H2Teesside Project

Planning Inspectorate Reference: EN070009

Land within the boroughs of Redcar and Cleveland and Stockton-on-Tees, Teesside and within the borough of Hartlepool, County Durham

H2Teesside Order

Document Reference: 5.4 Design and Access Statement

The Planning Act 2008

Applicant: H2 Teesside Ltd

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GLOSSARY

ABBREVIATION	DESCRIPTION
AGI	Above Ground Installation - installations used to support the safe and efficient operation of a pipeline; above ground installations are needed at the start and end of a pipeline and at intervals along the route.
AOD	Above Ordnance Datum - a spot height (an exact point on a map) with an elevation recorded beside it that represents its height above a given datum.
CCP	Carbon Capture Plant - equipment used to capture carbon dioxide emissions from a power plant or industrial installation.
CCUS	Carbon Capture, Usage and Storage - is group of technologies designed to reduce the amount of carbon dioxide (CO_2) released into the atmosphere from coal and gas power stations as well as heavy industry including cement and steel production. Once captured, the CO_2 can be either re-used in various products, such as cement or plastics (usage), or stored in geological formations deep underground (storage).
CO_2	Carbon Dioxide - an inorganic chemical compound with a wide range of commercial uses.
DAS	Design and Access Statement - a document detailing the design of a proposed development including the design process that has been followed.
DCO	Development Consent Order - a Development Consent Order made by the relevant Secretary of State pursuant to The Planning Act 2008 to authorise a Nationally Significant Infrastructure Project. A DCO can incorporate or remove the need for a range of consents which would otherwise be required for a development. A DCO can also include rights of compulsory acquisition.

ABBREVIATION	DESCRIPTION
EIA	Environmental Impact Assessment - a term used for the assessment of environmental consequences (positive or negative) of a plan, policy, program or project prior to the decision to move forward with the proposed action.
EPC	Engineering, Procurement and Construction.
ES	Environmental Statement - a report in which the process and results of an Environment Impact Assessment are documented.
FEED	Front End Engineering Design - engineering which comes after the conceptual design or feasibility study focusing on the technical requirements and estimated investment cost for the project.
FID	Final Investment Decision - a financial decision that needs to be made in order to proceed with a project.
Ha	Hectares - a metric unit of measurement for area. There are 10,000 square metres in a hectares. One hectare is equal to 2.471 acres.
HP	High Pressure.
km	Kilometre - a metric unit of measurement for distance, equal to 1,000 metres.
kV	Kilovolts - a unit of electrical potential. There are 1,000 volts in a kilovolt.
LPA	Local Planning Authority - the planning department within the local authority where a development is situated.
MLWS	Mean Low Water Springs - the height of the mean low water springs is the average height obtained by the two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
m	Metres - a metric unit of measurement for length, equal to 100 centimetres.
mm	Millimetres - a metric unit of measurement for length. There are 1000 millimetres in a metre and 10 millimetres in a centimetre.
Mt	Million Tonnes - a metric unit of weight.
NIZ	Northern Industrial Zone – part of the South Tees Area/Teesworks area.
NPPF	National Planning Policy Framework- a document setting out the Government's planning policies for England.
NPS	National Policy Statement - a statement produced by Government under the Planning Act 2008 providing the policy framework for Nationally Significant Infrastructure Projects. They include the Government's view of the need for and objectives for the development of Nationally Significant

ABBREVIATION	DESCRIPTION
	Infrastructure Projects and Projects of National Significance in a particular sector such as energy and are used to determine applications for such development.
NSIP	Nationally Significant Infrastructure Project - defined by the Planning Act 2008 and covering projects relating to energy (including generating stations, electric lines and pipelines); transport (including trunk roads and motorways, airports, harbour facilities, railways and rail freight interchanges); water (dams and reservoirs, and the transfer of water resources); waste water treatment plants and hazardous waste facilities. These projects are only defined as nationally significant if they satisfy a statutory threshold in terms of their scale or effect.
NTS	National Transmission System for gas - the gas national grid used to transport natural gas around the UK.
NZT	Net Zero Teesside
PA 2008	The Planning Act 2008 - setting out the legislative regime for Nationally Significant Infrastructure Projects.
PNS	Projects of National Significance. Projects that are brought into the Planning Act 2008 regime via a Section 35 Direction issued by the Secretary of State. The Proposed Development is a PNS as no aspects of it are currently considered to be a NSIP.
PPG	Planning Practice Guidance - supplements the National Planning Policy Framework and provides detailed planning guidance to local planning authorities and applicants in England.
RBT	Redcar Bulk Terminal - a deep-water marine terminal situated on the South Bank of the River Tees on the North-East coast of the UK.
RCBC	Redcar and Cleveland Borough Council - the Local Planning Authority for part of the Site.
SoS	Secretary of State - the decision maker for DCO applications and head of Government department.
SPD	Supplementary Planning Document - a document that supplements the policies contained in the statutory development plan for the area.
SSI	Sahaviriya Steel Industries - the former owner of part of the former Redcar Steel Works Site.
STBC	Stockton-on-Tees Borough Council - the Local Planning Authority for part of the Site.

ABBREVIATION	DESCRIPTION
STDC	South Tees Development Corporation - a Mayoral Development Corporation responsible for approximately 400 hectares of land south of the River Tees in the borough of Redcar and Cleveland.
2015 Order	The Town and Country Planning (Development Management Procedure) (England) Order 2015 - the Order setting out the requirements for Design and Access Statements for Town and Country Planning Act developments.

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1.0 EXECUTIVE SUMMARY

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1.1.2 The Proposed Development will use natural gas to produce hydrogen (known as 'blue' hydrogen) with the carbon dioxide (CO_2) created during the hydrogen production process being captured and compressed for onward transportation and storage, under agreement with the Northern Endurance Partnership (the 'NEP'). NEP will store the CO_2 securely below ground within the Endurance storage site and other nearby CO_2 stores that NEP holds CO_2 storage licences for. These are located approximately 145 kilometres ('km') offshore from Teesside under the North Sea.

1.1.3 The Proposed Development and NEP form part of the East Coast Cluster ('ECC'). The ECC has been selected as one of the first two carbon capture, usage and storage ('CCUS') clusters to be taken forward by the UK Government. The ECC has the potential to remove almost 50% of the UK's total industrial clusters carbon dioxide emissions, protect thousands of jobs and establish the region as a globally competitive climate friendly hub for industry and innovation. The ECC will include a diverse mix of low-carbon projects, including industrial carbon capture, low-carbon hydrogen production, negative emissions power, and power with carbon capture. In March 2023, the Proposed Development was selected by DESNZ as one of the first three projects to connected to the ECC.

1.1.4 The low-carbon hydrogen produced by the Proposed Development will be supplied via a new hydrogen pipeline network to industrial users on Teesside. By replacing the use of natural gas the Proposed Development will help existing heavy industry on Teesside reduce its carbon dioxide emissions, consistent with the Government's objective to decarbonise the UK economy and achieve its legally binding target of net zero greenhouse gas emissions by 2050.

1.1.5 The Proposed Development will be one of the UK's largest blue hydrogen production facilities with a capacity of up to approximately 1.2 gigawatts ('GW') thermal, representing more than 10% of the Government's hydrogen production target of 10 GW by 2030. This equates to the production of approximately 160,000 tonnes of low carbon hydrogen per annum, with up to two million tonnes of CO_2 being captured and stored each year.

1.1.6 While there is no statutory requirement for a DAS to accompany a DCO application, the National Policy Statements for Energy, designated in January 2024, highlight the importance of applying good design to energy infrastructure projects. In view of this policy, the Applicant has prepared the DAS to describe the design principles that have been applied and the approach that has been taken to the design of the Proposed Development, how the design has developed and to demonstrate how regard has been had to the surrounding context and good design.

1.1.7 The primary focus of the DAS is on the Main Site for the Proposed Development, which will be the location for the Hydrogen Production Facility. This is on the basis that the Main Site will accommodate the Proposed Development's main buildings and structures, while the other main elements of the Proposed Development will primarily encompass the installation of pipelines and cables, which will be largely installed below ground (or within existing infrastructure corridors), temporary construction and laydown areas and limited access and highway works. Those works in the main comprise engineering operations, and are dealt with in more detail in other Application documents such as the Environmental Statement ('ES) (Documents Refs. 6.1 to 6.4) and the Pipelines Statement (Document Ref. 5.5).

1.1.8 The Proposed Development Site (the 'Site'), which includes the Main Site and the connections corridors, lies within the administrative boundaries of Redcar and Cleveland Borough Council ('RCBC'), Stockton-on-Tees Borough Council and Hartlepool Borough Council. It also partly lies within the boundary of land controlled by the South Tees Development Corporation ('STDC'), now known as Teesworks. Teesworks is a major brownfield industrial site and Freeport, which includes land that was previously occupied by the former Redcar Steel Works complex.

1.1.9 The Hydrogen Production Facility and its ancillary development, including its carbon capture and compression facilities, will be located on the northern part of the Foundry Site, which is one of the development zones within the North Industrial Zone ('NIZ') of Teesworks, within the borough of Redcar and Cleveland. It will be located adjacent to the NEP infrastructure (the Net Zero Teesside Project), which received development consent from the SoS on 16 February 2024. The CO_2 captured from the hydrogen production processes will be transported by pipeline to the NEP infrastructure for onward transport and storage within the Endurance storage site beneath the North Sea.

1.1.10 The Main Site is located roughly centrally within the NIZ of Teesworks, immediately south of South Gare and Coatham Dunes and to the west of Dormanstown and Redcar. To the south is the Bran Sands water treatment plant and PD Teesport ('Teesport'), a deep-water port facility, and to the west is Redcar Bulk Terminal ('RBT') and the River Tees. The Main Site previously accommodated a number of large buildings and structures that formed part of the former Steel Works, however, these have been for the most part demolished and the site has been cleared.

1.1.11 The Main Site very much sits within an industrialised context, but one that is changing with the demolition of the former Steel Works structures, most recently the Blast Furnace. It is relatively remote from residential areas and is not crossed by any Public Rights of Way ('PRoW'), however, a section of the Teesdale Way long distance route runs adjacent to the northern boundary of the Main Site.

1.1.12 The other main part of the Site for the most part comprise the connections corridors. These largely pass through areas of existing and former industrial land, but also some open, undeveloped areas, some of which are used for recreation and some of which are of nature conservation interest. The Applicant has sought to make use of existing pipeline and cable corridors where possible and in more

sensitive locations infrastructure will be installed using specialised construction techniques in order to minimise impacts and disruption. The approach that has been taken in terms of taking account of constraints and minimising the impacts in selecting and refining the connections corridors is set out at Chapter 6 'Need, Alternatives and Design Evolution' of the ES (Sections 6.7 'Connection Corridor Routing' and 6.8 'Connection Corridor Construction Methodologies') (Document Ref. 6.2).

1.1.13 The Main Site is allocated in the Redcar and Cleveland Local Plan (adopted May 2018) as part of a 'Protected Employment Area', which is subject to Policy ED6 'Promoting Economic Growth'. Policy ED6 seeks to promote heavy industries and port-related uses within the South Tees Area and states that development proposals should have regard to the South Tees Area SPD and contribute toward growth and regeneration. It goes on to state that proposals will need to demonstrate that no adverse effects will result on the integrity of the Teesmouth and Cleveland Coast Special Protection Area and Ramsar site, or other European designated nature conservation sites. Proposals will also be encouraged to improve the quality of the environment. The Proposed Development, which involve a low carbon hydrogen production facility, is therefore an appropriate type of development to located within this area.

1.1.14 The South Tees SPD has been prepared by RCBC to guide the development of Teesworks and defines five main zones for future development. These include the NIZ. The NIZ comprises the former Steel Works and is subject to Development Principle STDC11. This states that RCBC, in partnership with STDC, will encourage development proposals in the NIZ relating to port related industry, major space users/large scale manufacturing, energy innovation, power generation and storage.

1.1.15 STDC has produced a Design Guide for Teesworks. This is a non-statutory document intended to help inform development proposals within Teesworks. In line with the SPD the Design Guide divides Teesworks into five principal zones, including the NIZ, with potentially suitable uses for this area identified as being bulk materials handling, mineral processing, energy innovation and large-scale manufacturing. The NIZ itself is divided into three main development zones – The Foundry, Net Zero Teesside ('NZT') and RBT.

1.1.16 The Main Site will occupy the northern part of the Foundry zone adjacent to the NZT zone (which will accommodate the NEP infrastructure). The Foundry is not identified as a 'Gateway Plot' within the Design Guide as it does not have a frontage onto the main infrastructure corridor within Teesworks or any other primary route within Teesworks.

1.1.17 The Design Guide sets out a number of design principles for Teesworks and additional guidance is provided in respect of four major plot typologies, including 'Large-Scale Industrial Operations' which covers 'Major energy generation'. This is the Plot Typology of most relevance to the Proposed Development and the Main Site. The Design Guide recognises that in design terms these types of developments will primarily be driven by the functional requirements of the industrial processes involved in them.

1.1.18 The Applicant applied a number of design principles at an early stage in the design process. These design principles relate to 'climate', 'environment and safety' and 'place and value'. The approach taken to the design of the Proposed Development has been informed by the design principles, the context within which it will sit, the opportunities and constraints that the Main Site and locality present and also the local planning policy framework.

1.1.19 Due to the 'First of its Kind' nature, the Proposed Development necessarily incorporates a degree of flexibility in its design and layout in order to take account of technological advancement and to allow for some optionality. The Applicant has therefore defined a number of maximum design parameters, and these have been used as the basis for the Environmental Impact Assessment ('EIA') to ensure that the likely significant effects of the Proposed Development have been robustly assessed.

1.1.20 The DAS sets out the design information that is available at the consenting stage and how the design parameters and the detailed design of the Proposed Development will be controlled and secured.

1.1.21 The proposed use of the Main Site is for hydrogen production and the capture and compression of carbon dioxide from this process CO_2 prior to it being transported via the NEP infrastructure for offshore storage. That use is consistent with the allocation of the land within the Local Plan and also the uses identified as appropriate for the NIZ within the South Tees Area SPD and the Foundry within the Design Guide.

1.1.22 The various connection corridors (gas, water, electricity, carbon dioxide and hydrogen) largely involve existing and former industrial land either side of the River Tees, while the pipelines and cables will be largely installed below ground or within existing infrastructure corridors. There will be a number of Above Ground Installations ('AGIs') associated with the various connections. These will be relatively modest compound areas including pipeline tie-ins and some equipment housing. The infrastructure required for the connections will not therefore be highly visible, nor materially alter the use or character of the land to which they relate.

1.1.23 The Applicant has adopted a functional approach to the design of the Proposed Development, notably the Main Site, reflective of its function and purpose, the fact that it will sit adjacent to the NEP infrastructure (which is itself functional in appearance), the allocation of the land with the Redcar and Cleveland Local Plan and the South Tees SPD, that the Teesworks Design Guide does not identify the Foundry as a 'Gateway Plot', in addition to the industrial character of the area. The approach to design has also been influenced by technical, engineering, environmental and safety considerations. However, functional design can represent 'good design' and in developing the design of the Proposed Development the Applicant has taken account of the Teesworks Design Guide and the relevant plot typology and sought to minimise impacts upon the surrounding area.

1.1.24 The tallest and most visually prominent buildings and structures of the Proposed Development will be the main flare at up to 108 m in height (Above Ordnance Datum '(AOD')), the Auxilary Boiler Stack (up to 78 m AOD), CO_2 Absorber Column (up to 56 m AOD), Start-Up Fired Heater Stack (up to 53 m AOD), Air Separation Unit ('ASU') (up to 60 m AGL) and High-Pressure ('HP') and Low -Pressure ('LP') Flash Vessels (up to 58m AOD). However, some of the tallest structures such as the main flare and boiler and heater stacks, will be relatively slender structures in terms of diameters, limiting their prominence and as confirmed above, buildings and structures will be grouped where possible.

1.1.25 The main buildings and structures at the Main Site have been grouped together where feasible from a technical and safety perspective in order to consolidate their built form, scale and massing. Consistent with the Teesworks Design Guide and the Large-Scale Industrial Operations typology, the buildings and structures and main process areas are set back from the Site boundaries.

1.1.26 The appearance of the buildings and structures at the Main Site will be in keeping with the industrialised context within which they will sit, with the area already being characterised by large industrial structures and uses. The appearance of the buildings and structures is representative of their function and purpose and will also be in keeping with the proposed design approach to the adjacent NEP infrastructure.

1.1.27 The approach taken to landscaping at the Main Site has necessarily been influenced by functional and safety requirements. The areas around and between the main buildings and structures will comprise for the most part of hardstanding and crushed stone, with some grassed areas. These areas need to be kept free of planting for safety and security reasons.

1.1.28 The internal access roads and other hardstanding areas (e.g. for parking) will be of concrete or tarmac.

1.1.29 The perimeter areas of the Main Site will offer some opportunities for planting and biodiversity enhancement in line with the Outline Landscape and Biodiversity Management Plan (Document Ref. 5.9). Details of the landscaping will be secured by Requirement 4 'Landscape and biodiversity management plan'.

1.1.30 The Proposed Development also incorporate appropriate access arrangements. The internal access roads within the Main Site will be designed to provide safe access and movement for all vehicle types and users. There will be clear segregation of and demarcation of routes for pedestrians. Where possible, pedestrian routes, parking areas and buildings within the Main Site will be designed to provide for inclusive access. This will need to take account of operational and safety considerations given the nature of the use and operations.

1.1.31 The Proposed Development incorporates a number of measures within its design to ensure that it will be resilient in terms of the effects of climate change as well as contributing to mitigating those effects. This includes appropriate flood risk mitigation. Furthermore, it should not be overlooked that the Proposed Development will produce low carbon hydrogen with a link to the NEP

infrastructure that enables CCS, that will contribute to the decarbonisation of industry on Teesside, which supports climate change objectives and the Government's legally binding target of net zero greenhouse gas emissions by 2050.

1.1.32 The detailed design of the Proposed Development and measures to ensure its resilience to climate change will be secured by a number of requirements within the draft DCO, including Requirement 3 'Detailed design'; 4 'Landscape and biodiversity management plan'; 6 'External lighting'; 7 'Means of enclosure; 8 'Site security'; 10 'Surface and foul water drainage'; and 11 'Flood risk mitigation'.

1.1.33 In summary, it is considered that the Proposed Development represents 'good design' for the purposes of energy infrastructure and policy set out in the relevant National Policy Statements for Energy, other planning policy documents, and also the South Tees SPD and the Teesworks Design Guide.

2.0 INTRODUCTION

2.1 Background

2.1.1 This Design and Access Statement (Document Ref. 5.4) has been prepared on behalf of H2 Teesside Limited (the 'Applicant'). It forms part of the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for the Department for Energy Security and Net Zero ('DESNZ'), under Section 37 of 'The Planning Act 2008' (the 'PA 2008') in respect of the H2Teesside Project.

2.1.2 The Applicant is H2 Teesside Limited, a bp company. H2 Teesside Limited will be the lead developer of the Proposed Development and bp will be appointed as the operator of the Proposed Development. The Proposed Development will support the decarbonisation of UK-produced natural gas by converting it to low carbon hydrogen in Teesside for use in industrial applications, thus helping to achieve national targets in relation to net zero. It will also contribute to restoring manufacturing jobs in the Tees Valley. The Proposed Development will export carbon dioxide ('CO_2') to the Northern Endurance Partnership ('NEP') offshore storage facility via NEP infrastructure on the adjacent Net Zero Teesside ('NZT') site, including the high-pressure compression facility and the CO_2 export pipeline

2.1.3 The Applicant is seeking development consent for the construction, operation, maintenance of the H2Teesside Project, including associated development (together the 'Proposed Development') on land within the boroughs of Redcar and Cleveland and Stockton-on-Tees, Teesside and within the borough of Hartlepool, County Durham.

2.2 The Development Consent Process

2.2.1 Under the PA 2008, development consent can be granted in the form of a DCO for certain types of Nationally Significant Infrastructure Projects ('NSIPs') by the relevant SoS – in the case of energy infrastructure projects, this is the SoS for DESNZ.

2.2.2 However, the Proposed Development does not fall within any of the categories of NSIPs under Section 14 of the PA 2008 as:

- gas production facilities are not mentioned as a category of NSIPs; and
- in respect of the Hydrogen Pipeline Corridor, further to the Energy Act 2023 and recent Government consultations, the Government intends that hydrogen distribution will require a gas transporter licence. As such consideration needs to be given to the Section 14 category of gas transporter pipe-lines, the criteria of which are defined by Section 20 of the PA 2008. The Hydrogen Pipeline Corridor proposed as part of the Proposed Development does not meet those Section 20 criteria.

2.2.3 It is noted that in the earlier stages of development of the Proposed Development, prior to the Government legislating the Energy Act 2023, the Applicant had also considered the Section 14 category of *"construction of a pipe-line other than by a gas transporter"*, being, pursuant to section 21 of the PA 2008, that which would

require *"authorisation under … the Pipe-Lines Act 1962".* According to the Pipe-Lines Act 1962, a cross-country pipeline means a pipeline whose length exceeds, or is intended to exceed 16.093 kilometres ('km') (i.e. 10 miles). At that earlier stage, it was noted that it was likely that the Proposed Development's Hydrogen Pipeline Corridor would meet that distance threshold and thus could potentially be a NSIP, but that this was not definitive.

2.2.4 In light of this, and given the national significance of the Proposed Development and the desire to ensure that all aspects of the Proposed Development could be consented together the Applicant sought direction under Section 35 of the PA 2008 from the SoS for the Hydrogen Production Facility and the Hydrogen Pipeline Corridor (to the extent that the latter is not automatically a NSIP, which further to the Energy Act 2023, is now the entire corridor) to be treated as development for which development consent is required.

2.2.5 On 22 December 2022, the SoS took the decision within the conditions as required by Section 35A of the PA 2008, to issue a Direction in these terms. The other elements of the Proposed Development are being brought forward as 'associated development' to that development.

2.2.6 As a result of the above, the Applicant is required to obtain a DCO to authorise the Proposed Development under the PA 2008. Section 37 governs the form and content of the documents that are required as part of a DCO application. The requirements are implemented through 'The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended)' (the 'APFP Regulations'), which, amongst other things, state that an application must be accompanied by an Environmental Statement ('ES'), where a development requires an Environmental Impact Assessment ('EIA') (also known as an 'EIA development') under 'The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended)' (the 'EIA Regulations').

2.2.7 Development consent is required for the Proposed Development as it is the subject of a Direction dated 22 December 2022 made by the SoS under Sections 35(1) and 35ZA of the PA 2008 and other parts of the Proposed Development are associated development. The DCO, if made by the SoS, would be known as 'The H2 Teesside Order' (the 'Order').

