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

The H2 Teesside Order

Document Reference: 8.13 Order Width Limit Explanatory Note

Planning Act 2008

Applicant: H2 Teesside Ltd

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APPENDICES

1.0 PURPOSE

1.1.1 This technical note explains how the width of the Order Limits connection corridors has been developed and identifies specific areas where the width is significantly above the typical width of 17m either side of the pipeline (which reflects what would be a standard, buried, pipeline construction). These areas are numbered on the map contained in Appendix 1 of this document. This note discusses each area in detail but the Applicant notes that these are indicative of the types of constraints that have affected the extent of the Order limits for the Connections Corridors more generally, in what is a congested area for utility style infrastructure.

1.1.2 Hydrogen pipelines, natural gas pipelines, electrical connections are included in this note.

1.1.3 The Main Site, Above Ground Installations (AGIs) and temporary construction compounds are excluded from this note.

2.0 GENERAL

2.1.1 The typical buried pipeline corridor width for the H2Teeside project is 17m either side of the pipeline as stated in the Design and Access Statement [APP-034].

2.2 Buried Sections

2.2.1 For buried sections, this width allows space for the construction trench, working area for the pipeline, vehicle and passing lane, and storage areas of topsoil and subsoil. Reducing the width compromises either the safety or efficiency (speed) of construction, for example if excavated spoil must be transported and stored elsewhere, then later returned. Hence 17m is considered the optimum or target width.

2.3 Above ground Sections

2.3.1 For above ground corridors, the width is primarily dictated by the existing corridor width. Typically, this includes fencelines, existing pipelines and supports, and a service lane. The Order limits include the entire width of the existing corridor rather than 17m either side of the proposed pipeline. This is primarily because the location of the proposed pipeline relative to the existing pipelines may change over the course of the design phase. An example of a change would be to move the proposed pipeline from one side to the other side of the corridor for space reasons. This would be developed in conjunction with the asset owners, pursuant to their Protective Provisions to ensure the most appropriate construction methodology and design, accounting for their specific safety and operational requirements. This follows the approach undertaken by the NZT/NEP consented development.

2.3.2 It should also be noted that the hydrogen pipeline may have expansion loops which are short sections with multiple 90-degree bends to provide relief from expansion forces experienced during operation. This means that the pipelines won't be a straight line at all points (as shown on the indicative drawings) which has been accounted for in the Order limits.

3.0 AREAS EXCEEDING TYPICAL ORDER WIDTH

3.1 Area 1: Billingham Industrial Site

3.1.1 Billingham has large existing pipe racks that are at approximately 10m elevation. Construction of new pipelines will need cranes to lift pipeline sections onto the racks, as opposed to excavator-type vehicles or sidebooms which would be used in areas where the pipeline is lower to the ground.

3.1.2 To account for the use of cranes and accounting for the matters discussed in section 2.2, the Order limits width has been increased to approximately 50m either side of the pipeline, or 100m in total.

3.2 Area 2: Cowpen Bewley Corridor

3.2.1 Along the Cowpen Bewley corridor the pipeline will be buried. The route width is currently influenced by the fact that at a late stage during the preparation of the application, the Royal Society for the Protection of Birds (RPSB) indicated that part of the area sought to be utilised for this corridor was proposed to be used for an ecological enhancement project. The existing habitats at this location are mapped and assigned a level of ecological importance with reference to CIEEM guidelines and have been assessed in the ES accordingly.

3.2.2 The Applicant therefore sought to find a route to divert around this area. This has resulted in the Cowpen Bewley 'coffee cup handle' which contains both the ecological enhancement area and the diversion route within the Order Limits.

3.2.3 The 'coffee cup handle' optionality was introduced into the design because of the RSPB ecological enhancements including ponds and wetland areas which are used by breeding and non-breeding birds. The 'coffee cup handle' avoids the ponds by diverting the Order Limits east and west around them. The eastern arm of the 'coffee cup handle' passes through wetland areas whereas the western arm of the 'coffee cup handle' would avoid the wetland areas. However, the western arm is an area of potential archaeological interest. This is noted in ES Chapter 17 [APP-070] – see paragraph 17.6.30. Until archaeological surveys are complete it cannot be definitively considered that the diversion route can be taken instead of the ecological enhancement area. These will be confirmed following archaeological surveys that are planned to be completed in this area in Q4 2024 to enable the decision to be taken of which route will be utilised.

