

Contents

CONTENTS.....	0
5. CONSTRUCTION PROGRAMME AND MANAGEMENT.....	1
5.1. INTRODUCTION	1
5.2. CONSTRUCTION TIMING AND PROGRAMME	1
5.3. CONSTRUCTION APPROACH	3
5.4. CONSTRUCTION METHODS	3
5.5. REFERENCES	19

Tables

Table 5.1: Indicative construction and commissioning programme.....	2
----------------------------------------------------------------------------	----------

5. Construction Programme and Management

5.1. Introduction

- 5.1.1. This chapter of the Environmental Statement (ES) describes the construction phase of the Proposed Development. This includes information on the anticipated construction programme, timings and methods of working, where available.
- 5.1.2. At this stage, a detailed construction programme is not available, as this is normally determined by the Engineering, Procurement and Construction (EPC) contractor(s) who have not yet been appointed. Where construction details cannot be confirmed at this stage, reasonable worst-case estimates have been made based on experience gained on similar developments and professional judgment.
- 5.1.3. All enabling and construction works will be undertaken in accordance with the Construction Design and Management Regulations 2015 (CDM Regulations) (HMSO, 2015).

5.2. Construction Timing and Programme

- 5.2.1. As described in **ES Volume I Chapter 4: The Proposed Development (Application Document Ref. 6.2)** construction of the Proposed Development could (subject to the necessary consents being granted and an investment decision being made) potentially start in 2027 after the DCO is anticipated to have been granted.
- 5.2.2. The Applicant would appoint one or more EPC contractors for the construction of the Proposed Development. An initial enabling works phase, including the replacement of Mabey Bridge, access road improvement works and construction of the emergency access crossing, would be undertaken over a circa 9-month period. Construction activities for the main works phase would then follow and are expected to be completed within approximately 3.5 years, followed by commissioning. **Table 5.1** shows an indicative construction and commissioning programme.
- 5.2.3. The Applicant will separately submit a planning application in September 2025 to North Lincolnshire Council under the Town and Country Planning Act 1990 for the replacement of Mabey Bridge and access road improvement works, to provide the option to progress this work sooner than shown in Table 5.1. The ES is based on the scenario set out in **Table 5.1** which is considered to represent the 'worst case' in terms of environmental impacts due to the access works overlapping with site preparation and groundworks activities.

The Keadby Next Generation Power Station Project

Environmental Statement

Volume I: Chapter 5 Construction Programme and Management

Table 5.1: Indicative construction and commissioning programme

Year 1				Year 2				Year 3				Year 4			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Access works including Mabey Bridge Replacement and emergency access															
	Site preparation works														
	Groundworks														
						Above ground civil works									
						Erection of main process equipment									
										Hydrogen, gas & electrical connections					
								Electrical and mechanical works							
												Commissioning & testing			

- 5.2.4. The groundworks phase will comprise elements such as site levelling, land raising activities, piling and pouring of concrete slabs. This phase of works would be completed prior to any of the main process equipment and above ground structures being erected. The completion of the above ground civils works including cladding and external civils works will usually continue whilst the internal gas, electrical and mechanical installations are being undertaken. However, the detailed phasing of construction is the responsibility of the appointed EPC contractor(s) and may vary dependent on plant layout and procurement of key equipment. The indicative 4-year programme is based on recent experience from the construction and commissioning of Keadby 2 Power Station so is considered robust.
- 5.2.5. Due to uncertainties in the market and Government investment decisions in hydrogen production, transport and storage and Capacity Market Auction reform, it is proposed that the Application would be made on the basis that commencement of development can take place for up to seven years from the granting of consent. For this reason, a scenario whereby construction commences later in the programme, up to 2034 (seven years after the DCO could be granted) has also been considered as a reasonable worst-case for technical assessments where relevant.