2.3 Overview of the Proposed Development

2.3.1 The Proposed Development will use natural gas to produce hydrogen (known as 'blue' hydrogen) with the carbon dioxide (CO_2) created during the hydrogen production process being captured and compressed for onward transportation and storage, under agreement with the Northern Endurance Partnership (the 'NEP'). NEP will store the CO_2 securely below ground within the Endurance storage site and other nearby CO_2 stores that NEP holds CO_2 storage licences for. These are located approximately 145 kilometres ('km') offshore from Teesside under the North Sea.

2.3.2 The onshore elements of the NEP infrastructure on Teesside are part of the Net Zero Teesside ('NZT') Project and have been the subject of a separate application for

development consent. The SoS for DESNZ granted the NZT development consent application on 16 February 2024. The NZT DCO came into force on 11 March 2024.

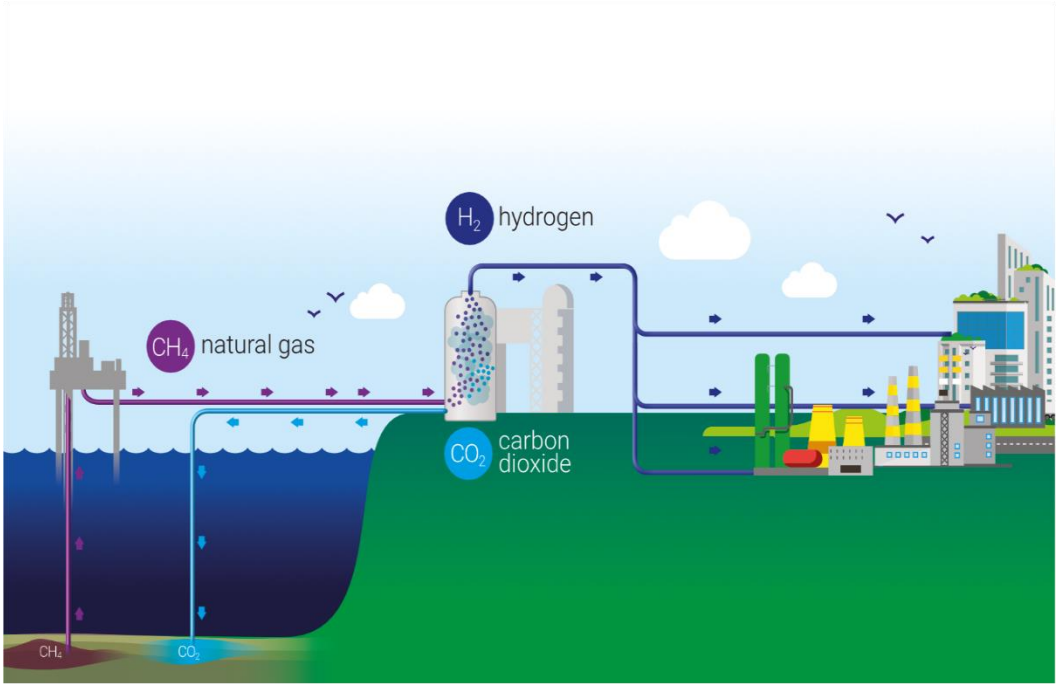
2.3.3 The Proposed Development and NEP form part of the East Coast Cluster ('ECC'). The ECC has been selected as one of the first two carbon capture, usage and storage ('CCUS') clusters to be taken forward by the UK Government. The ECC has the potential to remove almost 50% of the UK's total industrial clusters carbon dioxide emissions, protect thousands of jobs and establish the region as a globally competitive climate friendly hub for industry and innovation. The ECC will include a diverse mix of low-carbon projects, including industrial carbon capture, low-carbon hydrogen production, negative emissions power, and power with carbon capture. In March 2023, the Proposed Development was selected by DESNZ as one of the first three projects to connect to the ECC.

2.3.4 The low-carbon hydrogen produced by the Proposed Development will be supplied via a new hydrogen pipeline network to existing businesses on Teesside. By replacing the use of natural gas, the Proposed Development will help existing heavy industry on Teesside reduce its carbon dioxide emissions, consistent with the Government's objective to decarbonise the UK economy and achieve its legally binding target of net zero greenhouse gas emissions by 2050.

2.3.5 The Proposed Development will be one of the UK's largest blue hydrogen production facilities with a capacity of up to approximately 1.2 gigawatts ('GW') thermal, representing more than 10% of the Government's hydrogen production target of 10 GW by 2030. This equates to the production of approximately 160,000 tonnes of low carbon hydrogen per annum, with around two million tonnes of CO_2 being captured and stored each year.

2.3.6 The infographic below in **Figure 2.1** provides an overview of the 'blue' hydrogen processes.

Figure 2.1: Blue Hydrogen Processes



2.4 Proposed Development Description

2.4.1 The Proposed Development comprises the following main elements:

- **Work Number ('No.') 1** – a hydrogen production facility of up to 1.2 GW thermal ('GWth') lower heating value, including two carbon capture enabled hydrogen units each of 600 megawatts thermal ('MWth'), including a water and effluent treatment plant; above ground hydrogen storage; administration, control room and stores; gas and power connections; above ground installations; and ancillary works.
- **Work No. 2** – a natural gas supply connection for the transport of natural gas to Work No. 1.
- **Work No. 3** – electrical connection works for the import of electricity from the electricity transmission network to Work No. 1.
- **Work No. 4** – water supply connection works to provide cooling and make-up water to Work No. 1.
- **Work No. 5** – wastewater disposal works in connection with Work No. 1.
- **Work No. 6** – a hydrogen distribution network, for the transport of hydrogen gas from Work No. 1, comprising underground and overground pipelines to supply hydrogen to the above ground storage and offtakers across Teesside. The hydrogen pipelines will run up to tie-in points with the relevant offtaker (likely to be, but not necessarily having to be) at the offtakers' site boundaries. Any works beyond this tie-in point will be progressed separately by the relevant offtaker.

- **Work No. 7** – a high pressure carbon dioxide export pipeline for the export of the captured CO_2 from Work No. 1 to the adjacent NEP infrastructure.
- **Work No. 8** – gas connections being works for the transport of oxygen and nitrogen to Work No. 1.
- **Work No. 9** – temporary construction and laydown areas and contractor compounds.
- **Work No. 10** – access and highways improvement works.
- **Work No. 11** – replacement land relating to Work No. 6.

2.4.2 There will also be further development works associated with the above elements of the Proposed Development.

2.4.3 It is envisaged that the hydrogen production facility will be constructed in two phases.

2.4.4 A description of the elements of the Proposed Development and the Works Nos. is set out at Schedule 1 of the draft DCO (Application Document Ref. 4.1). The ancillary and further development required in connection with and subsidiary to the above elements of the Proposed Development is also detailed at Schedule 1 of the draft DCO.

2.4.5 A more detailed description of the Proposed Development and how it will operate is provided at Chapter 4 'Proposed Development' of the Environmental Statement ('ES') Volume I (Document Ref. 6.2) and the areas within which each of the main elements of the Proposed Development are to be built are denoted by the coloured and hatched areas on the Works Plans (Document Ref. 2.4).

2.5 The Proposed Development Site

2.5.1 The Proposed Development Site (the 'Site') lies within the administrative boundaries of the boroughs of Redcar and Cleveland south of the River Tees and Stockton-on-Tees north of the Tees on Teesside and within the borough of Hartlepool in County Durham, also north of the Tees.

2.5.2 The Site extends to a total area of approximately 507 hectares ('ha').

2.5.3 The Hydrogen Production Facility and its ancillary development (also referred to as the 'Main Site'), including its carbon capture and compression facilities, will be located on part of the Foundry Site, which forms part of Teesworks, within the borough of Redcar and Cleveland and which is adjacent to the NEP infrastructure. Teesworks is a major brownfield industrial site and Freeport, part of which was formerly occupied by the Redcar Steel Works. The Main Site extends to 86 ha.

2.5.4 The CO_2 captured from the hydrogen production processes will be transported by pipeline to the NEP infrastructure for onward transport and storage within the Endurance storage site.

2.5.5 The natural gas, electrical and water connections will be located to the east and south-east of the Main Site within the borough of Redcar and Cleveland. The

hydrogen distribution network will extend either side of the River Tees to several potential industrial offtakers, including north of the Tees into the boroughs of Stockton-on-Tees and Hartlepool.

2.5.6 A more detailed description of the Site and its surroundings is provided at Chapter 3 'Description of the Existing Area' in ES Volume I (Document Ref. 6.2).

2.6 The Purpose and Structure of this Document

2.6.1 The PA 2008 and related regulations do not require an application for a DCO to be accompanied by a Design and Access Statement ('DAS'). However, Section 10 'Sustainable development' of the PA 2008 (subsection (3)(b)) states that in setting policy for NSIPs and developments subject to a Section 35 direction (through National Policy Statements) the SoS must have regard to the desirability of achieving 'good design'.

2.6.2 The Overarching National Policy Statement for Energy (EN-1), which came into force on 17 January 2024, sets out policy on national significant energy infrastructure projects. Part 4 'Assessment Principles', Section 4.7 'Criteria for good design for Energy Infrastructure' highlights the importance (paragraph 4.7.2) of applying good design to energy projects, but does acknowledge that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area. Paragraph 4.7.7 states that applicants must demonstrate in their application documents how the design process was conducted and how the proposed design evolved.

2.6.3 The Planning Inspectorate's ('PINS') Advice Note Six ('AN6') 'Preparation and submission of application documents', Version 11, Table 1 confirms that applicants may choose to support their applications for development consent with other documents (not listed in AN6) that meet the requirements of the NPSs. Such other documents can include a DAS.

2.6.4 In view of the policy set out in NPS EN-1 and guidance in PINS AN6, the Applicant has prepared this DAS to describe the approach that has been taken to the design of the Proposed Development, how this has developed and to demonstrate how regard has been had to good design and the surrounding context.

2.6.5 The primary focus of the DAS is on the Main Site, which will be the location of Work No. 1, the carbon capture enabled hydrogen production facility. This is on the basis that the Main Site will accommodate the Proposed Development's main buildings and structures, while the other main elements of the Proposed Development will primarily encompass the installation of pipelines and cables (which will either be installed below ground or largely within existing infrastructure corridors), temporary construction and laydown areas and limited access and highway works. Those elements largely comprise 'engineering operations' (for which there is no requirement to produce a DAS) and are described in other Application documents, notably ES Chapters 4 'Proposed Development' and 6 'Alternatives and Design Evolution' (Document Ref. 6.2) and also in the case of the hydrogen pipelines the Pipelines Statement (Document Ref. 5.5).

2.6.6 The structure of the DAS is set out below:

- Section 3: Site Description – Describes the location of the Proposed Development, its context, the main parts of the Site and its surroundings.
- Section 4: Legislative and Policy Context – provides a summary of relevant legislation, policy and guidance relating to design.
- Section 5: Design Flexibility and Information – Explains the design flexibility that is being sought by the Applicant for the Proposed Development and sets out the design information being provided with the Application.
- Section 6: Design Principles, Approach and Development – Describes the design process that has been followed, including the design principles applied by the Applicant, the broad approach that has been taken to design and how the design has developed.
- Section 7: Design Components – Describes the final design of the Proposed Development with reference to its key design components, including use, layout, amount, scale, appearance and also landscaping.
- Section 8: Access Arrangements – Considers access both to and within the Proposed Development.
- Section 9: Securing Detailed Design – Sets out how the detailed design of the Proposed Development will be secured in accordance with the design details and parameters upon which the Environmental Impact Assessment of it has been based.
- Section 10: Conclusions – Sets out the conclusions that can be drawn with regard to design and access matters.

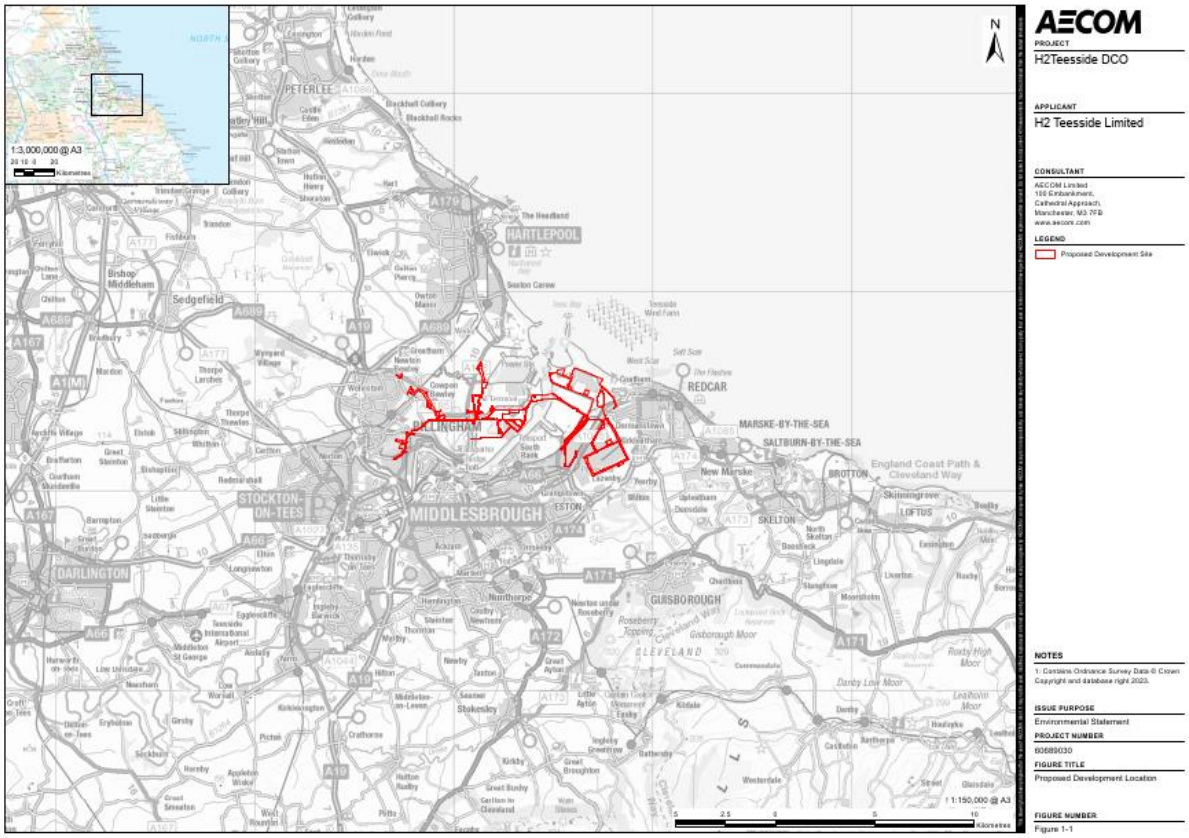
3.0 SITE DESCRIPTION

3.1 Site Location

3.1.1 The Proposed Development Site (the 'Site') lies within the administrative boundaries of the boroughs of Redcar and Cleveland south of the River Tees and Stockton-on-Tees north of the Tees on Teesside and within the borough of Hartlepool in County Durham, also north of the Tees.

3.1.2 The Site is located to the north and east of Middlesbrough, east of Billingham and west of Dormanstown, Redcar and Grangetown and encompasses land on either side of the River Tees. The entire Site extends to approximately 507 ha. The location of the Site is shown in **Figure 3.1.**

Figure 3.1: Site Location



3.1.3 The Hydrogen Production Facility and its ancillary development, including its carbon capture and compression facilities, will be located on part of the Foundry, which forms part of Teesworks, within the borough of Redcar and Cleveland. Teesworks is a major brownfield industrial site and Freeport on the south bank of the River Tees, part of which was formerly occupied by the Redcar Steel Works.

3.1.4 This part of the Site, accommodating the hydrogen production facility, is referred to as the 'Main Site' and comprises former Redcar Steel Works land. The Main Site is the primary focus of the DAS. To the north of the Main Site is Coatham Dunes and Tees Bay. It is located to the east of the operational Redcar Bulk Terminal ('RBT') and to the west of Dormanstown and Redcar. It lies adjacent to and to the west of

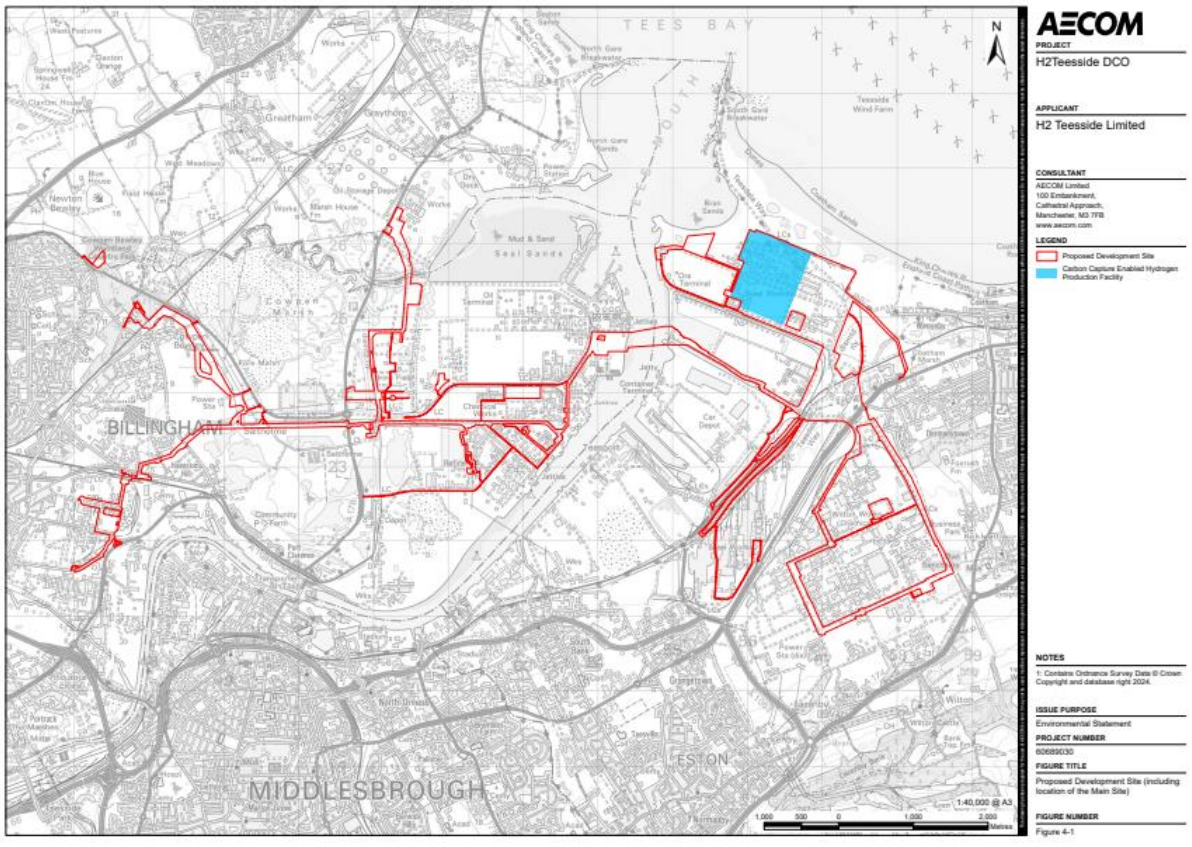
the site of the proposed NEP infrastructure (the NZT Project). To the south is Northumbrian Water's Bran Sands water treatment works, operational land of PD Teesport and further to the south the Wilton International site. The Main Site extends to approximately 86 ha.

3.1.5 The natural gas, electrical, water and carbon dioxide export connections will be located to the east, south-east and south of the Main Site within the borough of Redcar and Cleveland. The electrical and water connections extend toward Dormanstown to the east and Wilton International to the south.

3.1.6 The hydrogen distribution network (also referred to as the Hydrogen Pipeline Corridor) will extend either side of the River Tees to several potential industrial offtakers, including north of the Tees and westward across to the industrial complex at Seal Sands, to Cowpen Bewley and industrial and residential areas at Billingham and Port Clarence within the boroughs of Stockton-on-Tees and Hartlepool, and south of the Tees to Wilton International within the borough of Redcar and Cleveland.

3.1.7 The extent of the Site boundary (the proposed Order Limits) is shown in **Figure 3.2.**

Figure 3.2: Site Boundary



3.2 Site Context and History

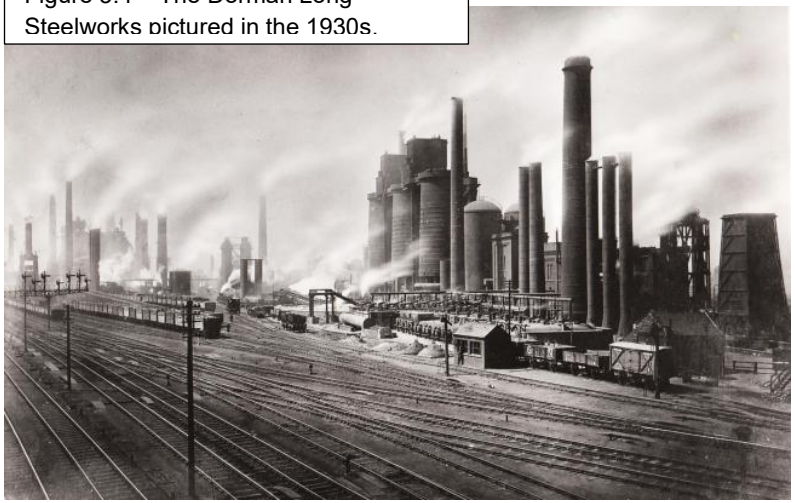
3.2.1 Teesside has a long history of being a location for heavy industry, dating back to the 1870s when steel making first became established on a large scale, to the later development of the chemical industry during the First World War at Billingham.

There was further significant expansion of the chemical industry at Billingham in the 1920s and 1930s followed by the development of a major chemicals complex at Wilton from the mid-1940s. Land was reclaimed from the Tees Estuary over the years to accommodate the growth of these and other industries.

3.2.2 The Teesside steel works complex eventually formed a continuous stretch of development along the south bank of the River Tees from Middlesbrough up to Redcar. At the height of production there were 91 blast furnaces within a 10-mile radius of the area. By the late 1970s most of the steel works in the area had been taken over by British Steel Corporation, and only one blast furnace remained in operation. Opened in 1979 and located near the mouth of the River Tees, the Redcar Blast Furnace, which formed part of the wider British Steel Redcar Integrated Steel Works complex, was the second largest in Europe. Images of the area taken in the mid-twentieth century, as well as more recent images of the Redcar Steel Works are shown in **Figures 3.4 to 3.7** on the following page.

