 The effects that were considered to be likely and significant in relation to socio-economics was the generation of employment during the construction and operational stage.

What receptors were considered?

5.22 The relevant receptor in relation to the generation of employment is the local labour force and vulnerable groups.

What did the assessments identify?

5.23 The construction and operation of the Proposed Scheme will create jobs through the need for construction workers to build the Proposed Scheme and operational workers to manage the Site processes.

5.24 During construction, based on information provided by the Applicant, it is estimated that the Proposed Scheme would support 505 total net additional jobs in Wales, of which 275 job would be taken by people in NTPCBC. This accounts for leakage (where jobs are taken but those outside of NTPCBC or Wales) and displacement (where jobs would be taken by those who, in the absence of the Proposed Scheme, could otherwise be working on alternative construction projects locally). Whilst this is a beneficial effect, it is not considered to be significant as the number of jobs created is similar to the existing baseline levels.

5.25 During operation, and accounting for leakage and displacement as defined above, the Proposed Scheme was reported to result in 165 jobs in Wales, of which 105 would be taken by people in NPTCBC. This was considered to be a beneficial effect that is significant, as the uplift in jobs is equivalent circa 15% of

annual average employment growth in NPTCBC over the period 2015-2021 and the jobs would be supported on a long term basis.

Climate Change

What is the summary of the technical baseline?

5.26 For the purpose of a worst case assessment (and given the Site is largely unused), baseline greenhouse gas (GHG) emissions from the Site were assumed to be zero.

What effects were considered?

5.27 The assessment of climate change only considered the net GHG emissions across the construction and operational stage.

5.28 In terms of climate resilience effects (i.e. how the Proposed Scheme will be resilient to the future effects of climate change), these are not assessed as they were considered unlikely to be significant. This is due to established control measures that are inherent within the Proposed Scheme design and commitments by the Applicant to further measures. This represents an example of 'iterative scoping' whereby the effects set out in the EIA Scoping Report are now not all considered appropriate to report in the ES Chapter, as further information is available to conclude they are not significant.

What receptors were considered?

5.29 The sensitive receptor in relation to GHG emissions is the global climate system.

What did the assessments identify?

5.30 The construction and operation of the Proposed Scheme will include activities that result in GHG emissions. However, the output of the operational stage activities (i.e. the SAF) will result in GHG savings ('downstream emissions'), as it is a more sustainable alternative to the more widely used aviation fuel (Kerosene). Furthermore, there are 'upstream emissions', for example sourcing the ethanol³⁰, associated with the Proposed Scheme. Therefore, the effects of the construction and operational emissions, as well as the upstream and downstream emissions were considered to result in one overall GHG effect.

5.31 Overall, the assessment calculations showed there will be direct adverse GHG emissions from construction and operation, but when factoring in the 'savings' of the SAF product downstream, in comparison to using standard aviation fuel, beneficial effects are achieved.

5.32 The net emissions were considered alongside the UK Government Carbon Budget Delivery Plan, which has a specific element focused on savings from increased uptake of SAFs, where the Proposed Scheme contributes between 16% - 22% of the savings.

5.33 Overall, the net GHG effect was considered to be beneficial and significant, due to the savings in GHG emissions from the SAF produced.

³⁰ The ethanol input can vary and come from multiple routes. As part of the Life Cycle Assessment (LCA) work undertaken by the Applicant, example

sources of ethanol were considered. The ES considered the two most likely sources from the LCA, which are realistic options for the Proposed Scheme.

Air Quality

What is the summary of the technical baseline?

- 5.34 The Site is located to the west of an Air Quality Management Area (AQMA)³¹, which was established due to industrial emissions in the area; and
- 5.35 Monitoring of nitrogen dioxide and particulate matter, air pollutants harmful to human health, show that concentrations of these pollutant are generally below, or meeting, the objectives in Port Talbot (i.e. the air quality is better than, or at, the target objectives).

What effects were considered?

- 5.36 The assessment of air quality considered:
- Change to local air quality in terms of human health and ecology due to:
 - Operational on-Site emissions; and
 - Transport emissions (during construction and operation).

What receptors were considered?

- 5.37 The receptors considered were:
- Nearby human sensitive receptors (e.g residential, educational, and health facilities); and

- Ecological receptors Kenfig Special Area of Conservation (SAC) / Site of Special Scientific Interest (SSSI), Crymlyn Bog SAC and Cefn Cribwr SAC.

What did the assessments identify?