3.2.4 The area of this corridor to the north near the village of Cowpen Bewley is wider than 34m to account for routing the H2T pipeline around buried existing natural gas lines in that area. A ground penetrating radar survey will be performed to positively identify the location of these services. During consultation with the residents of Cowpen Bewley, they requested that the Applicant route the pipeline as far from the village as possible. A desktop re-routing exercise was conducted, and as a result, the Order Limits were narrowed and moved further away from gardens/buildings.

3.2.5 The public railway crossing at the north end of the Cowpen Bewley corridor will be installed by trenchless techniques, as such, the width has been set to 120m to account for the unknown soil properties in the area and the preliminary nature of the crossing design at the present time.

3.3 Area 3: Greatham Creek Crossing

3.3.1 The Greatham Creek Crossing will be installed by Horizontal Directional Drill (HDD). The exact route of the crossing will depend on geotechnical soil data, which has not yet been obtained. A Ground Investigation would be undertaken as part of the detailed design process.

3.3.2 It should be noted, however, that HDD construction is sub-surface for the length of the crossing, meaning that at ground level there will be no indication of this sub-surface construction. Because this section is not installed by conventional means the 34m corridor width does not apply. Instead, the corridor width has been set at 125m to allow for flexibility in the exact routing of the sub-surface installation.

3.4 Area 4: Tees Crossing

3.4.1 The Tees Crossing will be installed by either Microbore Tunnel or HDD. Similar to Greatham Creek, the exact route of the crossing will depend on geotechnical soil data, which has not yet been collected

3.4.2 In addition, the Tees Crossing crosses multiple existing assets (pipelines and tunnels). Negotiations with those asset owners is ongoing. Because agreements have not been reached with all owners there is a degree of uncertainty in the final alignment of the Tees Crossing.

3.4.3 As such, because of these constraints an Order Limits width of 250m was used by the Applicant.

3.5 Area 5: NZT/NEP Plant Approach

3.5.1 The Net Zero Teesside and Northern Endurance Partnership (NZT/NEP) is a consented development adjacent to the H2Teesside Main Site. The Applicant has multiple planned connections which will run parallel to NZT/NEP planned services in this area, to service the adjacent NZT Main Site. The Applicant's connections are water pipelines, electrical power connection, natural gas.

3.5.2 Because of uncertainty around the design and location of the planned services in this area by NZT/NEP and how the Proposed Development will interact with them, the Order Limits width was increased to 150m for this area.

3.6 Area 6: Bran Sands Corridor

3.6.1 The Bran Sands Corridor near the Northumbria Water Limited (NWL) water treatment plant contains the CATS pipeline on the west, and three existing above ground pipelines to the East, and a private railway crossing to the north. The consented Anglo-American (AA) York Potash development plans to install a conveyor along this corridor, and the NZT/NEP consented development plans to

install CO2 and natural gas pipelines. The Applicant is currently engaging with AA and NZT/NEP to develop an approach so all projects can fit their services within this corridor without impacting CATS or the other asset owners.

3.6.2 The Order Limits in this area included the entire width of the corridor, from NWL Land to the west to National Rail's land to the east. The Applicant does not intend to use more than the typical width of 34m but at this time is unable to reduce optionality in the Order Limits in this area, to allow for the precise 34m corridor to be developed amongst other existent and planned infrastructure. This followed the approach taken by the NZT/NEP consented development.