Figures 3.4 – 3.8: Historic Images of the Site and surrounding area

Figure 3.4 – The Dorman Long Steelworks pictured in the 1930s.



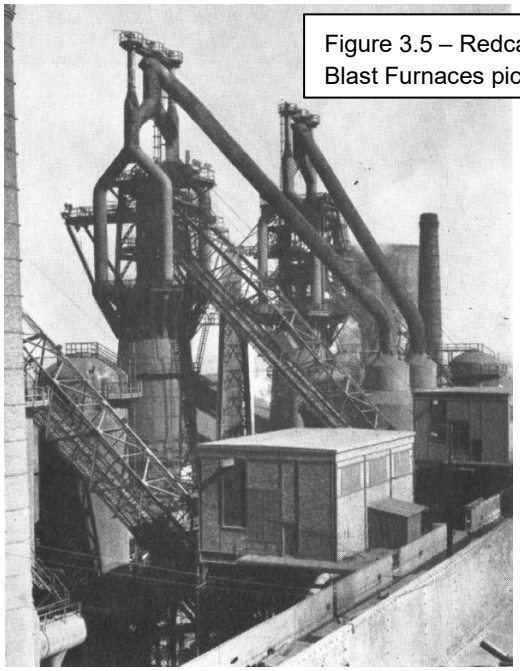


Figure 3.5 – Redcar Iron and Steel Works Blast Furnaces pictured in the 1950s.

Image Sources: Teesside Archives and Wikipedia

Figure 3.6 – Lackenby Steel Works facing east towards Redcar Steel Works in the 1980s

Figures 3.7 & 3.8 – Redcar Blast Furnace, taken in recent years.

3.2.3 Following the privatisation of British Steel Corporation in 1988 to form British Steel Plc (later Corus Group), the Redcar Steel Works were purchased by Thai-based Sahaviriya Steel Industries ('SSI') in 2011 and were reopened in April 2012 after a period of partial mothballing. However, the Steel Works were again mothballed in September 2015 due to poor steel trading conditions and a drop in the price of steel, with the UK arm of SSI going into liquidation shortly after in October 2015.

3.2.4 With the liquidation of SSI, the Redcar Steel Works, including the Redcar Blast Furnace, the Redcar and South Bank Coke Ovens and the Basic Oxygen Steel Plant at Lackenby, closed. The Teesside Beam Mill and some support services still operate at Lackenby.

3.2.5 The former Redcar Steel Works complex (and other land on the south bank of the Tees) came under the control of the South Tees Development Corporation ('STDC') following land acquisitions and a compulsory purchase order (confirmed in 2020) and has been rebranded as 'Teesworks'.

3.2.6 STDC is tasked with regenerating Teesworks and is in the process of bringing forward a number of major development proposals, including on what is now known as the Foundry, upon which the hydrogen production facility will be located. A number of enabling works and projects are underway at Teesworks and much of the former Steel Works complex, including the Blast Furnace, has now been demolished to make way for new development. The majority of the buildings and structures at the Main Site have already been demolished.

3.3 Site Description

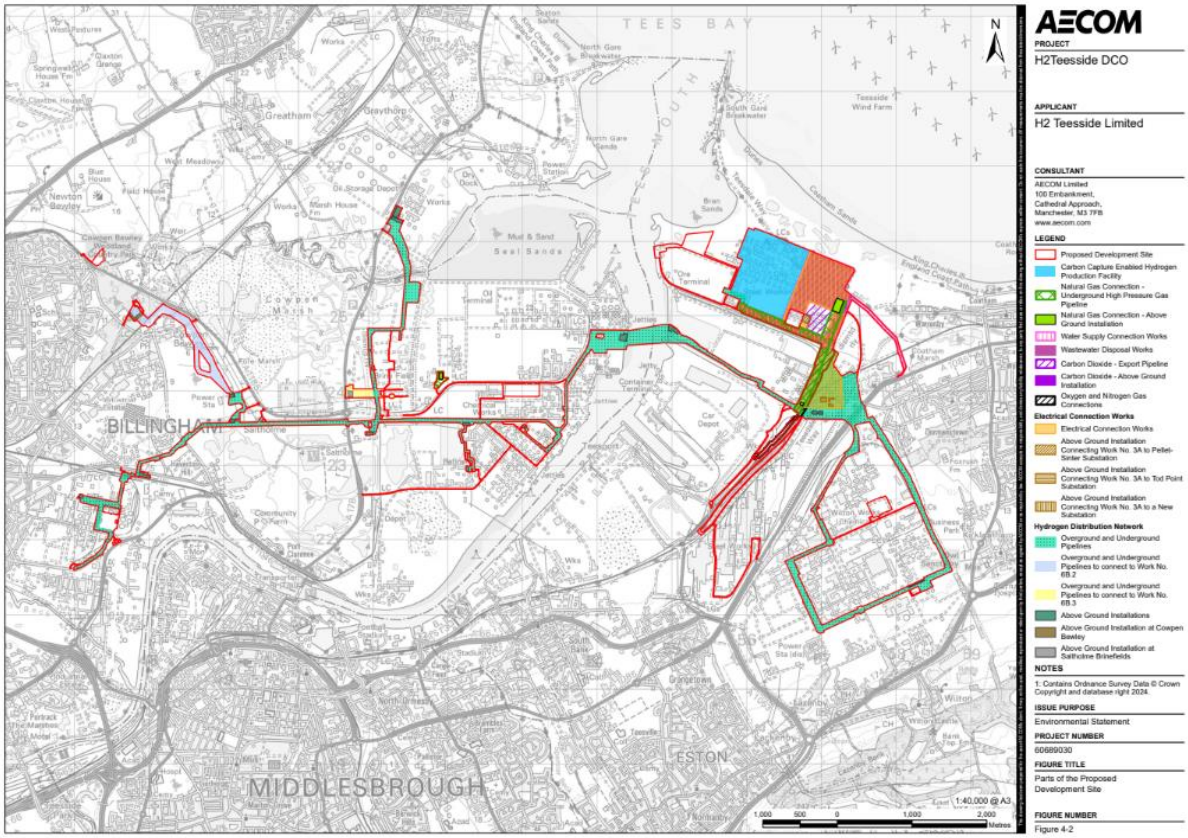
3.3.1 The Site comprises the following main parts:

- **The Main Site** – accommodating the Hydrogen Production Facility of up to 1.2 Gigawatts Thermal ('GWth') lower heating value, including two carbon capture enabled hydrogen units each of 600 Megawatts Thermal ('MWth'), including above ground hydrogen storage, administration, control room and stores and ancillary works (Work No. 1).
- **Natural Gas Supply Connection** – corridors of land for the gas supply pipeline to Work No. 1.
- **Electrical Connection** – a corridor for the electricity connection to Work No. 1 from the electricity transmission network.
- **Water Supply Connection** – a corridor to accommodate the cooling and make-up water works for Work No. 1.
- **Waste Water Disposal** – areas of land for water treatment for Work No. 1.
- **Hydrogen Distribution Network** – corridors of land (also referred to as the Hydrogen Pipeline Corridor) for underground and overground pipelines to supply hydrogen from Work No. 1 to offtakers across Teesside.

- **Carbon Dioxide Export Pipeline & Compression Treatment** – a corridor and areas of land for the pipeline for the export of the captured CO_2 to the adjacent NEP infrastructure and a compression station.
- **Gas Connections Works** – a corridor for pipelines to transport of oxygen and nitrogen to Work No. 1.
- **Temporary Construction and Laydown Areas** – area of land for construction and contractor compounds.
- **Access and Highways Improvement Works** – areas for works to accesses and highways.
- **Replacement Land relating to the hydrogen distribution network**– an area of replacement open space land.

3.3.2 The main parts of the Site are shown by the coloured and hatched areas on the Works Plans (Document Ref. 2.4) that form part of the Application and also in **Figure 3.3**.

Figure 3.3: Main Parts of the Site



3.3.3 The Main Site extends to approximately 86 ha. The topography of the Main Site is relatively flat, with typical ground levels being 6 to 8 metres Above Ordnance Datum ('AOD'). It comprises brownfield former industrial land and was originally used for steel production (as part of the Redcar Steel Works) and accommodated a number of large buildings and structures. As of March 2024, most of the buildings and

structures, overhead pipes and site infrastructure have been demolished. A combination of hardstandings and road networks remain, surrounded by informal landscaping, mainly grass, with some shrubs, scrub and small trees.

3.3.4 The Main Site very much sits within an industrialised context, but one that is changing with the demolition of the former Steel Works structures, most recently the Blast Furnace. It is relatively remote from residential areas and is not crossed by any Public Rights of Way ('PRoW'), however, a section of the Teesdale Way long distance route runs adjacent to the northern boundary of the Main Site.

3.3.5 The other main part of the Site for the most part comprise the connections corridors. These largely pass through areas of existing and former industrial land, but also some open, undeveloped areas, some of which are used for recreation and some of which are of nature conservation interest. The Applicant has sought to make use of existing pipeline and cable corridors where possible and in more sensitive locations infrastructure will be installed using specialised construction techniques in order to minimise impacts and disruption.

3.3.6 A brief description of the other parts of the Site is provided below:

- **Natural Gas Supply Connection** – The Gas Connections includes an underground pipeline which frames the eastern and southern boundaries of the Main Site and extend to the south toward Wilton International. An Above Ground Installation ('AGI') for the gas supply connection is situated approximately 3.5 km to the west of the Main Site across the River Tees between Seal Sands and Cowpen Bewley.
- **Electrical Connection** – the Electrical Connection corridor includes land both within the Main Site and a further area which extending approximately 1 km to the south. This wider area has been provided due to the various options being considered in terms of how to connect the Proposed Development to the electricity grid.
- **Water Supply Connection** – the water supply connection extends from the Main Site for 1.5km to the south east to Northumbrian Water Limited Meter House located just off the A1085 in the vicinity of Coatham Marsh.
- **Waste Water Disposal** – the waste water disposal works is proposed to be located on the eastern and southern area of the Main Site, comprising a Bio-treatment Plant and Effluent Treatment Plant.
- **Hydrogen Distribution Network** – the Hydrogen Distribution Network (also referred to as the Hydrogen Pipeline Corridor) is required to connect the Hydrogen Production Facility at the Main Site to various potential industrial offtakers across the Tees Valley. The distribution network includes land within and to the south of the Main Site and includes a crossing under the River Tees to export to offtakers located to the northern side of the River Tees. The hydrogen pipelines would commence and finish at Above Ground Installations.

  The Hydrogen Distribution Network is also being routed to provide connections to the existing Gas Transmission System and Gas Distribution Networks to

enable blending and connection to the future hydrogen transmission system. Various routeing and connection options are being explored to enable these connections, the alternative connection locations being explored includes land located near to Cowpen Bewley, Billingham Industrial Park and Saltholme.

- **Carbon Dioxide Export Pipeline & Compression Station** – located within the Main Site is the proposed CO2 export pipeline and compression station, this includes a connection to the Northern Endurance Partnership ('NEP') CO2 gathering pipeline network for transportation of captured CO2 to permanent storage.
- **Temporary Construction and Laydown Areas** – seven temporary construction laydown areas have been positioned at various points across the Order Limits, These include areas allocated at the Main Site, the Wilton Site, Seal Sands and sites located to the east of Cowpen Bewley and Billingham.
- **Access and Highways Improvements** – works required for the improvement and maintenance of the private access roads across the Site to facilitate construction of the Proposed Development.
- **Replacement Land** – an area of replacement open space land in the vicinity of Cowpen Bewley Village, near Billingham to replace part of Cowpen Bewley Woodland Park, which is required for the Proposed Development.

3.3.7 A more detailed description of the various connection corridors is provided within Chapter 4 'Proposed Development' of the ES (Document Ref. 6.2). The approach that has been taken by the Applicant to the selection and refinement of the corridors is set out in Chapter 6 'Alternatives and Design Evolution' of the ES.

3.4 Site Access

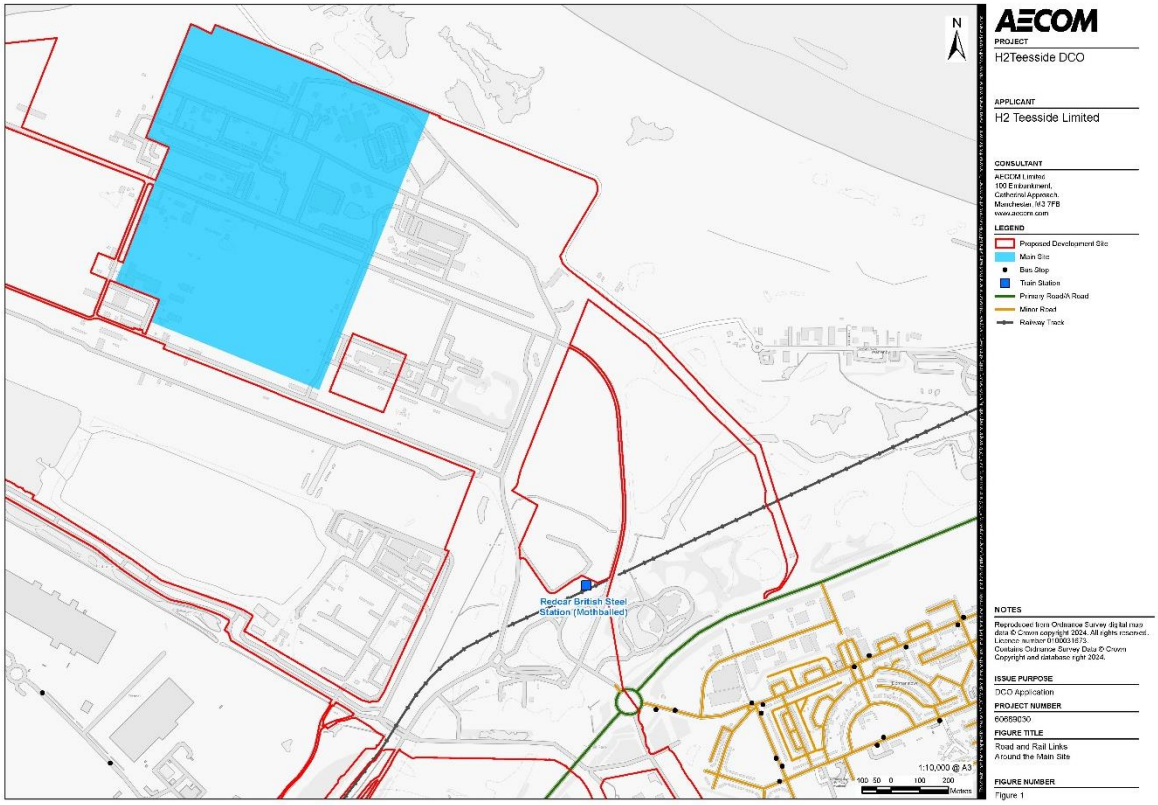
3.4.1 The access to the Main Site will be from the A1085 Trunk Road / West Coatham Lane / Teesworks Steel House Gate roundabout, with all Heavy goods vehicles ('HGVs') travelling along the A1085 towards Grangetown to access the A19 either side of the A66 in the north or via the A1053 Greystone and the A174 in the south.

3.4.2 Further information on the access arrangements for the Site, notably during the construction phase, to the construction laydown sites is provided at Chapter 3 of the ES (paragraphs 3.4.7 to 3.4.12).

3.4.3 Rail lines to and from Redcar Bulk Terminal ('RBT') run along the southern boundary of the Main Site. A public railway line, between Middlesbrough and Redcar, runs to the south-east of the Main Site and serves the nearby former Redcar British Steel train station (currently closed). The nearest operational rail station is in Redcar, approximately 2.5 km to the east of the Main Site.

3.4.4 The main road and rail connections within the vicinity of the Site are shown in **Figure 3.9** on the following page.

Figure 3.9: Road and Rail Connections Plan



3.5 The Surrounding Area

3.5.1 The surrounding area is characterised by industrial land uses, including port related uses, although there are undeveloped areas that are used by the local community and some of which are of nature conservation value, notably South Gare and Coatham Dunes, which lie to the north of the Main Site. As confirmed above, a section of the Teesdale Way long distance route runs adjacent to the northern boundary of the Main Site.

3.5.2 The Teesside Wind Farm is located offshore approximately 2.3 km north-east of the Main Site and is oriented north-west to south-east, parallel with the shoreline at Coatham Dunes.

3.5.3 There is a concentration of industrial and port uses around the mouth of the River Tees (Teesmouth) to the west of the Main Site. These include RBT and the ConocoPhillips operated North Sea Terminal across the River Tees at Seal Sands.

3.5.4 To the south lies the Bran Sands effluent treatment works and PD Teesport in addition to the remaining steel works at Lackenby. To the south-east, across the A1085, is Wilton International. Wilton International extends to approximately 800 ha and is a major location for primary chemicals manufacturing on Teesside.

3.5.5 There are further concentrations of heavy industry with the vicinity of the parts of the Site across the River Tees in Stockton. These include an oil terminal and refinery uses and large chemical works south of Seal Sands and to the east of Saltholme, close to Billingham.

3.5.6 The nearest residential areas to the Main Site are Warrenby and Dormanstown to the east. The nearest residential receptors to the Site boundary are approximately 600 metres to the east in Kirkleatham and 640 metres, also to the east, in Dormanstown). There are no residential properties within the Site boundary.

4.0 LEGISLATIVE AND POLICY CONTEXT

4.1 Introduction

4.1.1 This section of the DAS summarises the design related legislation, policy and guidance of relevance to NSIPs, with particular emphasis on the relevant National Policy Statements ('NPSs'). Regard has also been had to statutory development plan policy (local development plan policy), supplementary planning documents and other local design guidance and guidelines. Planning policy more generally, and the Proposed Development's compliance with this, is set out within the Planning Statement (Document Ref. 5.2), which forms part of the Application.

4.2 Legislative Context

4.2.1 Section 10 'Sustainable development' of the PA 2008 (subsection (3)(b)) states that in setting policy for applications to be determined under the Act, the SoS must have regard to the desirability of achieving 'good design'. The PA 2008 and related regulations do not though specifically require applications for development consent to be accompanied by a DAS.

4.2.2 The Town and Country Planning (Development Management Procedure) (England) Order 2015 (S.I 2015 No. 595) (the '2015 Order'), while applying to applications for planning permission under the Town and Country Planning Act 1990, is of relevance as it sets out the matters to be addressed within a DAS. Article 9 'Design and access statements' of the 2015 Order confirms (paragraph 3) that a DAS must:

- explain the design principles and concepts that have been applied to the development;
- demonstrate the steps taken to appraise the context of the development and how the design of the development takes this context into account;
- explain the policy adopted as to access, and how policies relating to access in relevant local development documents have been taken into account;
- state what, if any, consultation has been undertaken on issues relating to access to the development and what account has been taken of the outcome of any such consultation; and
- explain how any specific issues which might affect access to the development have been addressed.

4.2.3 Article 9 (paragraph 4) confirms that a DAS is not required for applications involving engineering or mining operations.

4.2.4 With regard to Article 9, it is relevant to note that while the Main Site (the Hydrogen Production Facility – Work No. 1) will accommodate the Proposed Development's main buildings and structures, the other main elements of the Proposed Development primarily consist of the installation of pipelines and cables (which will be installed below ground or largely within existing infrastructure corridors), temporary construction and laydown areas and limited access and highway works. Those elements largely comprise engineering operations (for which there is no

requirement to produce a DAS under the 2015 Order) and are described in other Application documents, notably ES Chapters 4 'Proposed Development' and 6 'Alternatives and Design Evolution' (Document Ref. 6.2) and in the case of the hydrogen pipelines the Pipelines Statement (Document Ref. 5.5). The main focus of this DAS is therefore the Main Site, although consideration has been given to the connections corridors and other works.

4.3 National Policy Statements for Energy

4.3.1 The planning policy framework for examining and determining applications for DCO projects is provided by a number of NPSs.

4.3.2 The Overarching NPS for Energy (EN-1), which came into force on 17 January 2024, sets out general policy on national significant energy infrastructure projects and is applicable to the Proposed Development.

4.3.3 Part 4 'Assessment Principles', Section 4.7 'Criteria for good design for Energy Infrastructure' highlights the importance of applying good design to energy projects. However, paragraph 4.7.1 highlights that high quality and inclusive design goes beyond aesthetic considerations and that the *"functionality of an object – be it a building or other type of infrastructure – including fitness for purpose and sustainability, is equally important."*

4.3.4 Paragraph 4.7.2 of EN-1 notes that applying good design to energy projects should produce sustainable infrastructure sensitive to place (including impacts on heritage), efficient in the use of natural resources (including land-use and energy used in their construction and operation), matched by an appearance that demonstrates good aesthetic as far as possible. However, it goes onto acknowledge that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.

4.3.5 Paragraphs 4.7.5 to 4.7.9 set out matters to taken into account by applicants in preparing their applications for development consent.

4.3.6 Paragraph 4.7.5 states that to ensure good design is embedded within the project development, design principles should be established from the outset of the project to guide the development from conception to operation. Applicants should also consider how their design principles can be applied post-consent. With regard to this, it is relevant to note that the Applicant did define a number of key design principles from the outset and these are set out at Section 6.0.

4.3.7 Paragraph 4.7.6 goes onto state:

"Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, land form and vegetation. Furthermore, the design and sensitive use of materials in any associated development such as electricity substations will assist in ensuring that such development contributes to the quality of the area. Applicants should also, so far as is possible, seek to embed opportunities for nature inclusive design within the design process."

4.3.8 Notably, paragraph 4.7.7 of EN-1 states that applicants must demonstrate in their application documents how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected. That information on the Proposed Development is provided within this DAS at Section 6.0.

4.3.9 Paragraphs 4.7.10 to 4.7.15 deal with SoS decision making.

4.3.10 Paragraph 4.7.10 confirms that in assessing applications, the SoS will need to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as they can be. Paragraph 4.7.11 states that in doing so the SoS should be satisfied that:

"...the applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located), any potential amenity benefits, and visual impacts on the landscape and seascape) as far as possible."

4.3.11 Importantly, paragraph 4.7.12 recognises that in considering applications, the SoS should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements that the design has to satisfy.

4.3.12 The NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) is of some relevance to the Proposed Development as it includes pipeline infrastructure.

4.3.13 Paragraph 2.4.2 states that the PA 2008 requires the SoS to have regard, in designating an NPS, to the desirability of good design. Paragraph 2.4.2 states that applicants should consider the criteria for good design set out at Section 4.7 of EN-1 at an early when developing proposals.