- 5.38 During the construction and operational stages, the Proposed Scheme will generate traffic (from both road and shipping movements), for example associated with workers accessing the Site and movement of materials to/from the Site, which will result in emissions to air, potentially affecting human health and ecological receptors.
- 5.39 Modelling was undertaken to predict the emission concentrations from vehicles/ships associated with the Proposed Scheme at surrounding sensitive receptors. The modelling showed that effects were not significant, because the existing baseline conditions are well below current UK air quality objective limits and the emissions from the vehicle and shipping emissions would not be of a level where they would exceed these thresholds.
- 5.40 During operation, there will be a number of sources of emissions to air associated with the operational processes, such as emissions associated with the flare, heating plant, etc. Multiple sources of emissions, including under differing operating scenarios (i.e., normal, emergency situation, or maintenance testing) were considered. Modelling was undertaken at the sensitive receptors to determine what level of exposure to emissions they would receive. Overall, the

³¹ Areas where pollutant levels exceed national air quality objectives for human health.

exposure of sensitive receptors was not considered to be significant as all emissions would be well below relevant air quality objective limits. The only exception to this was for on-site workers who would experience short-term and intermittent elevated air pollutant events when on-site diesel generators were being tested. It was concluded that this effect would not be significant at these maintenance scenarios only occur for a period of 30 minutes on the occasions of testing.

5.41 Overall, there were not significant air quality effects reported.

Noise and Vibration

What is the summary of the technical baseline?

5.42 Existing sources of noise around the Site and surrounding area were determined to be governed by road traffic noise and existing industrial noise sources.

What effects were considered?

5.43 The assessment of noise effects within the ES was focused on:

- Generation of noise from construction activities (including construction traffic on-Site³²);
- Generation of noise from construction traffic off-Site; and
- Generation of noise from plant (including equipment and activities on Site) during operation.

³² This was taken as the point of vehicles passing the ABP western access gate.

What receptors were considered?

5.44 The sensitive receptors considered across all effects were human receptors, comprising of surrounding residential and commercial premises.

What did the assessments identify?

5.45 The Proposed Scheme will require the use of plant and equipment, and traffic on-Site and off-Site in order to facilitate the construction. These activities are potential sources of noise, that could disturb surrounding human receptors.

5.46 Expected construction stage traffic off-Site (in terms of vehicles overall vehicle movements) were considered not to be so great, when compared to the existing traffic levels³³ on the local road network, that it would give rise discernible change in baseline noise level.

5.47 Construction activities were modelled across a series of scenarios that could occur, but focused on a worst case scenario which placed key noise generating activities in proximity to sensitive receptors. Noise effects during construction will be controlled through the use of a Construction Environmental Management Plan, which will set out the best practice measures to reduce noise. With this in place, it was determined that adverse noise effects upon receptors would occur but they would not be significant.

5.48 During operation, there are a number of activities that will generate noise, including the operation of plant and equipment

³³ This is done by calculating the percentage increased overall baseline traffic flows arising from construction traffic.

and ships entering Port Talbot Docks and loading/unloading. A worst-case scenario for each receptor was assessed, which largely related to noise from the ships loading/unloading (especially at night) and emergency flare event occur³⁴ (or a combination of both). Both of these noise events are intermittent / sporadic and usually an absolute worst-case situation. Therefore, adverse operational noise effects, although identified were not considered to be significant.

Marine Ecology

What is the summary of the technical baseline?

- 5.49 The water environment of Port Talbot Docks is predominantly freshwater, with periodic increases in salinity at times of the lock gates being open.
- 5.50 Fish species within Port Talbot Docks are mainly freshwater with some limited marine species, and diadromous fish species (those which migrate between salt water and freshwater).
- 5.51 Most of the diadromous fish species potentially present within Port Talbot Docks are of high conservation value and protected by UK and European Union legislation.

What effects were considered?

- 5.52 The assessment with the ES was focused on two key effects to fish species within Port Talbot Docks, as follows:

- Disturbance from underwater noise and vibration was considered during construction.
- Entrapment of fish during abstraction of water was considered during operation.

What receptors were considered?

- 5.53 For both the construction and operational stage effects, the sensitive receptor is fish. In terms of assessment of noise impacts, fish were grouped into two categories, those that use a swim bladder-inner ear (and thus more sensitive to underwater noise and vibration) and those that don't.

What did the assessments identify?