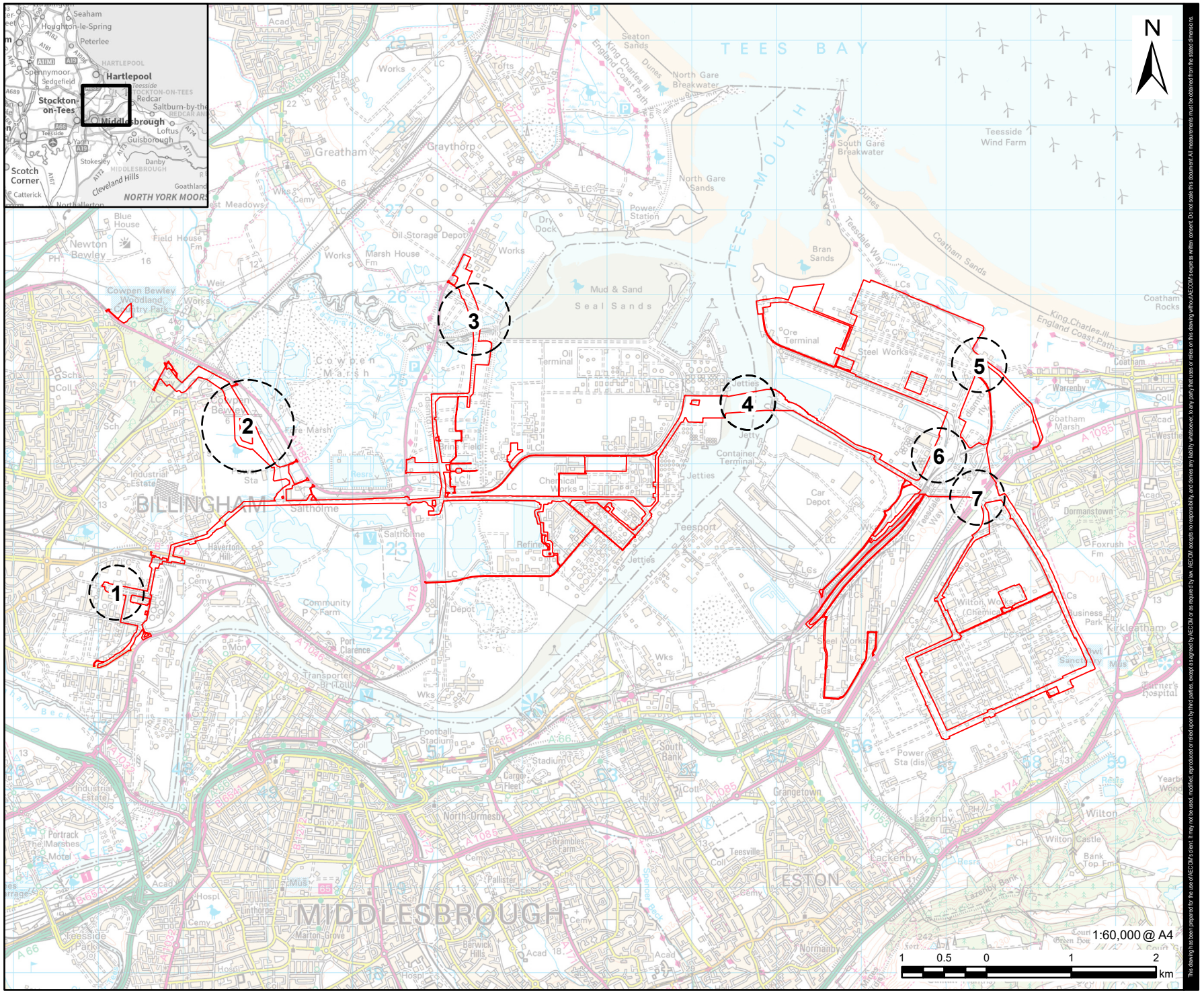
3.7 Area 7: Wilton Existing Corridors

3.7.1 Wilton contains highly congested pipeline corridors, often with more than 20 existing pipelines in a single corridor. The Wilton site has roads on either side of the existing pipeline corridors, separated from the pipelines with a grass verge.

3.7.2 The Applicants pipeline design is not yet developed enough to define where in the corridor the proposed hydrogen pipeline may go, which will need to be mindful of the operational and safety requirements of the owners of apparatus within those corridors, pursuant to Protective Provisions. As such the Applicant's Order Limits extend across all pipelines and the grass verge for permanent rights in this corridor, to allow for space, and optionality in the placement of the Proposed Development's infrastructure.

3.7.3 As such, the overall width of the Order Limits in Wilton is 60-100m (accounting for the practical geography of the corridors).

APPENDIX 1: MAP OF INDICIATIVE LOCATIONS EXCEEDING ORDER WIDTH



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PROJECT

H2Teesside DCO

APPLICANT

H2 Teesside

LEGEND

Order limits

NOTES

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Sheet 1 of 1