4.3.14 Paragraph 2.21.1 of EN-4 states that when designing the route of new pipelines applicants should research relevant constraints including proximity of existing and planned residential properties, schools and hospitals, railway crossings, major road crossings, below surface usage and proximity to environmentally sensitive areas, main river and watercourse crossings. Section 2.22 sets out how appropriate design and mitigation measures should be incorporated to minimise impacts.

4.3.15 The NPS for Electricity Networks Infrastructure (EN-5) is also of some relevance as the Proposed Development include electricity grid connection infrastructure.

4.3.16 As with NPS EN-4, EN-5 is clear (paragraph 2.4.2) that applicants should show how their application meets the requirements of EN-1, including those at Section 4.7 relating to design. However, paragraph 2.4.3 states that:

"… the Secretary of State should bear in mind that electricity networks infrastructure must in the first instance be safe and secure, and that the functional design constraints of safety and security may limit an applicant's ability to influence the aesthetic appearance of that infrastructure."

4.3.17 The Applicant has taken into account the policy with EN-4 and EN-5 in selecting and refining the corridors for the various connections (e.g. gas, electricity, water and hydrogen supply) for the Proposed Development. The approach that has been taken in terms of taking account of constraints and minimising the impacts in selecting and refining the connections corridors is set out at Chapter 6 'Need, Alternatives and Design Evolution' of the ES (Sections 6.7 'Connection Corridor Routing' and 6.8 'Connection Corridor Construction Methodologies').

4.4 Design Principles for National Infrastructure

4.4.1 'Design Principles for National Infrastructure' have been published by the National Infrastructure Commission's ('NIC') Design Group. The publication of the Design Principles resulted from the commitment given by the NIC in its first National Infrastructure Assessment to publish design principles for national infrastructure based on advice received from an independent National Infrastructure Design Group.

4.4.2 The design principles are not policy but are instead guidance to help inform the design and planning of infrastructure projects.

4.4.3 Four guiding design principles for the planning and delivery of national infrastructure are set out. They are intended to reflect the wider effects and benefits that national infrastructure has when compared to other parts of the built environment. They are:

- **Climate** – Mitigate greenhouse gas emissions and adapt to climate change.
- **People** – Reflect what society wants and share benefits widely.
- **Places** – Provide a sense of identity and improve our environment.
- **Value** – Achieve multiple benefits and solve problems well.

4.4.4 In applying the principles, the document states that from the start and throughout a project, those involved should:

- appreciate the wider context;
- engage meaningfully; and
- continually measure and improve.

4.4.5 It is considered that the Proposed Development responds positively to these guiding principles.

4.4.6 In terms of 'climate' the primary purpose of the Proposed Development is to generate low carbon hydrogen to enable industry on Teesside to decarbonise, thereby helping to mitigate greenhouse gas emissions and making a positive contribution to the Government's legally binding target of net zero greenhouse gas emissions by 2050. It has also been designed to be resilient to climate change.

4.4.7 For 'people' the Proposed Development will bring significant investment to Teesside and provide benefits in terms of employment, training and supply chain

opportunities within the area, which will be of benefit to the local population and economy.

4.4.8 For 'place' the Proposed Development will make use of vacant brownfield land within what is an establish industrial location, which is identified for a range of new industries, including green industries and energy development. It will bring an underutilised site back into beneficial use and contribute to the improvement of the environment in this location.

4.4.9 The Proposed Development will also contribute to 'value' by providing multiple benefits (e.g. employment, training and supply chain opportunities and regeneration) and helping to solve problems (tackling greenhouse gas emissions and supplying low carbon hydrogen fuel too hard to decarbonise industries).

4.5 National Planning Policy Framework and Planning Practice Guidance

4.5.1 The National Planning Policy Framework ('NPPF'), introduced in March 2012 and last updated in December 2023, sets out the Government's planning policies for England. It is a material consideration in planning decisions. Although the NPPF does not contain policies in relation to application for development consent, paragraph 5 confirms that the NPPF may be considered by the SoS to be both *"important and relevant"* for decision making on NSIPs.

4.5.2 Section 12 of the NPPF 'Achieving well-designed and beautiful places' sets out policies on design. Paragraph 126 confirms that good design is a key aspect of sustainable development. Much of the guidance is of limited relevance for energy infrastructure, however, the overall aim is to promote developments that function well, create attractive places, optimise the potential of sites, are sympathetic to local character, incorporate good architecture and appropriate landscaping.

4.5.3 The Planning Practice Guidance ('PPG'), launched in March 2014, brings together planning practice guidance for England in an online format. It includes a section (paragraphs 001 Ref. ID: 26-001 to 023 -20191001) on design and, in line with the NPPF, it states that good quality design should be an integral part of sustainable development. In designing new developments, it sets out a number of issues that should be considered, including local character and landscape setting.

4.5.4 In relation to DASs, the PPG (paragraph 012 Ref. ID: 26-012-20191001) states that they should demonstrate how the local character of an area has been taken into account and how design principles have been applied to achieve high quality design.

4.5.5 Both the NPPF and PPG are primarily focused on planning for well-designed places as opposed to energy infrastructure, as are the National Design Guide and National Desing Model, both of which are referenced in the PPG, and are considered to be of limited relevance to the Proposed Development.

4.6 Local Planning Policy

4.6.1 The Site encompasses land within the administrative boundaries of the boroughs of Redcar and Cleveland, Stockton-on-Tees and Hartlepool and therefore, the local development plan documents ('DPDs') produced by these Local Planning

Authorities ('LPAs') represent the statutory development plan for the purposes of the Proposed Development. The Main Site, which is the main focus of this DAS, lies entirely within Redcar and Cleveland.

4.6.2 The Main Site, along with the other parts of the Site within Redcar and Cleveland, lie within the boundary of the area controlled by the South Tees Development Corporation ('STDC'). STDC has produced a Master Plan (the 'South Tees Regeneration Master Plan') to provide a flexible framework for the regeneration of the South Tees Area, which includes Teesworks, where the Main Site is located. The Master Plan has informed Redcar and Cleveland Borough Council's ('RCBC') preparation of the South Tees Area Supplementary Planning Document ('SPD'), which was formally adopted in May 2018. Although not a DPD, the South Tees Area SPD is a material planning consideration.

4.6.3 The Main Site is allocated in the Redcar and Cleveland Local Plan (adopted May 2018) as part of a 'Protected Employment Area', which is subject to Policy ED6 'Promoting Economic Growth'. Policy ED6 seeks to promote heavy industries and port-related uses within the South Tees Area and states that development proposals should have regard to the South Tees Area SPD and contribute toward growth and regeneration. It goes on to state that proposals will need to demonstrate that no adverse effects will result on the integrity of the Teesmouth and Cleveland Coast Special Protection Area and Ramsar site, or other European designated nature conservation sites. Proposals will also be encouraged to improve the quality of the environment. The Proposed Development, which involve a low carbon hydrogen production facility, is therefore an appropriate type of development to located within this area.

4.6.4 Policy SD4 of the Local Plan 'General Development Principles' states that all development must be designed to a high standard; involve the effective and efficient use of land; respect the character of the site in question and its surroundings; improve the character and quality of the area; be sustainable in design and construction; minimise pollution; respect or enhance the landscape, biodiversity and geological features; be suitable and safe in terms of vehicular access and parking; and involve inclusive design.

4.6.5 The Stockton-on-Tees and Hartlepool Local Plans include broadly similar general policies on design (Policies SD7 and QP4 respectively), although it is relevant to note that the elements of the Proposed Development within these areas comprise in the main of pipelines and cables and associated AGIs.

4.6.6 Policy LS4 'South Tees Development Corporation' of the Local Plan supports Policy ED6 by stating that new employment development within the South Tees Area should be of a high quality in terms of design and enhance the environmental quality of the area.

4.6.7 The South Tees Area SPD is intended to support the economic and physical regeneration of the South Tees Area, setting out the vision and core objectives for the area and providing greater detail on how adopted planning policies will be interpreted.

4.6.8 Section 2 of the South Tees Area SPD sets out the 'Vision' for the area, including a number of objectives. Objective 1 is aimed at ensuring strong alignment with the UK Government's Industrial Strategy by shaping regeneration proposals to ensure the Tees Valley can make a contribution to the UK Government's aspirations for the Northern Powerhouse Initiative. Objective 4 (page 10) is to:

"Promote and support development uses aligned with a low carbon, circular economy, while delivering redevelopment within a framework of reduced energy costs and waste minimisation".

4.6.9 Both the above objectives are re-iterated in Development Principle 'STDC1: Regeneration Priorities' (page 15 of the SPD). STDC1 states that the LPA, in partnership with STDC, will seek to achieve the comprehensive redevelopment of the South Tees Area in order to *"realise an exemplar world class industrial business park"*. It identifies a number of priorities for the area including to prioritise uses connected with advanced manufacturing and advanced new technologies and to promote and support uses and infrastructure connected to a low carbon and circular economy. **Figure 2** (page 19) shows the Main Site as being a location for manufacturing and energy. The Proposed Development is clearly in accordance with the uses identified for the location.

4.6.10 Development Principle 'STDC6: Energy Innovation' (pages 33 - 34) states that the LPA will, in partnership with STDC and other partners, promote and support the development of new energy generation within the South Tees Area, including renewable energy development and the promotion of other innovative energy projects. Energy generation which contributes to meeting the Area's assessed energy needs will be supported while all energy development should be appropriately sited and designed so as to avoid unacceptable effects. Paragraph 3.49 goes on to state:

" … provision will include opportunity for the siting of nationally significant energy generators that connect to the grid as well as supporting the Area through private energy supply. Specific requirements relating to these zones are identified within the Site Specific Development Principles."

4.6.11 Following on from the above, Development Principle 'STDC10: Utilities' states that the LPA will support the development of new infrastructure relating to energy generation, including facilities utilising both conventional and renewable resources and carbon capture and storage.

4.6.12 Section 4 of the SPD sets out 'Site specific development principles' for the five main zones of the South Tees Area. These are the North Industrial Zone; North East Industrial Zone; Central Industrial Zone; South Industrial Zone; and Coastal Community Zone (**Figure 6:** Development Zones, page 48). The main zones are shown in **Figure 4.1** on the next page.

Figure 4.1: Development Zones as identified in the South Tees Area

4.6.13 The North Industrial Zone ('NIZ') encompasses much of the former Redcar Steel Works complex, including the Main Site and also the adjoining site for the NZT Project, and is subject to Development Principle STDC11 (page 49 of the SPD). This states that the LPA, in partnership with STDC, will encourage development proposals in this zone relating to port related industry, major space users/large scale manufacturing, energy innovation, power generation and storage, bulk materials and mineral processing. It goes on to state that in accordance with Policy N4 'Biodiversity and Geological Conservation' of the Local Plan, proposals will need to take account of the need for and definition of a buffer zone to protect existing environmental assets within and adjacent to the NIZ.

4.7 Local Design Guidelines

4.7.1 STDC published a design guide for Teesworks ('Teesworks - Design Guide for Development') in December 2020. The document is intended to guide the development of Teesworks, including the major development proposals that are being brought forward within the area.

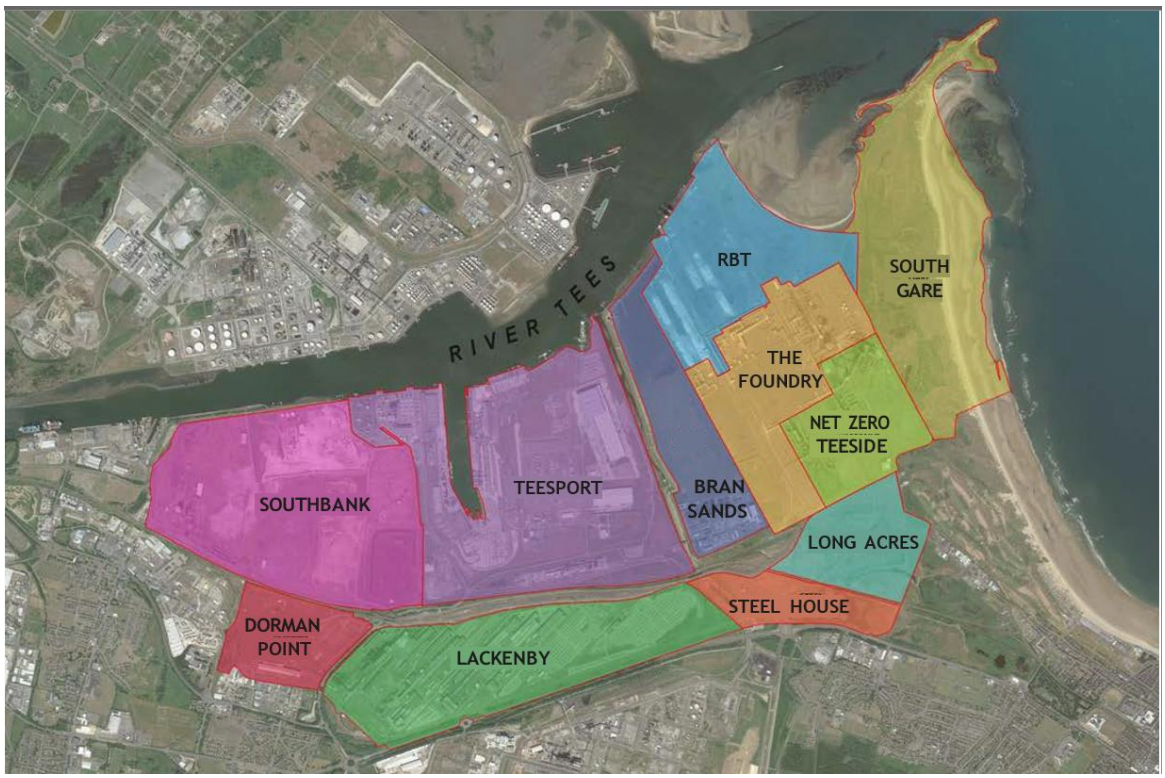
4.7.2 The South Tees Regeneration Master Plan and Teesworks Design Guide do not form part of the local development plan and therefore have no formal planning policy status. Nevertheless, the Applicant has had regard to these documents.

4.7.3 The Design Guide provides an overview of the importance of good design in creating a world class destination for business in Teesworks with specific guidance for the types of development that are expected to be attracted. It includes a number of technical appendices providing additional information to help inform the application of the guidance.

4.7.4 The Design Guide states that it is a non-statutory document intended to help inform development proposals within Teesworks. It contains design principles and parameters aimed at suiting many forms of development, although it is accepted that some industrial operations and developments will fall outside the realm of the Design Guide. It is intended to supplement and expand on the Development Principles of the South Tees Area SPD.

4.7.5 In line with the SPD, the Design Guide divides Teesworks into five principal zones. These include the NIZ comprising the former Steel Works complex and also RBT. Potential uses identified for the NIZ include bulk materials handling, mineral processing, energy innovation and large-scale manufacturing. The NIZ itself is divided into three main development zones within the Design Guide – The Foundry, NZT and RBT. The Main Site for the Proposed Development occupies the northern part of the Foundry and lies adjacent to NZT. **Figure 4** from the Design Guide showing the three development zones is reproduced in **Figure 4.2** below.

Figure 4.2: Development zones identified in the Teesworks Design Guide



4.7.6 The Design Guide sets out four key design principles and associated questions, which are intended to be applied across Teesworks. These are reproduced below:

1. PLOT ARRANGEMENT AND ACCESS

- *Does the proposal relate well to its surroundings?*
- *Is the site accessible to all and easy to move around?*
- *Does the plot layout and arrangement of buildings form a coherent structure?*
- *Is the pro*posal located on a Gateway Plot?

2. BOUNDARIES AND LANDSCAPE

- *Do the proposed boundary treatments relate well to their surroundings?*
- *Does the landscape setting enhance the proposed buildings?*

3. BUILDING FORM AND MATERIALS

- *Are the proposed buildings and materials functional and attractive?*
- *Are the proposals adaptable and robust?*

4. COLOUR, LIGHTING AND SIGNAGE

- *Does the proposal create a distinctive sense of place?*
- *Are colours and signage used in a coherent way?*

4.7.7 The Design Guide is however clear that the design principles are to be applied proportionately across Teesworks depending on the building typology and its location. With regard to this, the Design Guide confirms that (page 21):

"The most visible areas of the site are referred to with the guidance as 'Gateway plots'. These are plots that will make a significant contribution to the way that the overall development is perceived and will help to create an outward looking and welcoming environment.

For the purposes of this design guide, a Gateway plot is defined as a development plot that has a significant visible frontage onto the infrastructure corridor or other primary route (see illustrative diagram in ***Figure 4****). Gateway plots are not fixed in the masterplan but will be determined by Teesworks in line with the Public Realm strategy and emerging development opportunities."*

4.7.8 It should be noted that the Main Site is not a Gateway Plot and does not have a frontage onto the infrastructure corridor within Teesworks. The design and layout of the Proposed Development takes account of its location with Teesworks.

4.7.9 Alongside the four key design principles, additional guidance is provided in respect of four major plot typologies. This is intended to aid the designers and developers of specific industrial building types where certain principles may be particularly important.

4.7.10 The plot typology of most relevance to the Proposed Development is the 'Large-Scale Industrial Operations' typology, which covers 'Major energy generation'.

4.7.11 Specific guidance for the plot typologies is provided at Section C, with that guidance cross-referenced back to the four design principles. C.5 (pages 39 to 43 of the Design Guide) deals with Large-Scale Industrial Operations. It is recognised that in

design terms these developments will primarily be driven by the functional requirements of their industrial processes but that:

"There is also a growing awareness that these facilities can act as strong visual beacons to engage people with the industries that operate within these plots."

4.7.12 The design guidance provided at C.5 for Large-Scale Industrial Operations is reproduced below:

C5.1 ACCESS AND ARRANGEMENT

- *Large-scale industrial operations will typically be set within substantial open plots, with major buildings and infrastructure set deeper within the plot to accommodate requirements for utilities, stand-off distances, access roads and servicing zones. Plot access points and on-plot roads should be designed to ensure safe access and movement for all users and vehicle types (including movement of bulks) in accordance with section C1.*
- *Where the plot includes occupied buildings (e.g. ancillary offices or control rooms) access to and arrangement of these buildings will require additional consideration to separate users from service zones and service routes. This includes separate entrances and safe routes for pedestrians, cyclists, and cars.*
- *Orientation and arrangement within the plot will likely to be driven by functional requirements and spatial constraints.*
- *At feasibility and concept stages, options for the orientation of buildings and infrastructure should be tested in response to key axes relating to the principal site boundaries and topographical features.*

C5.2 BOUNDARIES AND LANDSCAPE

- *Boundary treatments to large-scale industrial operations will generally be driven primarily by functional and security requirements.*
- *Where developments (including ancillary buildings) front onto primary routes or are located on Gateway plots, the guidance in section C2 should be followed to reduce the visual impact of fencing on the public realm.*
- *Where required, large-scale industrial operations may provide scope to incorporate larger areas of biodiversity or water management systems.*

C5.3 BUILDING FORM AND MATERIALS

- *Large-scale industrial operations vary significantly in their scale and massing, which will be driven predominantly by functional requirements. Material specification will also be driven by the function of the building(s) and infrastructure.*
- *The height and volume of large-scale industrial structures have the potential to act as iconic 'beacons' and can create a visual counterpoint to other building types in the masterplan.*

- *A key decision in the early-stage design of large-scale industrial facilities is whether to enclose bulk processing equipment. Designers and developers should consider the enclosure of bulk processing equipment if the development meets all of the following criteria:*
  - *The development is clearly visible from the public realm or environmentally sensitive coastal areas (South Gare and Coatham Sands SSSI).*
  - *Enclosures would not impact on the overall functionality of the development or facility.*
  - *Enclosing bulks is economically and structurally feasible.*
- *Where bulk functions are enclosed by cladding, careful selection of form and materials can help to express the internal processes.*
- *Use of transparent or translucent materials should be considered to reveal internal processes where appropriate.*
- *A limited and consistent palette of materials should be applied to all ancillary buildings and functions in order to unify them as a group. Other occupied buildings should follow the general form and massing guidance in section C3.*

C5.4 COLOUR, LIGHTING AND SIGNAGE

- *Key elements of the structures may be highlighted through the use of contrasting materials, colours and lighting. These should be limited in their application in order to stand out against their context.*

4.7.13 Part D 'Technical Appendices' of the Design Guide at D.2 provides example materials and specifications for development at Teesworks that will be considered acceptable. It confirms that proposed materials should be practical, durable, affordable and attractive.

5.0 DESIGN FLEXIBILITY AND INFORMATION

5.1 Introduction

5.1.1 This section of the DAS explains the design flexibility that the Applicant has incorporated within the Proposed Development and the Application and the reasons for this. It also sets out the design information that has been submitted as part of the Application.

5.2 Design Flexibility

5.2.1 The Proposed Development will be the largest blue hydrogen production facility in the UK. Although the individual elements of the Proposed Development are well understood, it would be a 'First of its Kind' project in terms of scale, while hydrogen production is a developing area and increasing investment in the sector is resulting in technological advancement. It is important that the detailed design of the Proposed Development is able to take account of that technological advancement, while there are still some options being considered for certain elements.

5.2.2 In addition, the design of the Proposed Development needs to allow for the fact it will be delivered in two separate phases (each of 600 MWth). While there could be scope to share plant and infrastructure between the two phases of the Hydrogen Production Facility, this may not be possible for technical and commercial reasons and therefore the design needs to allow for different outcomes.

5.2.3 The Applicant is proposing to deliver the Main Site design through a competitive Front End Engineering Design ('FEED') arrangement. Another key reason for needing to incorporate flexibility in the design and layout of the Proposed Development is that FEED has not taken place and the equipment providers/vendors have not yet to be selected. The Proposed Development will be supported by the Government through various financial mechanisms and as such there is a requirement to provide value for money through a competitive tendering process. Prior to the appointment of an EPC contractor, it is proposed that different consortia will prepare designs for the required plant (each with their own individual sizes, capacities and configurations). A single consortium of companies is expected to be employed at the EPC stage at which time the design will be fixed.

5.2.4 It is anticipated that the completion of the tendering process, including design competition, selection of the EPC contractor and the Applicants' Final Investment Decision ('FID') will take place after development consent has been granted. At the point of submitting the Application, it is therefore not possible to finalise the design of the Proposed Development.

5.2.5 This approach to the design process allows for commercial collaboration and will result in slightly different sizes, capacities and configurations for the plant components.