- 5.54 During construction there will be underwater noise and vibration generated from the removal of existing (but disused) wooden wharf within the Site and piling activities to facilitate the construction of construction wharf and the marine unloading/loading facility. Underwater noise modelling was undertaken based on a series of assumptions (such as the number of piles to be installed) to determine the effect the construction noise and vibration would have on fish. For both fish with a swim bladder-inner ear connection used in hearing, and fish without the swim bladder-inner ear, the effects were considered to be adverse, but not significant. This is due to the recommended implementation of two measures to limit noise and vibration, including adoption of a soft-start procedure for all piling events (to present the opportunity for fish to flee) and

³⁴ This in essence is the use of the flare to control an major accident or disaster and therefore not considered to occur regularly.

the use of bubble curtains as a precaution (which would reduce noise).

- 5.55 During operation, the entrapment of fish may occur during the abstraction of water from Port Talbot Docks. Meshed screens will be in place on pipes to prevent the entrapment of fish species with a moderate-large body size, and a 1mm screen mesh grade will be in place to prevent entrapment of smaller bodied fish, larvae, and eggs. However, there is still a risk of entrapment via trapping or pinning of fish against screens and intake apertures. Whilst this is concluded as an adverse effect, it is not considered to be significant as the entrapment of multiple individuals is unlikely to be noticeable above natural variation at a local scale (i.e. within Swansea Bay and/or the river Afan), and within Port Talbot Docks. Furthermore, the population of Fish within Port Talbot Docks is already exposed to water abstraction activity associated with the existing TATA steelworks and Hanson Cement).

6. Cumulative Effects

6.1 It is a requirement of the EIA Regulations for the EIA to assess the 'cumulative' effects arising from the Proposed Scheme.

6.2 There is no standard set methodology for the assessment of cumulative effects, but it is common (and in accordance with accepted guidance) for two types of cumulative effects to be considered, namely:

- **Intra-Project Cumulative Effects (Effect Interactions)** – which considers different effects within the project itself affecting the same receptors, either within the Site or in the local area; and
- **In-Combination Effects** – which considers effects from the Proposed Scheme alongside those from other existing or approved projects impacting upon a common receptor.

6.3 For both types of cumulative effects there needs to be a 'common receptor'. By this it is meant that the same receptor is considered in either two or more topics (for intra-project effects) or by the Proposed Scheme and another existing or approved project (for in-combination effects). If there is an absence of a common receptor it is considered that a cumulative effect does not occur.

6.4 Identifying, interpreting and communicating cumulative effects can often be technical and complicated, making it difficult to explain the outputs in 'plain English'. However, the process and outputs are set out below.

Intra-Project Cumulative Effects (Effect Interactions)

Approach

6.5 The evaluation of effect interactions first looks to combine all of the effects assessed within all technical chapters and 'categorise' them into 'receptor groups'. By sorting all effects into receptor groups, the potential for an effect interaction to occur can be identified.

6.6 The receptors groups are based on the list of 'factors' that are specified within the EIA Regulations, that an ES should report the likely significant effects upon³⁵. Often the receptors considered within the technical assessments will fall within one of the receptor groups.

6.7 Once collated in tabular form, it is clear where a receptor group is experiencing multiple effects associated with the Proposed Scheme and thus there is then considered the 'potential' for an effect interaction. Following this initial sorting process, the specific effects are examined in greater detail and the specific individual receptors assessed to confirm a common receptor.

³⁵ Population, human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape

6.8 Considering the importance of human health when assessing intra-project effects (because people are often the receptor where the greatest number of impacts interact), human health effects that were scoped out as part of the EIA Scoping process (see **Section 3**) were also re-appraised at a high level in this assessment to ensure all effects to population and human health were considered.

Evaluation Results

6.9 For both the construction and operational stage of the Proposed Scheme, potential intra-project effects were considered for the 'Population and Human Health' receptor group. Given the broadness of this receptor group and focus of much of the assessment within the ES on human receptors, potential intra-project effects are not unexpected.

6.10 Of the relevant effects identified for the construction stage assessment, it was concluded that an intra-project effect would occur upon users of the Wales Coast Path, arising from adverse visual amenity effects and adverse noise effect arising from construction works at weekends. It was judged that this effect interaction would be significant, albeit this is no greater than the level of effect and significance report at the individual level (see **Section 5**).

6.11 During the operational stage, it was concluded that intra-project cumulative effect could occur with respect to:

- (a) Identified risks of major accident and disasters in conjunction with the intermittent adverse air quality impacts. This would be experienced by on-site workers.

This effect interaction is considered highly unlikely to occur, but where it does occur the effect interaction is considered comparable to the level of effects experienced at the individual level and thus is not significant (see **Section 5**).