5.2.6 In view of the above factors, it has been necessary to allow for a degree of flexibility in the design and layout of the Proposed Development. In order to provide sufficient flexibility and ensure a robust Environmental Impact Assessment ('EIA'),

the Applicant has therefore adopted the principles of the 'Rochdale Envelope' approach and assessed (as part of the EIA) maximum design parameters for the elements of the Proposed Development where flexibility needs to be retained at the consenting stage. These parameters include:

- **Maximum scale parameters** (length, height and width) for the main buildings and structures at the Main Site (these maximum parameters are set out in Table 5.1 below).
- **Maximum limits of deviation** within which the various elements of the Proposed Development can be constructed within the Site (these are defined on the Works Plans – Document Ref. 2.4). The Works Plans show a degree of overlap between the various Works Nos. within the Main Site in order to accommodate the different design configurations that are expected.

Table 5.1: Maximum Scale Parameters for Main Site

COMPONENT	MAXIMUM LENGTH (M)	MAXIMUM WIDTH (M)	MAXIMUM HEIGHT (M) (AOD)
Flare Stack	n/a	4.0 diameter (flare 1.0 and platform 4.0)	108.0 (max) 73.0 (min)
Auxiliary Boiler	35.0	20.0	18.0
Auxiliary Boiler Stack	n/a	2.0 diameter	78.0
Start-Up Fired Heater Stack	n/a	2.0 diameter	53.0 (max) 43.0 (min)
CO_2 Absorber Column	n/a	8.5 diameter (bottom section – 0.0 to 30.0m above ground level) 5.5 diameter (top section – 30 to 48.0m above ground level)	56.0
High-Pressure and Low Pressure Flash Vessels	-	-	58.0
Air Separation Unit ('ASU')	20.0	8.0	60.0
Other Production Plant	-	-	36.00
Electrical Substations	-	-	22.0
Above Ground Installations ('AGIs')	-	-	15.0 (4.0 m above ground level)

5.2.7 The existing ground levels across the Main Site for the proposed locations of the main buildings and structures range between 6 and 8 m AOD. The development platform, to allow for minimising flood risk and post-site clearance and remediation is expected to be 7.1 m AOD for Phase 1 and for Phase 2 at least 7.1 m AOD but neither will exceed 8 m AOD.

5.2.8 The Proposed Development also incorporates a degree of flexibility in respect of some of the connections where more than one option remains under consideration. Further information on the options under consideration is provided at ES Chapters 4 'Proposed Development' and 6 'Alternatives and Design Evolution'.

5.2.9 The connections will be installed within the limits of the corridors defined on the Works Plans. Where possible, existing infrastructure corridors will be used for the connections. Where new connections are to be installed, these will be a combination of above and below ground installations. Typical construction working widths will be 34 m (17 m either side) dependent on the constraints present. A degree of flexibility is included within the limits shown upon the Works Plans to optimise the final route of the pipelines and cables based on ground conditions and surrounding ground constraints.

5.3 Design Information

5.3.1 The design information that has been submitted as part of the Application is based upon the maximum design parameters. This information is listed in Table 5.2 below.

Table 5.2: Design information submitted as part of the DCO Application

APPLICATION DOCUMENT REF.	APPLICATION DOCUMENT	PURPOSE
2.4	Works Plans (Key Plans and Sheets 1 to 44)	Confirms the location and extent of the Works Nos. comprised within the Proposed Development, as set out at Schedule 1 of the draft DCO, and also the limits within which these works may occur.
2.6	Indicative Hydrogen Production Facility and Above Ground Installations Plan	Showing the indicative layout, elevations and sections for the main buildings and structures at the Main Site.
2.7	Indicative Natural Gas Connection and Above Ground Installations Plans (Key Plan and Sheet 1)	Showing the routes and connection points for the gas connection including AGIs.

APPLICATION DOCUMENT REF.	APPLICATION DOCUMENT	PURPOSE
2.8	Indicative Electrical Connection Plan	Showing the route and connection point for the electrical connection.
2.9	Indicative Water Connections Plan	Showing the routes for the water supply and discharge connection works.
2.10	Indicative Hydrogen Distribution Network Plans (Key Plan and Sheets 1 to 16)	Showing the routes for the hydrogen distribution network.
2.11	Indicative CO2 Export Pipeline Plan	Showing the routes for the CO2 transport pipeline to the NEP infrastructure.
2.12	Indicative Surface Water Drainage Plan	Providing an indication of the proposed drainage works at the Site, including surface water drainage.
2.14	H2Teesside and NZT Main Site Shared Area Plan	Showing the shared areas between the Proposed Development and the NZT Main Site (NEP infrastructure).
5.5	Pipelines Statement	Providing information on the route and the installation of the Hydrogen Distribution Network and its AGIs and who will be responsible for designing and building these.
5.8	Indicative Lighting Strategy (Operation)	Detailing the indicative lighting strategy and details to be implemented. This forms the starting point for the Final Strategy which will be approved under DCO Requirement and be in substantial accordance with this indicative strategy.
5.9	Outline Landscape and Biodiversity Management Plan	Detailing the indicative landscaping and biodiversity strategy and details to be implemented. This forms the starting point for the Final Strategy which will be approved under DCO

APPLICATION DOCUMENT REF.	APPLICATION DOCUMENT	PURPOSE
		Requirement and be in substantial accordance with this outline plan.
6.2.4	ES Chapter 4 'Proposed Development'	Providing a detailed description of the Proposed Development and setting out the maximum design parameters that have been assessed.

5.3.2 Due to the nature of the Proposed Development and the need to incorporate sufficient flexibility within its design, much of the design information that has been submitted as part of the Application is indicative, although based on the maximum design parameters. The Applicant will carry out a competitive FEED after which the EPC contractor will be selected. The mechanisms by which the detailed design of the Proposed Development will be secured are covered within Section 9.0 of the DAS.

6.0 DESIGN PRINCIPLES, APPROACH AND DEVELOPMENT

6.1 Introduction

6.1.1 This section describes the design process that has been followed by the Applicant, including the design principles applied to the Proposed Development, the broad approach that has been taken to design and how that design has developed and evolved.

6.2 Design Principles

6.2.1 The Applicant defined the following design principles at an early stage in the design process. These were used to guide the design development for the Proposed Development:

- **Climate** – that the primary purpose of the Proposed Development is to generate low carbon hydrogen to enable industry and other users of carbon intensive fuel on Teesside (who cannot electrify easily) to switch to hydrogen as a fuel and thereby decarbonise their activities. It must also be designed so as to be resilient to climate change through the selection of an appropriate development platform and choice of construction materials.
- **Environment and Safety** – the design, sizing and orientation of plant structures should minimise environmental impacts on off-site receptors and be safe. A 'Environmental Basis of Design' was developed at the outset setting out the environmental and safety standards that must be met for the Proposed Development. These included providing adequate separation distances between critical plant equipment in order to manage safety risks, and to maintain operational integrity during all process conditions. This also included providing sufficient secondary containment for any loss of containment accidental or emergency event;
- **Place and Value** – the Proposed Development should be sited so as to maximise opportunities for provision of low carbon hydrogen to a range of potential industrial users on Teesside and also to connect most efficiently with the proposed NEP carbon dioxide capture network (the consented NZT Project) to enable captured CO_2 to be securely stored within the Endurance storage site and other nearby CO_2 stores that NEP holds CO_2 storage licences for.

6.3 Design Approach

6.3.1 The approach that the Applicants have taken to the design of the Proposed Development has been informed by the above design principles (not least the 'Environmental Basis for Design'), the context within which it will sit, the opportunities and constraints that the Main Site and locality present and also the local planning policy framework.

6.3.2 As confirmed in Section 3.0, the Main Site very much sits within an industrialised context. It comprises of brownfield former industrial land, originally used for steel production (as part of the Redcar Steel Works). It is relatively remote from

residential areas, although to the north are South Gare and Coatham Dunes/Sands, which are used for recreational purposes. The wider area is characterised by heavy industries, port uses and road and rail infrastructure.

6.3.3 The Main Site occupies the northern part of the Foundry, which forms part of the NIZ within the South Tees SPD. The NIZ (and the Foundry) is identified in the SPD and Teesworks Design Guide as a suitable location for energy generation and innovative new energy projects and new technologies connected to a low carbon and circular economy. The Foundry is not identified as a Gateway Plot and is located away from the main Teesworks infrastructure corridor nor is it situated on a primary route. Furthermore, while setting design principles for Teesworks, the Design Guide recognises that the design of 'Large-Scale Industrial Operations' (which cover 'Major energy generation') will primarily be driven by the functional requirements of the processes involved.

6.3.4 The various connection corridors for the Proposed Development are in the main routed through areas of existing and former industrial land and use existing infrastructure corridors where possible.

6.3.5 The Applicant has therefore adopted a functional approach to the design of the Proposed Development, notably the Main Site, reflective of its function and purpose, the fact that it will sit adjacent to the NEP infrastructure (which is itself functional in appearance), the allocation of the land within the Redcar and Cleveland Local Plan and South Tees SPD, that the Teesworks Design Guide does not identify the Foundry as a 'Gateway Plot', in addition to the industrial character of the area. The approach to design has also been influenced by technical, engineering, environmental and safety considerations. However, functional design can represent 'good design' and in developing the design of the Proposed Development the Applicant has had regard to the Teesworks Design Guide and the relevant plot typology (Large-Scale Industrial) and sought to minimise impacts upon the surrounding area.

6.4 Design Development

6.4.1 The design of the Proposed Development has evolved since its inception and during the pre-application stage leading up to the submission of the Application. Chapter 6 'Need, Alternatives and Design Evolution' of the ES (Document Ref. 6.2) describes the alternatives that have been considered for the Proposed Development and also sets out the design options considered and how its design has evolved.

6.4.2 Section 6.9 of Chapter 6 of the ES deals with the alternative design options that have been considered and how the design of the Proposed Development has evolved. The main design changes that have resulted and the reasons for these changes are set out in Table 6-1 in Chapter 6 of the ES.

6.4.3 Following the First Consultation on the Proposed Development in September/October 2023, a number of changes were made to the Site boundary/proposed Order Limits for the Proposed Development. The changes were a result of further design development and technical work undertaken by the Applicant and also responses received to the First Consultation. These changes

allowed for some of the flexibility and optionality that had been included at the time of the First Consultation to be removed from the Proposed Development and resulted in a significant reduction in the proposed Order Limits. The changes were the subject of the Second Consultation in December 2023/January 2024.

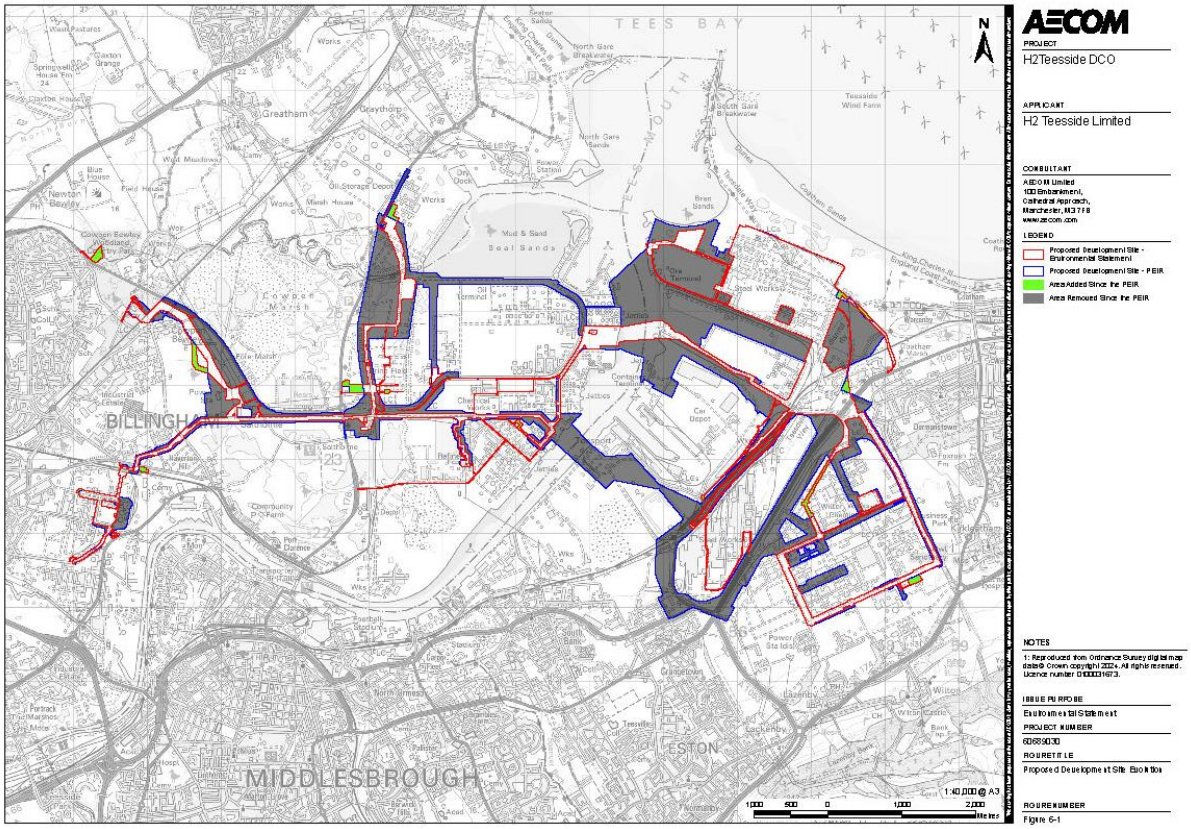
6.4.4 Following the Second Consultation, the Applicant has made further changes to the proposed Order Limits in relating to hydrogen pipeline routing options and also the replacement of open space required for the Proposed Development in the vicinity of Cowpen Bewley Village, near Billingham. The changes to the pipeline routing were in response to comments receive from the local community during the Second Consultation.

6.4.5 Key changes that have taken place during the pre-application stage include:

- Progressive reductions to the Site boundary/proposed Order Limits from approximately 1,746 ha to 507 ha following the Second Consultation through design development and reducing optionality.
- A significant reduction in the Hydrogen Distribution Network corridor width, routing and construction methodology at Cowpen Bewley and Saltholme.
- Additional areas of land added to proposed Order Limits to allow for access improvements for construction.
- Changes to the proposed Order Limits as a result of refined design and layout, and a reduction in the area of the Electrical Connection corridor.
- Changes to the proposed Order Limits change due to reductions to the Water Supply Connection corridor and refinement of the wastewater and stormwater treatment and discharge options.
- Reductions to the area of the CO_2 Export Pipeline corridor and also the addition of a small area to the south of the Main Site.
- Changes to the proposed Order Limits due to reductions made in the Natural Gas Supply Connection corridor.
- A slight change to the proposed Order Limits as a result of refinement of the design of the Gases Connections corridor.
- A significant reduction in the Hydrogen Distribution Network corridor width, routing and construction methodology at Cowpen Bewley (meaning that the pipeline would be located further from the eastern edge of Cowpen Bewley Village) and Saltholme.
- The addition of an area of land to the proposed Order Limits within the vicinity of Cowpen Bewley Village, to be integrated with Cowpen Bewley Woodland Park, as replacement open space land.

6.4.6 **Figure 6.1** on the following page shows the changes to the proposed Order Limits as a result of design changes since the First Consultation in September/October 2023. **Figure 6.1** has also been provided at **Appendix 1**.

Figure 6.1: Proposed Development Site/Design Evolution



6.4.7 Further information on the design changes that have been made, is set out in ES Chapter 6 'Need, Alternatives and Design Evolution' (Document Ref. 6.2.6). Table 6-1 of ES Chapter 6 also provides a comparison of the environmental effects of the changes with the original proposals.

7.0 DESIGN COMPONENTS

7.1 Introduction

7.1.1 This section of the DAS describes the key design components of the Proposed Development. This includes in relation to use, layout, amount, the scale of the main buildings and structures, appearance and the approach taken to landscaping.

7.2 Use

7.2.1 The Main Site sits within an industrialised context and comprises brownfield land and that was originally used for steel production. Most of the buildings and structures, overhead pipes and site infrastructure associated with the former steel making activities have now been demolished and a combination of hardstandings and road networks remain, surrounded by some informal landscaping.

7.2.2 The Main Site forms part of the NIZ within the South Tees SPD. The NIZ (and the Foundry) is identified in the SPD and Design Guide as a suitable location for energy generation and innovative new energy projects and new technologies connected to a low carbon and circular economy.

7.2.3 The proposed use of the Main Site is for the production of hydrogen and the capture and compression of the carbon dioxide from this process prior to its transportation offshore for secure storage via the adjacent NEP infrastructure (the NZT Project). The proposed use of the Main Site is consistent with what the land is identified for with in the SPD and Design Guide. The use is also consistent with the character of the surrounding area, which is industrial in nature.

7.2.4 The various connection corridors (natural gas, water, electricity, carbon dioxide and hydrogen), which entail engineering works/operations, largely involve existing and former industrial land either side of the River Tees, while the pipelines and cables will be for the most part installed below ground and within existing infrastructure corridors. The infrastructure required for the connections will not therefore materially alter the use or character of the land to which they relate.

7.3 Layout

7.3.1 The layout of the Main Site is shown upon the 'Indicative Hydrogen Production Facility and Above Ground Installations Plan' (Document Ref. 2.6). The plan is provided at **Appendix 2**.

7.3.2 Phase 1 of the Hydrogen Production Facility will be located on the southern part the Main Site, with Phase 2 on the northern part.

7.3.3 The plans illustrate how the majority of the main buildings and structures for each phase will be grouped together (where feasible from a technical and safety perspective) to consolidate their built form, scale and massing within the Main Site. This includes the Auxiliary Boiler, Auxiliary Boiler Stack, Start-up Fired Heater Stack, HP and LP Flash Vessels and CO_2 Absorber Column. The main buildings and structures are also set back from the site boundaries. This is consistent with the Teesworks Design Guide and the Large-Scale Industrial Operations typology.

7.3.4 Internal access roads will be routed around the perimeter of the plots and around the main built elements and process area to make the site accessible and easy to move around.

7.3.5 The areas around and between the main buildings and structures will comprise in the main of hardstanding and crushed stone. The perimeter of the Main Site will be securely fenced. Selected areas within both the Main Site and wider site (e.g. the AGIs) will have opportunities for the provision of landscape planting. The indicative layout plan for the Main Site can be viewed at **Appendix 2**.

7.3.6 Layout is of limited relevance to the various connection corridors, however, the routing of these is described within ES Chapter 4 'Proposed Development' (Document Ref. 6.2.4). The routing and extent of the corridors is also shown upon the Works Plans (Document Ref. 2.4) and a number of other plans that form part of the Application.

7.3.7 As stated earlier, the connections will be installed within the limits of the corridors defined on the Works Plans. Where possible, existing infrastructure and service corridors will be used for the connections, subject to commercial agreements and asset integrity inspections. Where new connections are to be installed, these will be a combination of above and below ground installations.

7.4 Amount

7.4.1 The entire Site is approximately 507 ha. The approximate areas of the main parts of the Site are as follows:

- Main Site – 86 ha.
- Natural gas supply connection – 31 ha.
- Electrical connection works – 103 ha.
- Water supply connection works – 72 ha.
- Waste water disposal works – 67 ha.
- Hydrogen distribution network – 285 ha.
- Carbon dioxide export pipeline – 75 ha.
- Gas connections works – 32 ha.
- Temporary construction and laydown areas – 31 ha.
- Access and highways improvements – 32 ha.
- Replacement land relating to Work No. 6 – 2 ha.

7.4.2 The above areas and their extent are shown upon the Work Plans (Document Ref. 2.4). A number of the areas overlap to provide for the flexibility as described in Section 5.0.

7.5 Scale

7.5.1 The scale of the Proposed Development relates to the dimensions (length, width and height) of the main buildings and structures that would be constructed. The maximum dimensions of these are set out in Table 5.1 (Maximum Design Parameters) at Section 5.0 of this DAS.

7.5.2 The tallest and most visually prominent buildings and structures of the Proposed Development will be the main flare at up to 108 m in height (Above Ordnance Datum '(AOD')), the Auxilary Boiler Stack (up to 78 m AOD), CO_2 Absorber Column (up to 56 m AOD), Start-Up Fired Heater Stack (up to 53 m AOD), Air Separation Unit ('ASU') (up to 60 m AGL) and High-Pressure ('HP') and Low -Pressure ('LP') Flash Vessels (up to 58m AOD). However, some of the tallest structures such as the main flares and boiler and heater stacks, will be relatively slender structures in terms of diameters, limiting their prominence, and as confirmed above, the majority of the buildings and structures will be grouped where possible.

7.5.3 Indicative elevations/sections for the Main Site are provided at **Appendix 3**. These provide an indication of how the scale and massing of main buildings/structures at the Main Site will look.

7.5.4 The scale and massing of the main buildings and structures will be in keeping with the adjacent NEP infrastructure and the industrialised landscape of the surrounding area.

7.6 Appearance

7.6.1 The most visually prominent buildings and structures of the Proposed Development will be the flare, the Auxiliary Boiler Stack, CO_2Absorber Column, Start-Up Fired Heater Stack, ASU and the HP and LP Flash Vessels. However, of these structures, the main flares and boiler and heater stacks, will be relatively slender structures in terms of diameters, limiting their prominence and as confirmed above, buildings and structures will be grouped where possible.

7.6.2 The appearance of the buildings and structures at the Main Site will be in keeping with the industrialised context within which they will sit, with the area already being characterised by industrial structures and uses. The appearance of the buildings and structures is representative of their function and purpose and will also be in keeping with the proposed design approach to the adjacent NEP infrastructure.