- (b) Identified risks of major accidents and disasters in conjunction with worst-case noise impacts occurring alongside the use of the flare for emergency scenarios. The effects would likely be experienced in sequence rather than at the same time and the effect interaction is considered highly unlikely to occur. Nonetheless, were it to occur the effect interaction was considered to be no worse than conclusions at the individual effect level.

6.12 Additional operational effects relating to operational employment and visual amenity changes for users of the Wales Coast Path may interact with (b), but it was judged that in such instances the overarching intra-project effect would still as reported in **Section 5**.

6.13 The evaluation of scoped out human health effects was not judged to change the conclusions of the intra-project cumulative effects assessments.

In-Combination Effects Approach

6.14 The first stage for this assessment is to identify other existing or approved projects that should be considered in cumulation with the Proposed Scheme. This identification and selection process was completed as part of the EIA Scoping process to

ensure agreement with NPTCBC on the existing or approved projects to consider. The approved projects identified and agreed with NPTCBC to be assessed as part of the cumulative effects assessment are shown on **Extract 8**.

6.15 The evaluation of in-combination effects is undertaken by each technical topic. The evaluation is informed by technical reports submitted in support of the approved projects, or where this is not available professional judgement is applied. The evaluation is as follows:

- (a) Do the projects share a common receptor, across either the construction and/or operational stages?
- (b) Does the combined effect of each project together give rise to an effect that is greater than that reported for the Proposed Scheme in isolation?

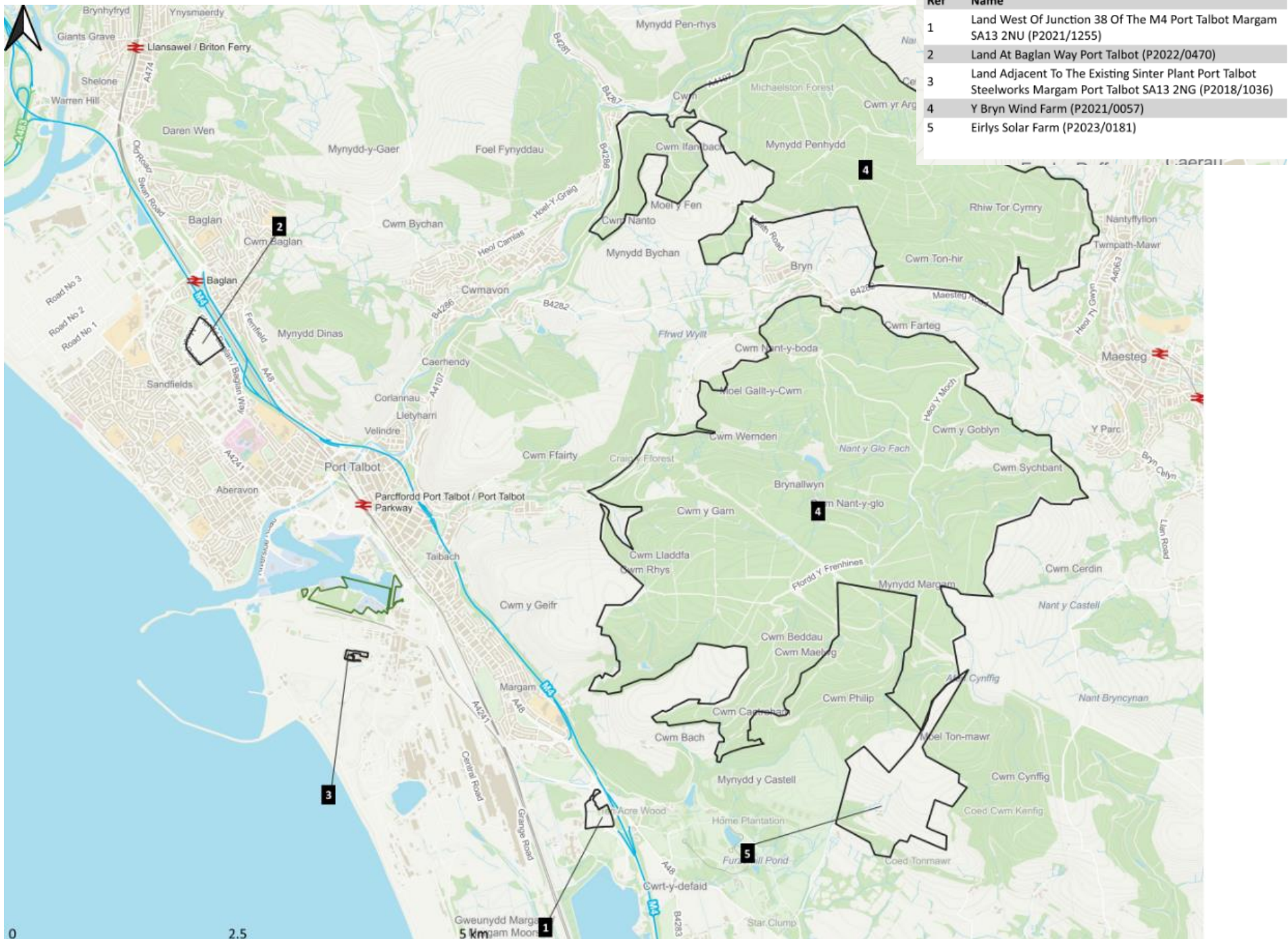
6.16 The evaluation of in-combination effects is normally undertaken qualitatively but some topics use quantitative modelling work that accounts for the other projects.

Evaluation Results

6.17 The assessment of in-combination effects across topics has concluded that there is the potential for in-combination effects in relation to major accidents and disasters; landscape and visual; air quality and noise but the conclusions do not change from the project level, for which in-combination visual effects to users of the Wales Coast Path are the only significant in-combination effect (adverse).

6.18 For socio-economics, there is also the potential for in-combination effects, specifically in relation to employment generation. The conclusions do change from the project level as they are now considered significant and beneficial during construction, where they were not previously considered significant. During operation they remain significant, albeit the level of beneficial effect is greater.

6.19 For climate change and specifically GHG emissions, the consideration of in-combination contributions is holistically considered at the project level. There is an in-combination effect and this is considered to be beneficial and significant.



Ref	Name
1	Land West Of Junction 38 Of The M4 Port Talbot Margam SA13 2NU (P2021/1255)
2	Land At Baglan Way Port Talbot (P2022/0470)
3	Land Adjacent To The Existing Sinter Plant Port Talbot Steelworks Margam Port Talbot SA13 2NG (P2018/1036)
4	Y Bryn Wind Farm (P2021/0057)
5	Eirlys Solar Farm (P2023/0181)

Extract 8: Location of Approved Projects

Appendix 1: Regulatory Compliance Checklist

Regulation 17, Paragraph 3 (e) of the EIA Regulations requires “a non-technical summary of the information referred to in sub-paragraphs (a) to (d)” to be provided. Schedule 4, Paragraph 9 of the EIA Regulations requires “A non-technical summary of the information provided under paragraphs 1 to 8” to be provided. For clarity around compliance with the EIA Regulations, the schedule below identifies where the information from paragraphs a to d of Regulation 17 and paragraphs 1 to 8 of Schedule 4 is located in this Non-Technical Summary.

Regulation 17. Environmental Statements	Schedule 4. Information for Inclusion in Environmental Statements	Location of Information in this Non-Technical Summary
(a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development	<p>1. A description of the development, including in particular:</p> <p>(a) a description of the location of the development;</p> <p>(b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works and the land-use requirements during the construction and operational phases;</p> <p>(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;</p> <p>(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, oil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operational phases.</p>	<p>Section 2: The Proposed Scheme</p> <p>Section 4: Determining the Baseline</p>
(d) a description of the reasonable alternatives studied by the applicant or appellant, which are	2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by	Section 2: The Proposed Scheme

Regulation 17. Environmental Statements	Schedule 4. Information for Inclusion in Environmental Statements	Location of Information in this Non-Technical Summary
relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the significant effects of the development on the environment	the applicant or appellant which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	
-	3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Section 4: Determining the Baseline
-	4. A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	Section 4: Determining the Baseline Section 5: Effects of the Proposed Scheme
(b) a description of the likely significant effects of the proposed development on the environment	5. A description of the likely significant effects of the development on the environment resulting from, inter alia: (a) the construction and existence of the development, including, where relevant, demolition works;	Section 5: Effects of the Proposed Scheme Section 6: Cumulative Effects

(b) the use of natural resources in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances and the disposal and recovery of waste;

(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;

(g) the technologies and the substances used.

The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at European Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(1) and Directive 2009/147/EC(2).

Regulation 17. Environmental Statements	Schedule 4. Information for Inclusion in Environmental Statements	Location of Information in this Non-Technical Summary
-	6. A description of the forecasting methods or evidence used to identify and assess the effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Section 5: Effects of the Proposed Scheme
(c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment	7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Section 5: Effects of the Proposed Scheme
-	8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of the Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	Section 3: The EIA Process and Approach Section 5: Effects of the Proposed Scheme

Turley Office

18 Windsor Pl
Cardiff
CF10 3BY

T 029 2034 4445

Turley