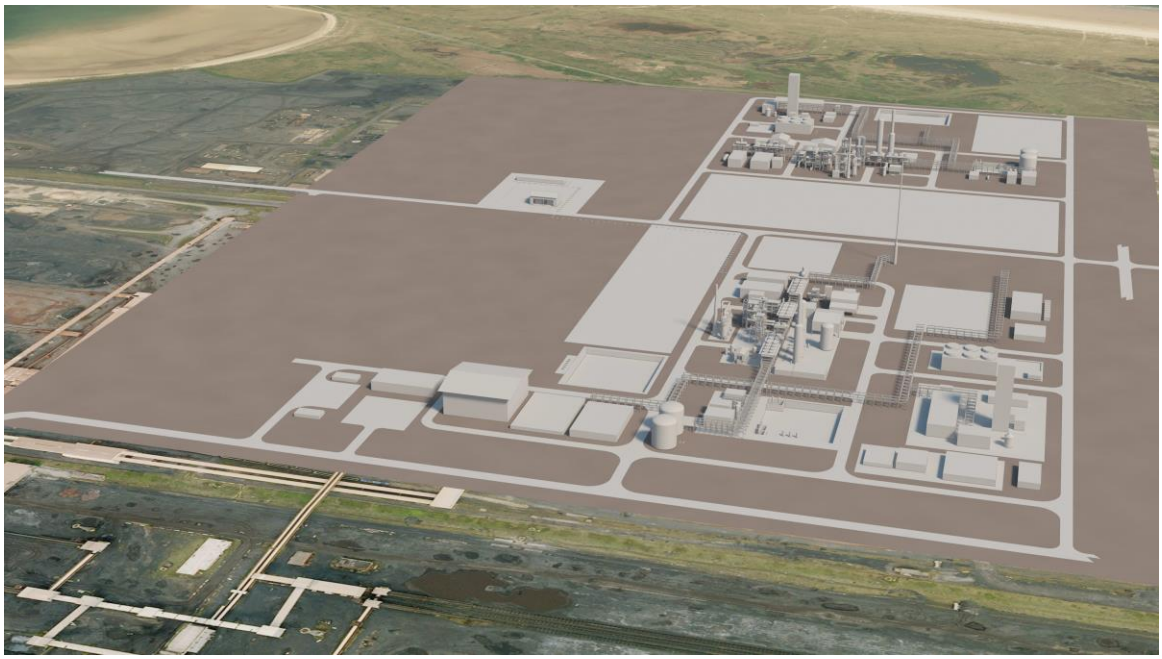
7.6.3 The buildings and structures at the Main Site will be simple and functional in form and detailing, predominantly comprising steel framed enclosures that will be clad in appropriate materials. While the buildings and structures are functional, reflective of their industrial setting and the fact they do not sit on a Gateway Plot, the main infrastructure corridor or a primary route within Teesworks, the Applicant will consider enclosing the main items of plant and equipment in line with Design Guide recommendations having regard to the fact these will be visible from South Gare and Coatham Dunes.

7.6.4 It is envisaged that the external finishes for the buildings and structures at the Main Site will comprise predominantly of metal cladding and concrete. Again, in line with

Design Guide, it is proposed that a simple and consistent approach is taken to the materials and colour palette to be employed. There are a number of possible solutions for external finishes, including flat and profiled metal cladding and concrete. Lighter colours such as light greys may be used to soften the appearance of the buildings and structures against the sky and sea. A decision on appropriate external finishes, materials and colours will be made at the detailed design stage with the final details being subject to approval by the relevant LPA in accordance with Requirement 3 'Detailed design' of the draft DCO (Document Ref. 4.1).

7.6.5 A 3D visualisation of how the Main Site may appear is reproduced in **Figure 7.3**.

Figure 7.3: 3D Visualisation of the Main Site



7.6.6 In designing the Proposed Development, the Applicant has sought to minimise its landscape and visual effects through the siting and layout of buildings and structures. Table 16.4 'Landscape Sensitivity Assessment' in ES Chapter 16 'Landscape and Visual Amenity' (Document Ref. 6.2.16) provides a summary of the sensitivity of each landscape receptor including National and Marine Character Areas as well as Local Landscape Character areas within the vicinity of the Proposed Development. The assessment has determined that the Proposed Development is unlikely to result in significant adverse landscape effects during any of the assessment scenarios.

7.6.7 Chapter 16, specifically the 'visual amenity assessment', does identify that the Proposed Development will result in a small number of recreational receptors associated with the England Coastal Path (Viewpoint 7) and Redcar Seafront (Viewpoint 8) experiencing significant short-term adverse visual effects during the construction stage, as a result of the proximity to the Main Site and the limited intervening vegetation. These effects will also be significant during the operational stage along the England Coastal Path (Viewpoint 7) due to the proximity and prominence of structures associated with the Proposed Development. However,

this is an industrial location, which already exhibits large scale industrial development, and for which more development is planned, notably at Teesworks, including the adjacent NEP infrastructure. Furthermore, it is considered that the significant benefits of the Proposed Development outweigh the landscape and visual effects.

7.6.8 The gas, electricity, water, carbon dioxide and hydrogen connections will involve below ground or low-level works, in many cases within existing infrastructure corridors, and will not therefore be particularly visible within the area.

7.6.9 As confirmed above, the detailed design of the Proposed Development, including the design and appearance of buildings and the type and colour of materials to be employed would be secured by Requirement 3 'Detailed design' of the draft DCO – See Section 9 for more information on securing detailed design.

7.7 Landscaping

7.7.1 The approach taken to landscaping at the Main Site has necessarily been influenced by functional and safety requirements. The areas around and between the main buildings and structures will comprise in the main of hardstanding and crushed stone, with some grassed areas. These areas need to be kept free of planting for safety and security reasons.

7.7.2 The internal access roads and other hardstanding areas (e.g. for parking) will be of concrete or tarmac.

7.7.3 The perimeter of the Main Site and the AGIs will be offer opportunities for some planting and biodiversity enhancement in line with the Outline Landscape and Biodiversity Management Plan (Document Ref. 5.9). Details of the landscaping will be secured by Requirement 4 'Landscape and biodiversity protection management and enhancement'.

7.7.4 The perimeter of the Main Site will be securely fenced with appropriate chain link or mesh fencing.

7.7.5 The outline landscaping proposals are provided at **Appendix 4.**

7.8 Lighting

7.8.1 The Application includes an Indicative Lighting Strategy (operation) (Document Ref. 5.8). Before any lighting is installed at the Main Site a detailed lighting scheme will be submitted to the relevant LPAs for approval in accordance with Requirement 6 of the draft DCO to be substantially in accordance with this indicative strategy. The lighting scheme will be designed in accordance with relevant standards, such as the Guidance Notes for the Reduction of Obtrusive Light (2020) published by the Institute of Lighting Engineers and/or Chartered Institution of Building Services Engineers requirements, as appropriate.

7.8.2 The lighting scheme will be designed to provide safe working conditions in all areas of the Main Site whilst reducing light pollution and the visual impact on the local environment.

7.8.3 Lighting near or above the horizon is to be avoided to reduce glare and sky glow (the brightening of the night sky). Good design, correct installation and ongoing maintenance are essential to the optical effectiveness of lighting schemes, in combination with optical good practice aimed at limiting light pollution. Efficient lamp and luminaire selections will be made to minimise energy use and associated carbon emissions.

7.8.4 Given the proximity of some ecological designated areas, the use of enhanced or accentuation design lighting is not proposed, so that effects are minimised on wildlife using the designated areas.

8.0 ACCESS ARRANGEMENTS

8.1.1 This section describes the operational access arrangements for the Main Site.

8.1.2 The access to the Main Site will be from the A1085 Trunk Road / West Coatham Lane / Teesworks Steel House Gate roundabout, with all Heavy goods vehicles ('HGVs') travelling along the A1085 towards Grangetown to access the A19 either side of the A66 in the north or via the A1053 Greystone and the A174 in the south.

8.1.3 The arrangements for operational traffic movements are set out in more detail within the Transport Assessment (ES Appendix 15A Document Ref. 6.4.26).

8.1.4 The nearest bus stops are located on West Coatham Lane to the south of the Main Site, with the nearest operational railway station being Redcar situated approximately 2.5 km to the east. The Redcar British Steel station (currently closed) is located 800 m to the south.

8.1.5 Internal access roads at the Main Site are accessed via the existing private road network within the area, which can be seen on the Access and Rights of Way Plans (Document Ref. 2.5) provided at **Appendix 5.** Internal access roads will be designed and maintained to provide safe access and movement for all vehicle types and users. There will be clear segregation and demarcation of routes for pedestrians.

8.1.6 Car parking facilities will be provided within the Main Site for operational staff and visitors. Park and ride facilities are also being delivered within Teesworks.

8.1.7 Secure cycle parking facilities will be provided within the Main Site close to the the administration/control buildings and there will be shower and changing facilities for those cycling to work.

8.1.8 Where possible, pedestrian and cycle routes, parking areas and buildings within the Main Site will be designed to provide for inclusive access. This will need to take account of operational and safety considerations given the nature of the Main Site.

8.1.9 Buildings will comply with the access requirements set out in the Buildings Regulations except where exemptions apply. Building Regulations approval would only be sought once an EPC contractor has been appointed and detailed design has been completed.

9.0 SECURING DETAILED DESIGN

9.1.1 Where flexibility is required in the design of a development (as explained in Section 5.0) it is important to ensure that appropriate mechanisms are in place to provide certainty to the SoS, the relevant LPAs and any other relevant bodies, that its detailed design will be in accordance with the design parameters upon which the EIA has been based.

9.1.2 The draft DCO (Document Ref 4.1) contains a number of controls in the form of articles, schedules and requirements to secure the detailed design of the Proposed Development in accordance with the information contained within the Application and the assessments set out in the ES (Document Refs. 6.1 to 6.4). Those controls are set out in Table 9.1.

Table 9.1: Controls over Detailed Design within the draft DCO

ARTICLE REQUIREMENT	TITLE	DESCRIPTION
Article 4	Development consent etc. granted by this Order	Requires the Proposed Development to be carried out within the Order limits and within the numbered area shown on the Works Plans.
Schedule 2 - Requirement 3	Detailed design	Requires details of the Work Numbers (Nos.) shown by the numbered area of the Works Plan to be submitted to the relevant planning authority for approval, and that where relevant they comply with the maximum design parameters.
Requirement 4	Landscape and biodiversity management plan	Requires a landscape and biodiversity management plan to be submitted to the relevant planning authority for approval.
Requirement 6	External lighting	Requirement 6(2) requires details of all permanent external lighting (with the exception of aviation warning lighting covered by Requirement 24).
Requirement 7	Means of enclosure	Requirement 7(3) requires details of any permanent means of enclosure.
Requirement 8	Site security	Requires a written scheme detailing security measures to minimise the risk of crime in respect of Work No. 1.

ARTICLE REQUIREMENT	TITLE	DESCRIPTION
Requirement 10	Surface and foul water drainage	Requirement 10(3) requires details of all permanent surface and foul water drainage systems.
Requirement 11	Flood risk mitigation	Requirement 11(3) requires a scheme for the mitigation of flood risk during operation.
Requirement 23	Aviation warning lighting	Requires the submission of details of aviation warning lighting in respect of Work No. 1.
Requirement 30	Approved details and amendments to them	31(1) requires all details submitted for approval of the relevant planning authority under the requirements to reflect the principles set out in the documents certified under Article 45.
Schedule 16	Design parameters	Defines the maximum design parameters for the main buildings and structures.

9.1.3 The above will ensure that the detailed design of the Proposed Development is controlled and secured.

10.0 CONCLUSIONS

10.1.1 This DAS sets out how the Applicant has had regard to design and access considerations in designing the Proposed Development.

10.1.2 The DAS sets out the design principles that the Applicant has applied to the Proposed Development (based around climate, environment and safety and place and value), the approach taken to the design of the Proposed Development and how that design has developed and evolved ahead of the submission of the Application.

10.1.3 The DAS explains the degree of flexibility being sought in the design of the Proposed Development (largely a product of its 'First of a Kind' nature and the need to take account ongoing technological advancement in the hydrogen sector) and sets out the design parameters that have been used for the purposes of the EIA to ensure that its likely significant effects have been robustly assessed.

10.1.4 In addition, the DAS sets out the level of design information that is available at the consenting stage and how the detailed design of the Proposed Development will ultimately be controlled and secured.

10.1.5 The primary focus of the DAS is on the Main Site, which will be the location of Work No. 1, the carbon capture enabled Hydrogen Production Facility. This is on the basis that the Main Site will accommodate the Proposed Development's main buildings and structures, while the other main elements of the Proposed Development will primarily encompass the installation of pipelines and cables (which will either be installed below ground or largely within existing infrastructure corridors), temporary construction and laydown areas and limited access and highway works.

10.1.6 The Applicant has taken account of the Site's context, planning policy and local design guidelines in the design and layout of the Proposed Development.

10.1.7 The Applicant has adopted a functional approach to the design of the Proposed Development, notably the Main Site, reflective of its function and purpose, the fact that it will sit adjacent to the NEP infrastructure (which is itself functional in appearance), the allocation of the land with the Redcar and Cleveland Local Plan and the South Tees SPD, that the Teesworks Design Guide does not identify the Foundry as a 'Gateway Plot', in addition to the industrial character of the area. The approach to design has also been influenced by technical, engineering, environmental and safety considerations. However, functional design can represent 'good design' and in developing the design of the Proposed Development the Applicant has taken account of the Teesworks Design Guide and the relevant plot typology and sought to minimise impacts upon the surrounding area.

10.1.8 The main buildings and structures at the Main Site have been grouped together where feasible from a technical and safety perspective in order to consolidate their built form, scale and massing and they are set back from the site boundaries. This is consistent with the Teesworks Design Guide and its Large-Scale Industrial Operations typology.

10.1.9 The appearance of the buildings and structures at the Main Site will be in keeping with the industrialised context within which they will sit, with the area already being characterised by large industrial structures and uses. The appearance of the buildings and structures is representative of their function and purpose and will also be in keeping with the proposed design approach to the adjacent NEP infrastructure.

10.1.10 The approach taken to landscaping at the Main Site has necessarily been influenced by functional and safety requirements. The areas around and between the main buildings and structures will comprise for the most part of hardstanding and crushed stone, with some grassed areas. These areas need to be kept free of planting for safety and security reasons.

10.1.11 The internal access roads and other hardstanding areas (e.g. for parking) will be of concrete or tarmac.

10.1.12 The perimeter areas of the Main Site and AGIs will offer some opportunities for planting and biodiversity enhancement in line with the Outline Landscape and Biodiversity Management Plan (Document Ref. 5.9). Details of the landscaping will be secured by Requirement 4 'Landscape and biodiversity management plan'.

10.1.13 The Proposed Development also incorporates appropriate access arrangements. The internal access roads within the Main Site will be designed to provide safe access and movement for all vehicle types and users. There will be clear segregation of and demarcation of routes for pedestrians. Where possible, pedestrian routes, parking areas and buildings within the Main Site will be designed to provide for inclusive access. This will need to take account of operational and safety considerations given the nature of the use and operations.

10.1.14 The Proposed Development incorporates a number of measures within its design to ensure that it will be resilient in terms of the effects of climate change as well as contributing to mitigating those effects. This includes appropriate flood risk mitigation. Furthermore, it should not be overlooked that the Proposed Development will produce low carbon hydrogen with a link to the adjacent NEP infrastructure that enables CCS, that will contribute to the decarbonisation of industry on Teesside, which supports climate change objectives and the Government's legally binding target of net zero greenhouse gas emissions by 2050.

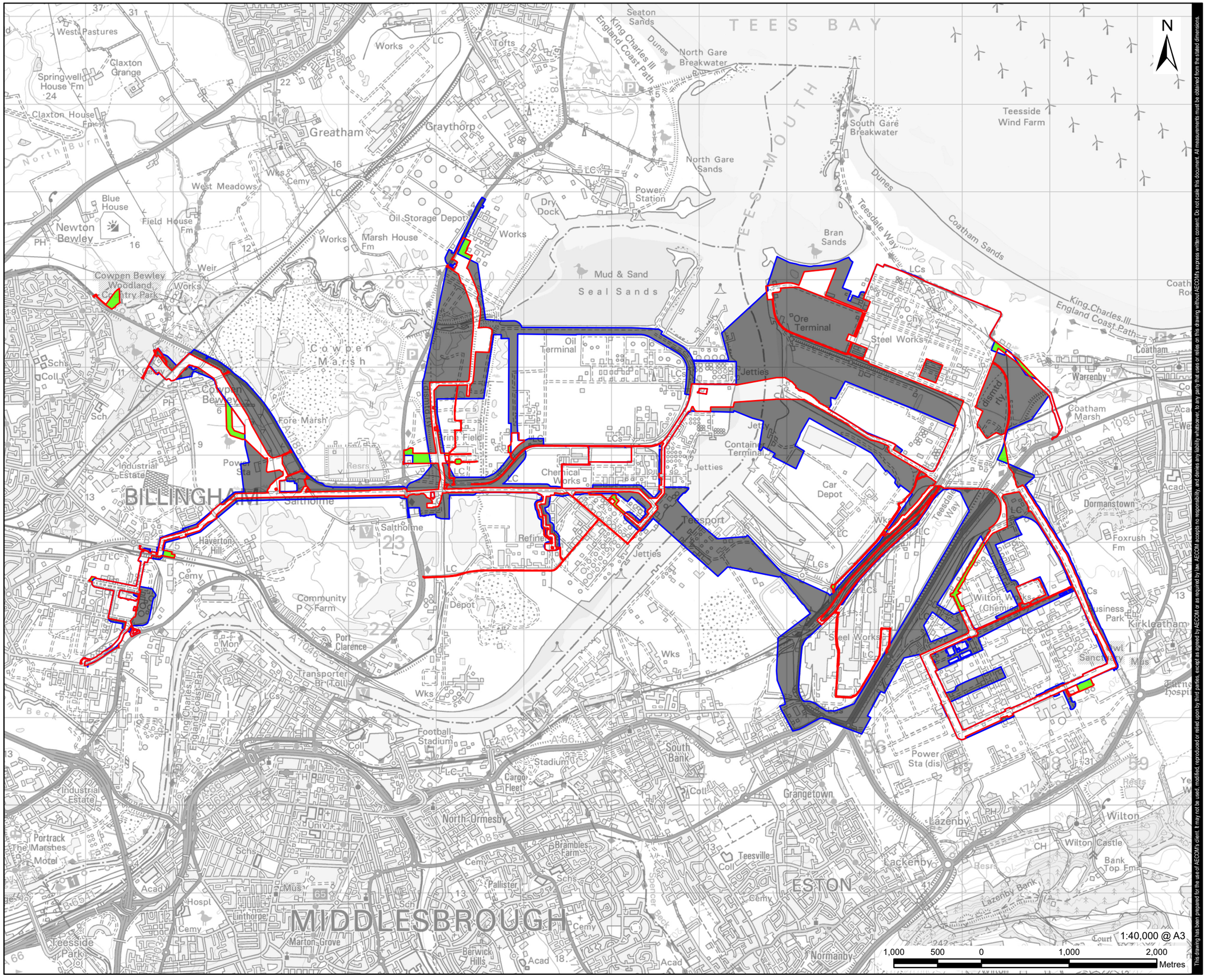
10.1.15 The detailed design of the Proposed Development and measures to ensure its resilience to climate change will be secured by a number of requirements within the draft DCO, including Requirement 3 'Detailed design'; 4 'Landscape and biodiversity management plan'; 6 'External lighting'; 7 'Means of enclosure; 8 'Site security'; 10 'Surface and foul water drainage'; and 11 'Flood risk mitigation'.

10.1.16 It is therefore considered that the Proposed Development represents 'good design' for the purposes of energy infrastructure and policy set out EN-1, EN-4 and EN-5 as well as other planning policy documents and also local design guidelines.

APPENDIX 1: PROPOSED DEVELOPMENT SITE/DESIGN EVOLUTION

Revision: 0 Drawn: MAB Checked: VC Approved: SC Date: 2024-02-15

Filename: \\na.aecomnet.com\f\s\EMEA\Bristol-UKBRI2\Legacy\UKBRI2FP001\VOL1\BE\Projects\Environmental\General\GIS\Projects\H2 Teesside\02_Maps\H2Teesside ES\H2Teesside_ES_RoutingAndAccess.aprx



AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside Limited

CONSULTANT

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LEGEND

- Proposed Development Site - Environmental Statement
- Proposed Development Site - PEIR
- Area Added Since the PEIR
- Area Removed Since the PEIR

NOTES

ISSUE PURPOSE

Environmental Statement

PROJECT NUMBER

60689030

FIGURE TITLE

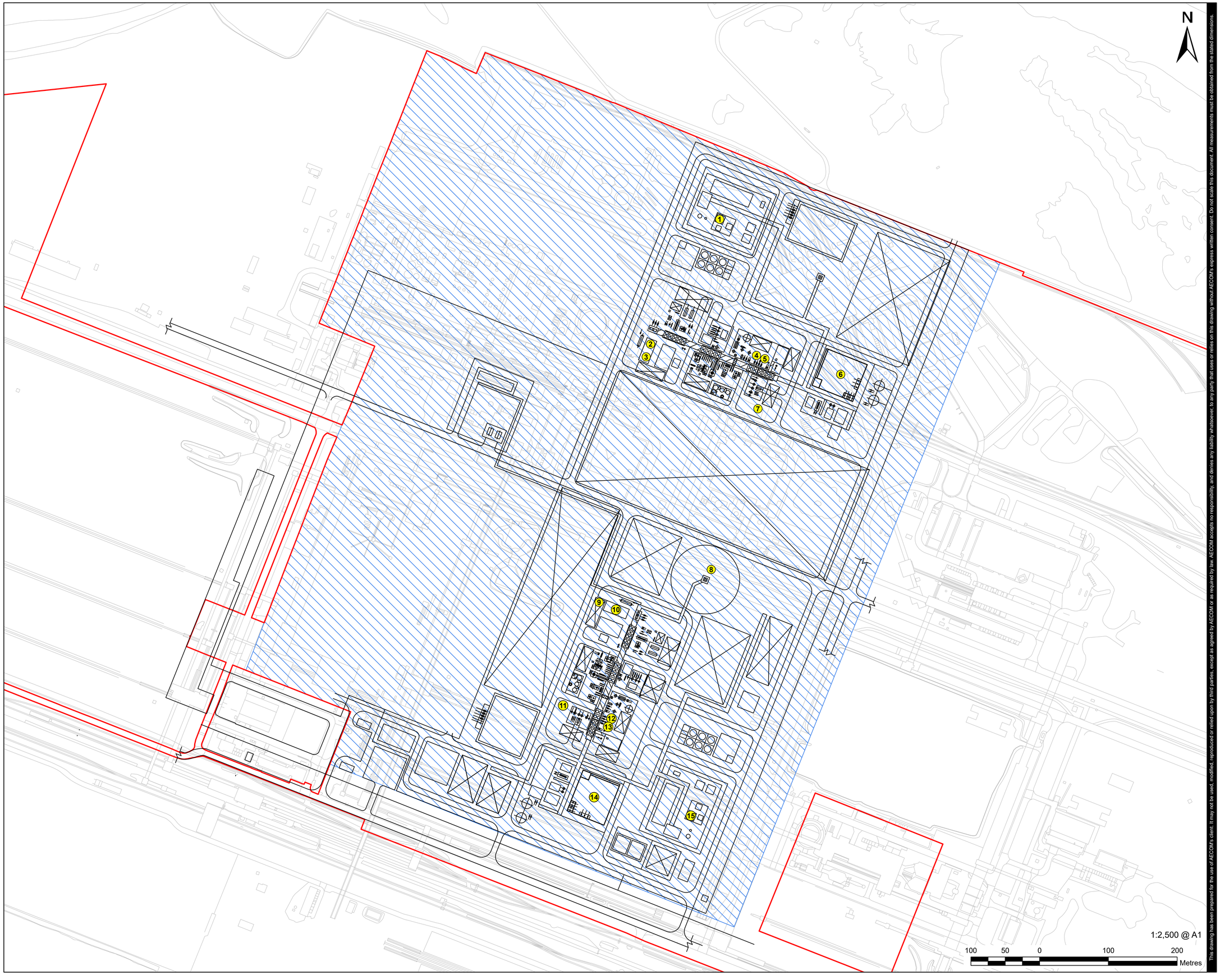
Proposed Development Site Evolution

FIGURE NUMBER

Figure 6-1

APPENDIX 2: MAIN SITE INDICATIVE LAYOUT

Drawn: MAB Checked: JL Approved: JL Date: 2024-03-22



Revision: 0

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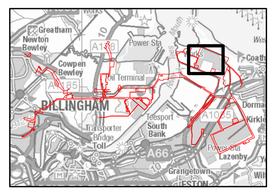
LEGEND

- Order Limits
- Plot Plan
- Work No. 1 - Carbon Capture Enabled Hydrogen Production Facility
- 1 Air Separation Unit Cold Box
- 2 Auxiliary Boiler
- 3 Auxiliary Boiler Stack
- 4 High Pressure and Low Pressure Flash Vessels
- 5 CO_2 Absorber Column
- 6 Surface Water Drainage Pond
- 7 Start-up Fired Heater Stack
- 8 Flare Stack
- 9 Auxiliary Boiler Stack
- 10 Auxiliary Boiler
- 11 Start-up Fired Heater Stack
- 12 High Pressure and Low Pressure Flash Vessels
- 13 CO_2 Absorber Column
- 14 Surface Water Drainage Pond
- 15 Air Separation Unit Cold Box

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(o).



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APPLICATION REFERENCE

H2T_March24_DCO_2.6_Rev0

ISSUE PURPOSE

FOR DCO APPLICATION

PROJECT NUMBER

60689030

DRAWING TITLE

Indicative Hydrogen Production Facility and Above Ground Installations Plan

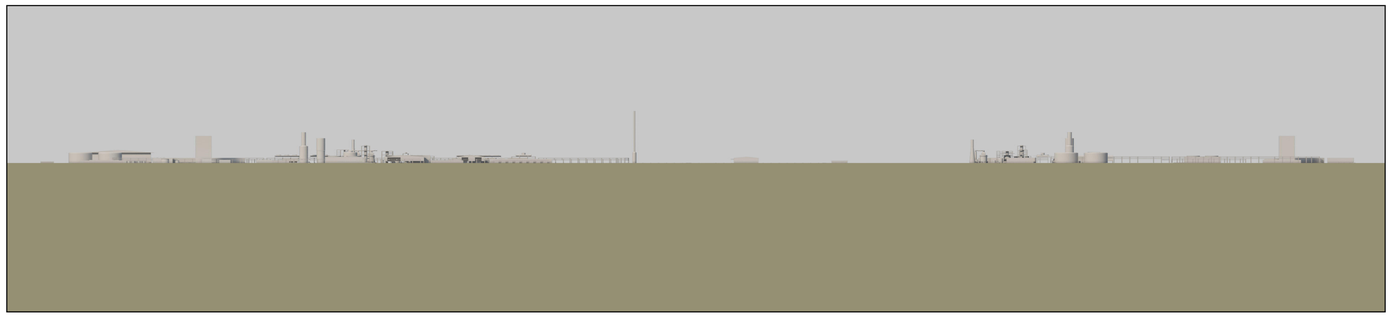
DRAWING NUMBER

Drawing 4 of 4

APPENDIX 3: MAIN SITE ELEVATIONS/SECTIONS

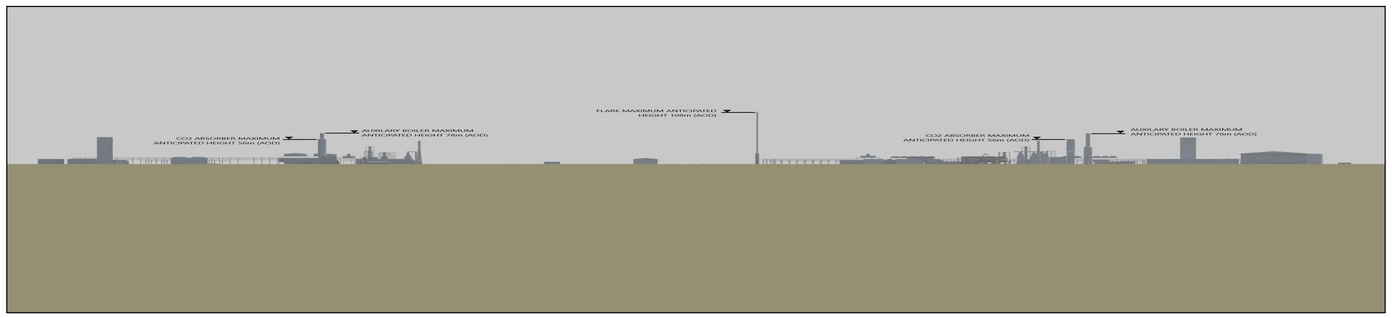
Drawn: MAB Checked: JL Approved: JL Date: 2024-03-22

Elevation Looking North



Elevation Looking East

Elevation Looking South



Elevation Looking West

Revision: 0

N

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LEGEND

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(o).

APPLICATION REFERENCE

H2T_March24_DCO_2.6_Rev0

ISSUE PURPOSE

FOR DCO APPLICATION

PROJECT NUMBER

60689030

DRAWING TITLE

Indicative Hydrogen Production Facility and Above Ground Installations Plan

DRAWING NUMBER

Drawing 3 of 3

APPENDIX 4: OUTLINE LANDSCAPE PROPOSALS

Revision: 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

Filename: \\na.aecomnet.com\hfs\EMEA\Bristol\UKBRG2\Legacy\UKBRG2FP001\VOL1\BE\Projects\Environmental\General\GIS\Projects\H2 Teesside\H2_Maps\H2Teesside Landscape Biodiversity Management Plan\H2T_Landscape_Biodiversity_Management_Plan.aprx

All habitat to be reinstated like-for-like unless otherwise specified

Appropriate landscape planting on margins of main site and AGI where possible.

Trees to be retained between AGI and Railway.

Bankside vegetation to be reinstated post construction.

N

1:2,500 @ A0

100 50 0 100 200 Metres

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PROJECT

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LEGEND

- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area

NOTES

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ISSUE PURPOSE

Landscape & Biodiversity Management Plan

PROJECT NUMBER

60689030

FIGURE TITLE

Outline Landscape and Biodiversity Plan

FIGURE NUMBER

Figure 1 (Sheet 1 of 11)

Revision: 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

Filename: \\na.aecomnet.com\file\EMEA\Bristol-UKBRI2\Legacy\UKBRI2\P900\VOL1\BE\Projects\Environmental\General\GIS\Projects\H2 Teesside\02_Maps\H2Teesside Landscape Biodiversity Management Plan\H2T_Landscape_Biodiversity_Management_Plan.aprx

All habitat to be reinstated like-for-like unless otherwise specified

Appropriate landscape planting on margins of main site and AGI where possible.

Trees to be retained between AGI and Railway.

Bankside vegetation to be reinstated post construction.

Appropriate landscape planting on margins of main site and AGI where possible.

Bankside vegetation to be reinstated post construction.

Appropriate landscape planting on margins of main site and AGI where possible.

N

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PROJECT
H2Teesside DCO

APPLICANT
H2 Teesside Limited

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LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area

1:2,500 @ A0

100 50 0 100 200 Metres

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ISSUE PURPOSE
Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 2 of 11)

All habitat to be reinstated like-for-like unless otherwise specified

Bankside vegetation to be restored post construction.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Belasis Beck

PHS1_1

PHS1_2

N

1:2,500 @ A0

100 50 0 100 200 Metres

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PROJECT
H2Teesside DCO

APPLICANT
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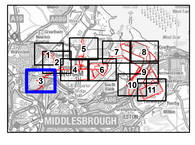
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE
Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 3 of 11)

Revision: 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

Filename: \\na.aecomnet.com\hfs\EMEA\Bristol\UKBR2\Legacy\UKBR2FP001\VOL1\BE\Projects\Environmental\General\GIS\Projects\H2 Teesside\H2_Maps\H2Teesside Landscape Biodiversity Management Plan\H2T_Landscape_Biodiversity_Management_Plan.aprx

All habitat to be reinstated like-for-like unless otherwise specified

Bankside vegetation to be reinstated post construction.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

1-Holme Fleet

Holme Fleet

N

1:2,500 @ A0

100 50 0 100 200 Metres

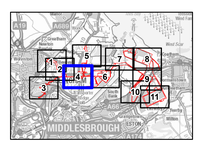
AECOM

PROJECT
H2Teesside DCO

APPLICANT
H2 Teesside Limited

CONSULTANT
AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE
Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 4 of 11)

All habitat to be reinstated like-for-like unless otherwise specified

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Floodplain grazing marsh habitat to be reinstated post construction.

Floodplain grazing marsh habitat to be reinstated post construction.

N

AECOM

PROJECT

H2Teesside DCO

APPLICANT

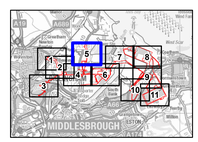
H2 Teesside Limited

CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE

Landscape & Biodiversity Management Plan

PROJECT NUMBER

60689030

FIGURE TITLE

Outline Landscape and Biodiversity Plan

FIGURE NUMBER

Figure 1 (Sheet 5 of 11)

1:2,500 @ A0

100 50 0 100 200 Metres

All habitat to be reinstated like-for-like unless otherwise specified

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

N

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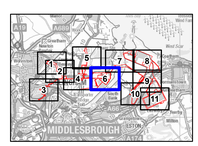
PROJECT
H2Teesside DCO

APPLICANT
H2 Teesside Limited

CONSULTANT
AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE
Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 6 of 11)

1:2,500 @ A0

100 50 0 100 200 Metres

Revision 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

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All habitat to be reinstated like-for-like unless otherwise specified

N

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

River Tees

Dabholm Cut (drain) 18

NS 18

NS 18

638 145 12 665 664 655 18 597 599 598 378 377 78 81 84 87 86

Track Emergency Access Road Posts WBs WB

1:2,500 @ A0

100 50 0 100 200 Metres

AECOM

PROJECT

H2Teesside DCO

APPLICANT

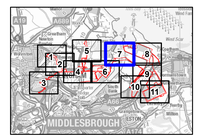
H2 Teesside Limited

CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE

Landscape & Biodiversity Management Plan

PROJECT NUMBER

60689030

FIGURE TITLE

Outline Landscape and Biodiversity Plan

FIGURE NUMBER

Figure 1 (Sheet 7 of 11)

Revision: 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

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All habitat to be reinstated like-for-like unless otherwise specified

N

Appropriate landscape planting on margins of main site and AGI where possible.

Open mosaic habitat allowed to regenerate naturally using low nutrient, free draining substrates.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

NS_19

NS_18

PHS1_45

PHS1_46

The Fleet

Ash Gill

Oakholm Cut (grassl) 16

Conveyor

Track

Path (unm)

Weighbridge

TOD POINT ROAD

MIDDLESBROUGH

1:2,500 @ A0

100 50 0 100 200 Metres

AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside Limited

CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Proposed Development Site
- Main Site
- Work No. 1 - Carbon Capture Enabled Hydrogen Production Facility
- AGI
- Waterbody
- Waterbody Area

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ISSUE PURPOSE

Landscape & Biodiversity Management Plan

PROJECT NUMBER

60689030

FIGURE TITLE

Outline Landscape and Biodiversity Plan

FIGURE NUMBER

Figure 1 (Sheet 8 of 11)

All habitat to be reinstated like-for-like unless otherwise specified

Appropriate landscape planting on margins of main site and AGI where possible.

Habitat to be reinstated post construction.

Open mosaic habitat allowed to regenerate naturally using low nutrient, free draining substrates.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Appropriate landscape planting on margins of main site and AGI where possible.

Open mosaic habitat allowed to regenerate naturally using low nutrient, free draining substrates.

N

1:2,500 @ A0

100 50 0 100 200 Metres

AECOM

PROJECT
H2Teesside DCO

APPLICANT
H2 Teesside Limited

CONSULTANT
AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area

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Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 9 of 11)

Revision: 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

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Revision: 0 Drawn: MAB Checked: LC Approved: TP Date: 2024-03-20

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All habitat to be reinstated like-for-like unless otherwise specified

N

Appropriate landscape planting on margins of main site and AGI where possible.

Knitting Wife Beck
Kilnardale Beck
The Mill Race
Dabholm Beck
PHS1.40
PHS1.42
PHS1.43
PHS1.41
NS.44
NS.45
NS.46
NS.48
NS.15
43
44
46
47
48
53
54
55
421
422
423
600
656
TEES DOCK ROAD
TRUNK ROAD
GRANGETOWN
WATER POINT
Weighbridge
Weighbridges
Pond
Posts
Path
Track
WB
UUD

1:2,500 @ A0

100 50 0 100 200 Metres

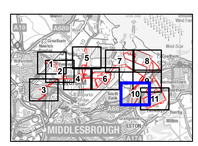
AECOM

PROJECT
H2Teesside DCO

APPLICANT
H2 Teesside Limited

CONSULTANT
AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE
Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 10 of 11)

All habitat to be reinstated like-for-like unless otherwise specified

Appropriate landscape planting on margins of main site and AGI where possible.

Open mosaic habitat allowed to regenerate naturally using low nutrient, free draining substrates.

Appropriate landscape planting on margins of main site and AGI where possible.

N

1:2,500 @ A0

100 50 0 100 200 Metres

AECOM

PROJECT
H2Teesside DCO

APPLICANT
H2 Teesside Limited

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100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
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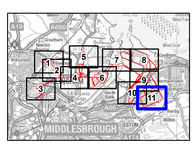
LEGEND
- Proposed Development Site
- AGI
- Waterbody
- Waterbody Area



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ISSUE PURPOSE
Landscape & Biodiversity Management Plan

PROJECT NUMBER
60689030

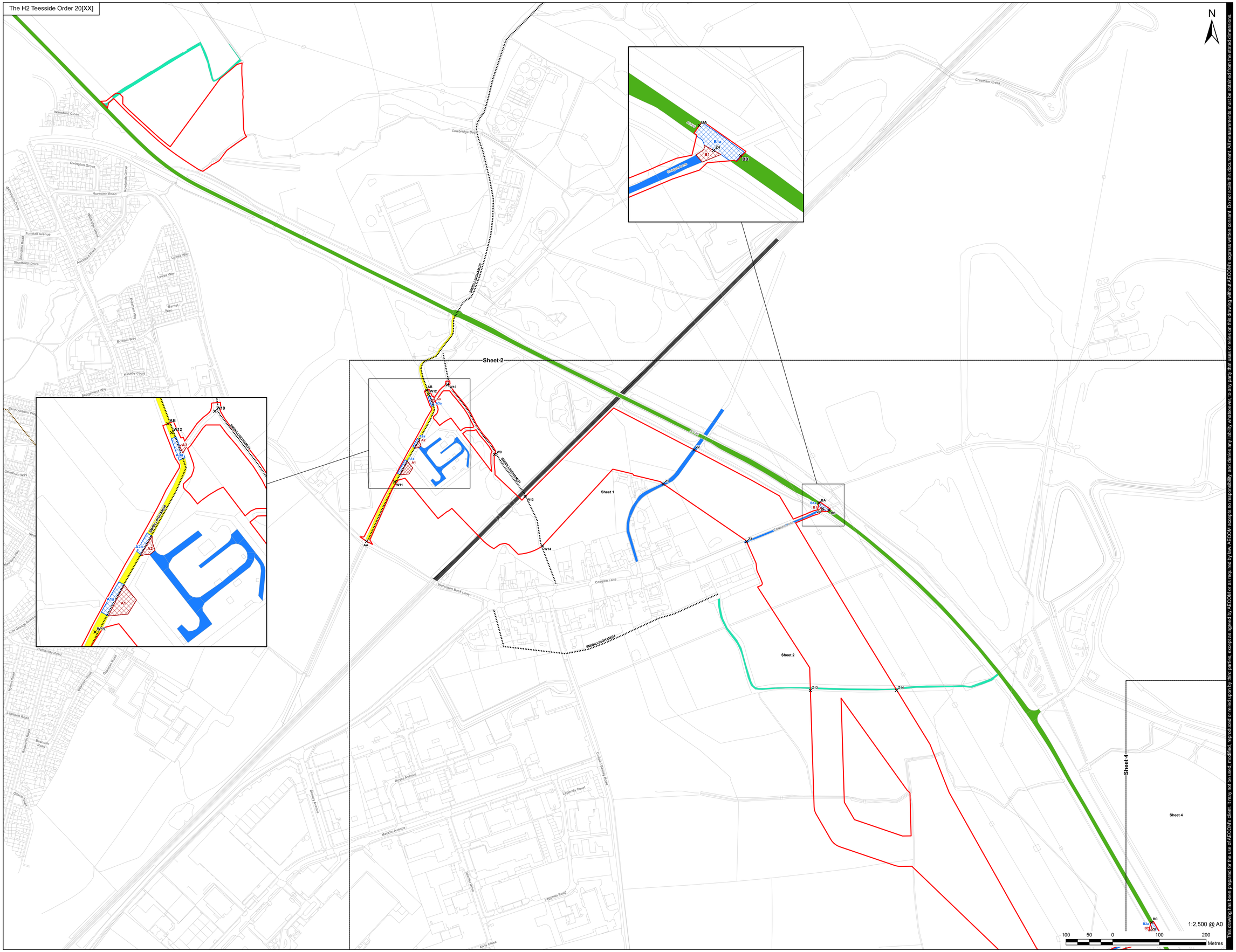
FIGURE TITLE
Outline Landscape and Biodiversity Plan

FIGURE NUMBER
Figure 1 (Sheet 11 of 11)

APPENDIX 5: ACCESS AND RIGHTS OF WAY PLANS

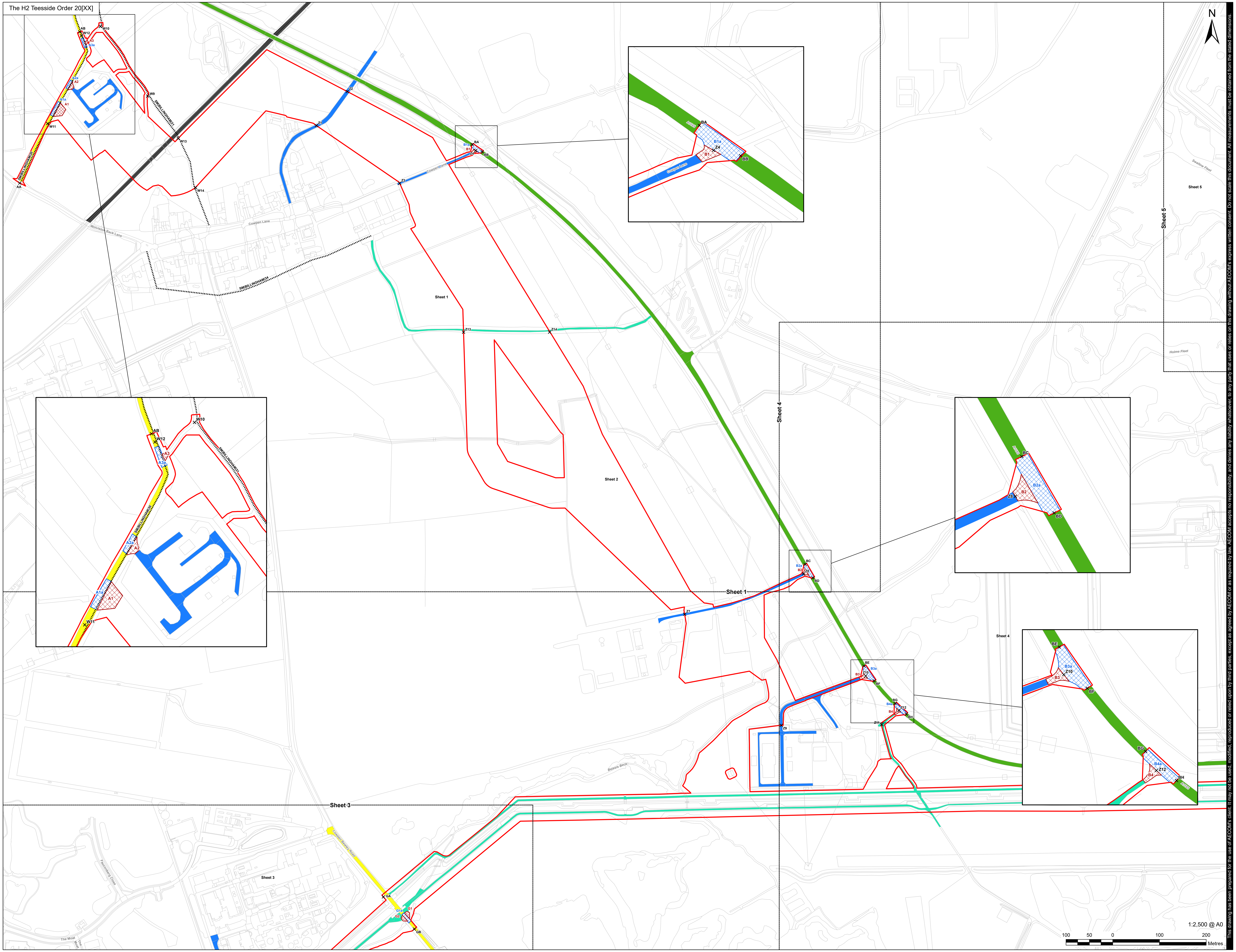
Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]



Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]



AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

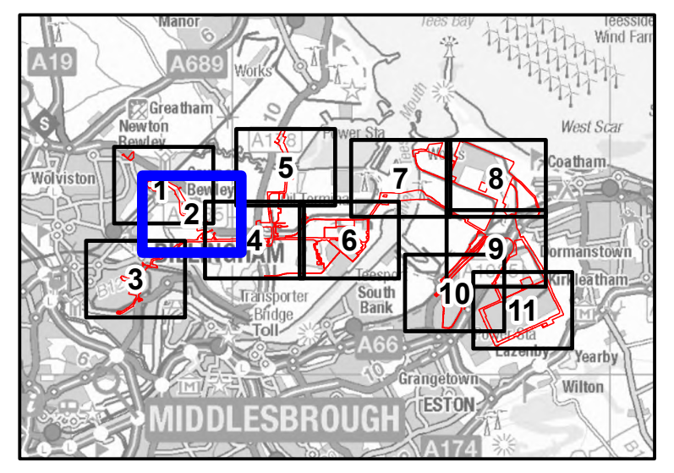
CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

▭	Order Limits
⬚	Detailed Sheet Number
×	Access Point
┈	PRoW - Footpath
▨	Private Maintenance
▨	Public Maintenance
🟩	A Road
🟧	B Road
🟨	Minor Road ; Local Road
🟦	Private Road
🟩	Private Track
⬛	Railway Line

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(k).



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APPLICATION REFERENCE

H2T_March24_DCO_2.5_Rev0

ISSUE PURPOSE

FOR DCO APPLICATION

PROJECT NUMBER

60689030

DRAWING TITLE

Access and Rights of Way

DRAWING NUMBER

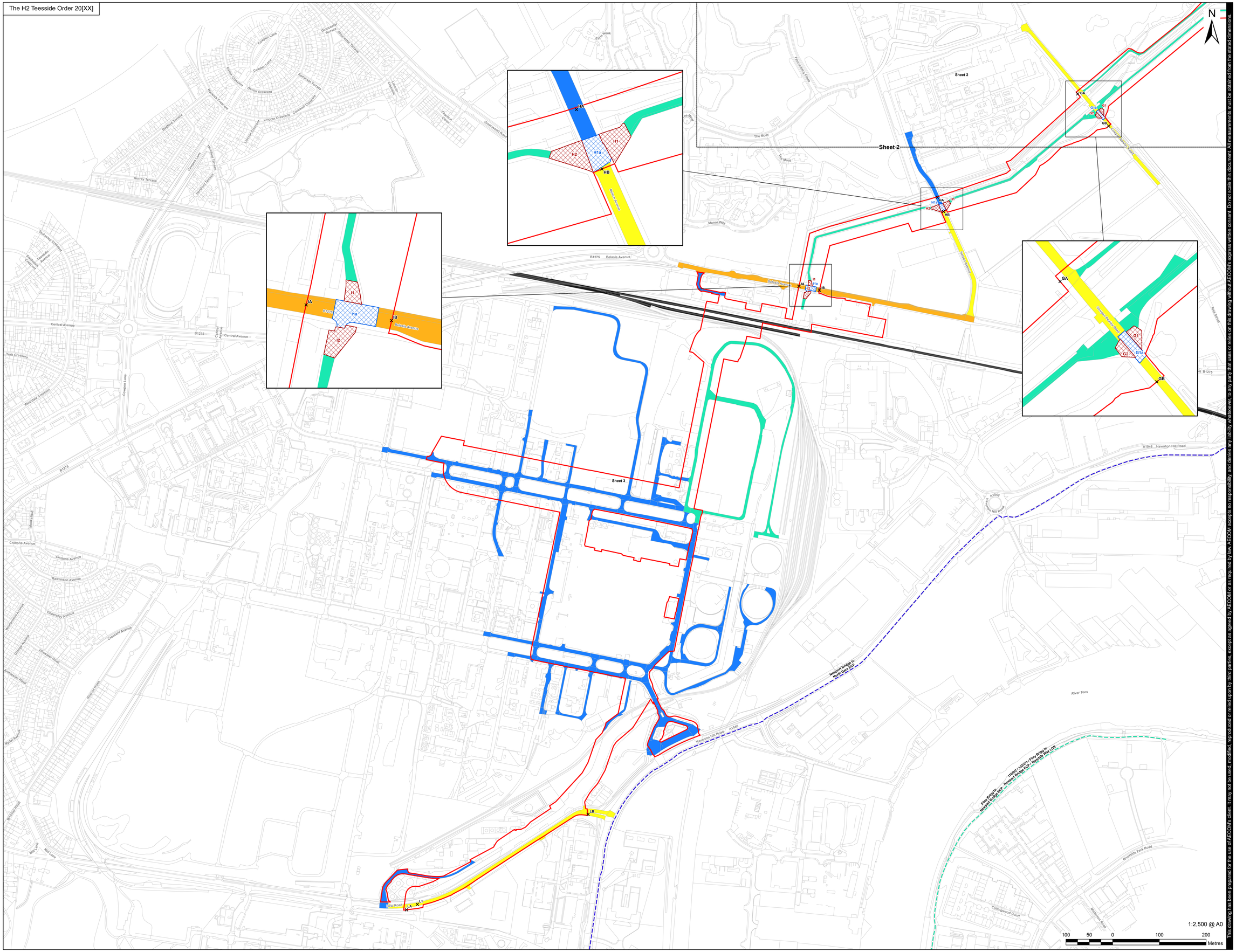
Drawing 2 of 11

Revision: 00

The H2 Teesside Order 20[XX]

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

Revision: 00



N

1:2,500 @ A0

100 50 0 100 200 Metres

AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

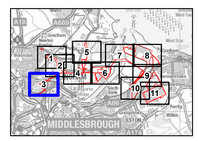
CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Order Limits
- Detailed Sheet Number
- Access Point
- PRoW - Bridleway / England Coast Path / Teesdale Way LDR
- PRoW - England Coast Path
- PRoW - England Coast Path / Teesdale Way LDR
- Private Maintenance
- Public Maintenance
- B Road
- Minor Road ; Local Road
- Private Road
- Private Track
- Railway Line

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(k).



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APPLICATION REFERENCE

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ISSUE PURPOSE

FOR INFORMATION

PROJECT NUMBER

60689030

DRAWING TITLE

Access and Rights of Way

DRAWING NUMBER

Drawing 3 of 11

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]

Sheet 1

Sheet 2

Sheet 4

Sheet 5

Sheet 6

Holme Fleet

Newport Bridge to North Gare ECP

Middlesbrough to Redcar Line

A1032

A1053

Z1

Z2

Z3

Z4

Z5

Z6

Z7

Z8

Z9

Z10

Z11

Z12

Z13

Z14

Z15

Z16

Z17

Z18

Z19

Z20

Z21

Z22

Z23

Z24

Z25

Z26

Z27

Z28

Z29

Z30

Z31

Z32

Z33

Z34

Z35

Z36

Z37

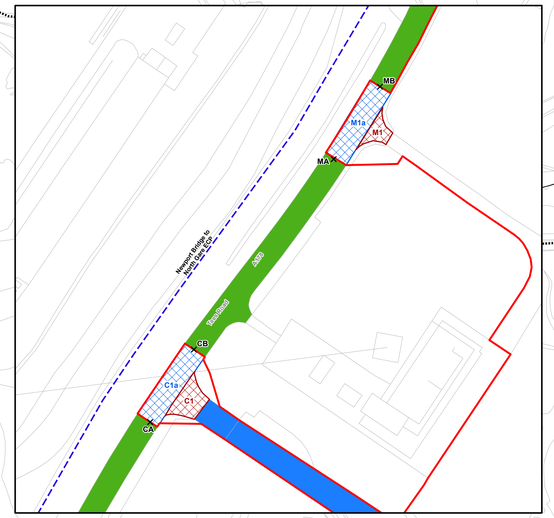
Z38

Z39

Z40

Revision: 00 Drawn: M4B Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]



Newport Bridge to Middlesbrough

Sheet 5

Emergency Access Road

Seaton on Tees Channel

Coatham Creek

Sheet 2

Sheet 2

Swallow Fleet

Holme Fleet

Sheet 4

Sheet 4

Holme Fleet

Sheet 6

Sheet 6

N

AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

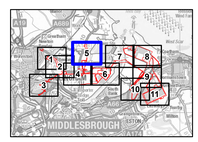
CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Order Limits
- Access Point
- Detailed Sheet Number
- PRoW - England Coast Path
- PRoW - Footpath
- Private Maintenance
- Public Maintenance
- A Road
- Private Road

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(k).



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APPLICATION REFERENCE

H2T_March24_DCO_2.5_Rev0

ISSUE PURPOSE

FOR DCO APPLICATION

PROJECT NUMBER

60689030

DRAWING TITLE

Access and Rights of Way

DRAWING NUMBER

Drawing 5 of 11

1:2,500 @ A0

100 50 0 100 200 300 400 500 Metres

Revision: 00

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]

Sheet 5

Sheet 7

Sheet 4

Sheet 6

E1 E2 E3 E4 E5 E6 E7 E8

F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB

Portrack Lane

Riverside Road

River Tees

Tees Dock Road

Kettering Stell Beck

N

1:2,500 @ A0

100 50 0 100 200 Metres

Revision: 00

AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

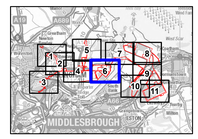
CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Order Limits
- Detailed Sheet Number
- Access Point
- Private Maintenance
- Private Road
- Private Track

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(k).



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APPLICATION REFERENCE

H2T_March24_DCO_2.5_Rev0

ISSUE PURPOSE

FOR DCO APPLICATION

PROJECT NUMBER

60689030

DRAWING TITLE

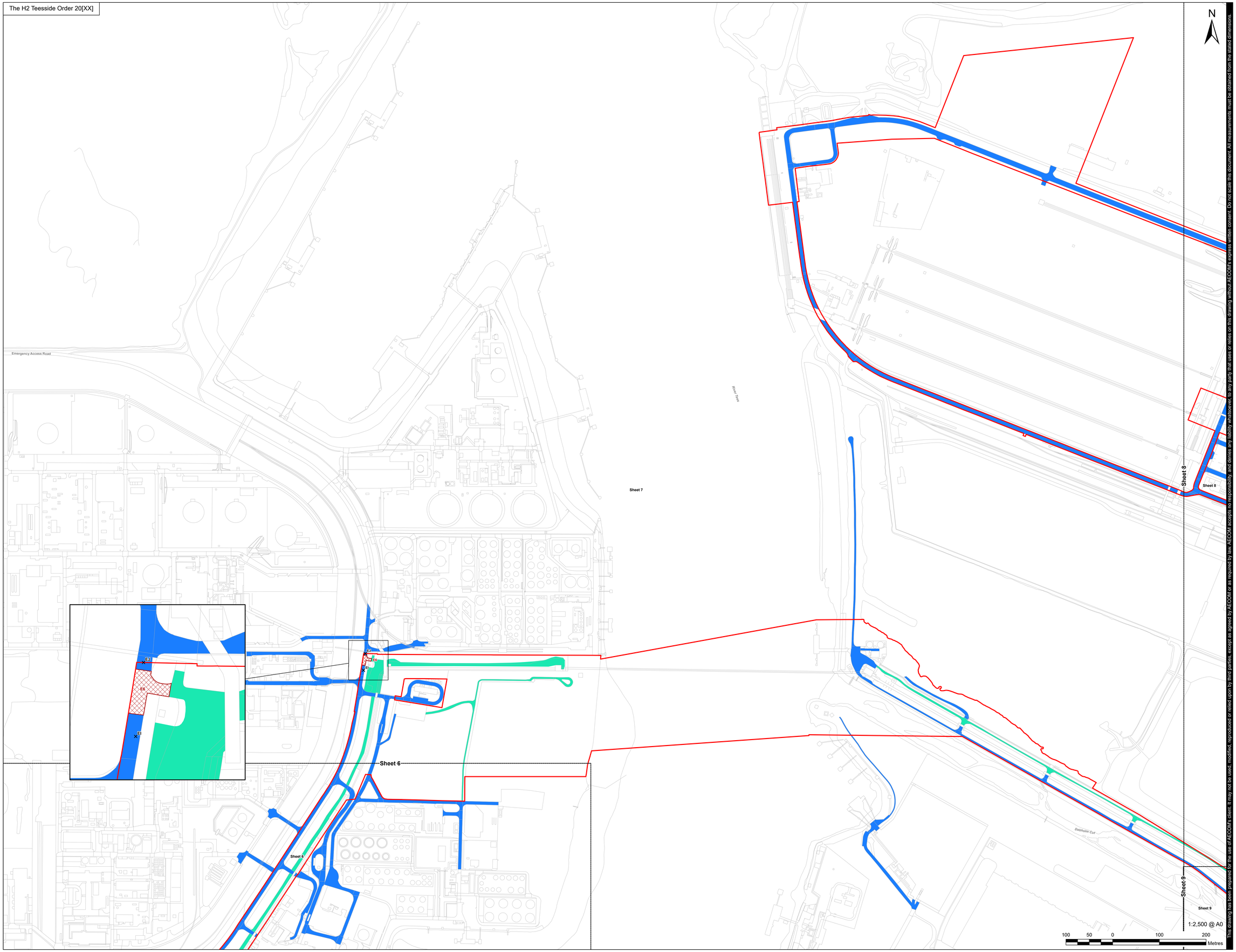
Access and Rights of Way

DRAWING NUMBER

Drawing 6 of 11

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]



Revision: 00

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PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

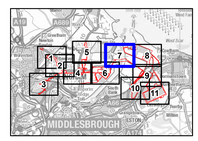
CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Order Limits
- Detailed Sheet Number
- Access Point
- Private Maintenance
- Private Road
- Private Track

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(k).



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APPLICATION REFERENCE

H2T_March24_DCO_2.5_Rev0

ISSUE PURPOSE

FOR DCO APPLICATION

PROJECT NUMBER

60689030

DRAWING TITLE

Work Plan
Access and Rights of Way

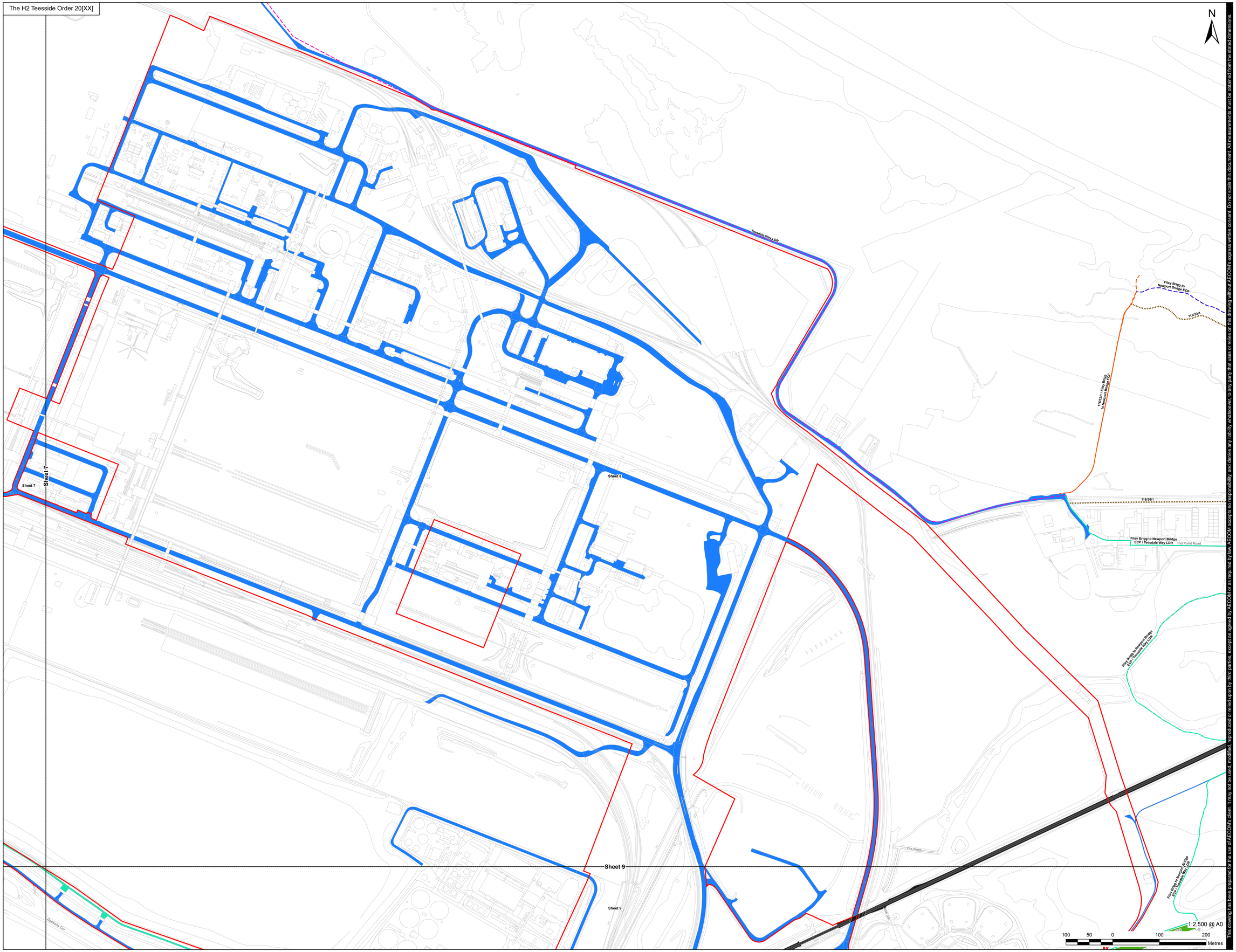
DRAWING NUMBER

Drawing 7 of 10

The H2 Teesside Order 20[XX]

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

Revision: 00



N

AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

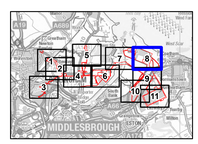
CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Order Limits
- Detailed Sheet Number
- PRoW - Bridleway
- PRoW - Bridleway / England Coast Path
- PRoW - England Coast Path
- PRoW - England Coast Path / Teesdale Way LDR
- PRoW - Teesdale Way LDR
- Private Maintenance
- A Road
- Private Road
- Private Track
- Railway Line

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(k).



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Drawing 8 of 11

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

The H2 Teesside Order 20[XX]

Sheet 7

Sheet 8

Sheet 9

Sheet 10

Sheet 11

N

W1 W2 W3 W4

J1 J1a J1b J1c J1d J2 J2a J2b J2c J2d

Oaklands Road

Oaklands Cut

The Mill Race

Eston Road

Limerick Road

Broadway West

Westfield Way

West Coatham Lane

Tees Road

Tees Dock Branch

The Mill Race

Longacres Road

Mandale Road

Mandale Road

Eston Road

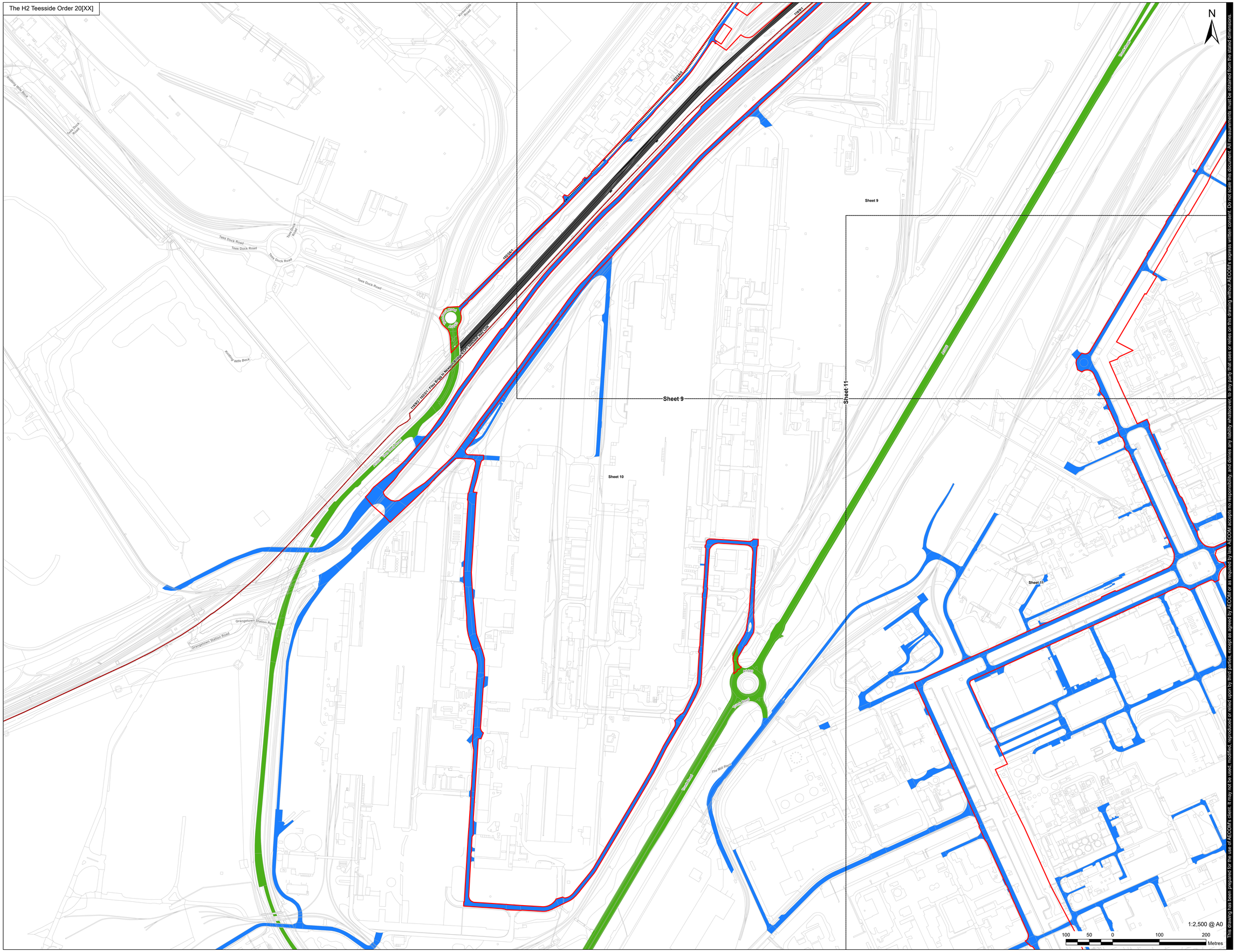
Mandale Road

Mandale Road

Mandale

The H2 Teesside Order 20[XX]

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08



The H2 Teesside Order 20[XX]

Drawn: MAB Checked: SM Approved: JL Date: 2024-03-08

Revision: 00

Sheet 9

Sheet 10

Sheet 11

Sheet 9

Sheet 10

Southbound A66(M)

The Mill Race

Venice Court

Como Way

Trieste Close

Malmo Court

Tower Road

A19

A174

Castle Dr

N

1:2,500 @ A0

100 50 0 100 200 Metres

AECOM

PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

CONSULTANT

AECOM Limited
100 Embankment,
Cathedral Approach,
Manchester, M3 7FB
www.aecom.com

LEGEND

- Order Limits
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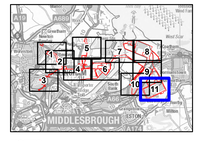

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