5.3. Construction Approach

- 5.3.1. During the detailed design stage, the approach to construction will be refined. For the purposes of this ES, it is assumed that certain equipment will be modularised and pre-fabricated or assembled. Modularised units, along with large specialist equipment are likely to require special transport considerations. Off-site pre-fabrication will be supplemented by on-site construction of certain larger components, which due to their size or weight, may involve fabrication and erection on-site.
- 5.3.2. Small components and modules will be transported using the existing road network with more significant modules being transported by ship along the River Trent to the Waterborne Transport Offloading Facility – Railway Wharf, where they will be unloaded by temporary mobile cranes onto suitable haulage vehicles and transported into the Main Site using the temporary haul route.
- 5.3.3. Construction traffic and road haulage will be achieved along designated transport routes which are outlined within the **Outline Construction Traffic Management Plan (CTMP) (Application Document Ref. 7.5)**. The final CTMP will be prepared by the EPC Contractor(s) in accordance with the Outline CTMP and secured through a Requirement in the **Draft DCO (Application Document Ref. 3.1)**.
- 5.3.4. A Construction Environmental Management Plan (CEMP) will be prepared by the EPC Contractor(s) prior to construction. The submission, approval and implementation of this is proposed to be secured through a Requirement in the **Draft DCO (Application Document Ref. 3.1)**. Throughout the ES this is referred to as the final CEMP. An **Outline CEMP** has been prepared and accompanies the Application (**Application Document Ref. 7.4**) to set out the key measures to be employed to control and minimise the impacts on the environment. The final CEMP will be prepared by the EPC Contractor(s) in accordance with the **Outline CEMP (Application Document Ref. 7.4)**.

5.4. Construction Methods

Construction Equipment

- 5.4.1. For the purposes of this ES (and in particular for the noise and vibration assessment presented in **ES Volume I Chapter 9: Noise and Vibration (Application Document Ref. 6.2)**), reasonable worst-case estimates have been made of the types and numbers of plant and machinery likely to be used at the Site during the construction period, as well as the potential use of piling for foundations of the main structures and works to install a cofferdam required for the canal water abstraction works.

Early Works including Mabey Bridge Replacement and Emergency Access

- 5.4.2. Early works will include the replacement of Mabey Bridge to improve the main access into the Site. Temporary traffic management will be put in place so that the skew bridge access off the A18 continues to provide a means of access to the Site during the Mabey Bridge closure.
- 5.4.3. The preferred concept design for the proposed Mabey Bridge replacement comprises a composite weathering steel beam deck with integral piled foundations. Piled foundations are likely to progress using continuous flight auger methods behind the existing bankseats. The existing deck would be removed prior to the new structure being constructed and installed.
- 5.4.4. For the proposed emergency access bridge from the Main Site, initial site clearance will be undertaken including vegetation clearance. It is not envisaged that any temporary traffic management will be required given the existing infrequent use of the farm track. Piling works, if required, would then take place before the main structure of the bridge is constructed. The section of the existing access road affected by bridge construction would then be re-graded and surfaced.
- 5.4.5. Works for both Mabey Bridge Replacement and the emergency access route construction will require the consent of the Environment Agency and the internal drainage board (IDB) – the Isle of Axholme and North Nottinghamshire Water Level Management Board (IoAaNNWLMB) respectively. The IDB has been consulted on the new emergency access bridge crossing works and has confirmed their agreement in principle to a crossing, which takes into account relevant byelaws (IoAaNNWLMB, 2018).

Site Enabling and Preparation

- 5.4.6. To prepare the Site for the main construction activities, three decommissioned heavy fuel oil tanks formerly used as part of the Keadby 1 Power Station will require demolition and dismantling. This is to provide sufficient space for the ancillary facilities required for the Proposed Development. The tanks are located to the west of Keadby 2 Power Station and have already been cleaned out, so the main demolition works will initially comprise the removal of the pipework and low level structures followed by the bund walls and floors. As the bund walls and floors are constructed from reinforced concrete this material would be demolished and crushed to a 6F2 specification and chemically certified to enable it to be re-used. The tank structures will then be dismantled and removed. It is anticipated that there may be some contaminated soil below the tanks so this will be excavated, tested and removed with a licensed contractor.
- 5.4.7. The initial groundworks activities for the main works phase will comprise the initial civil earthworks), clearing of unsuitable soil and reprofiling with clean

The Keadby Next Generation Power Station Project

Environmental Statement

Volume I: Chapter 5 Construction Programme and Management

infill (where required). As far as reasonably practicable, a material cut and fill balance would be used to minimise waste arisings. However, given the ground conditions (which have been confirmed in a ground investigation, recently undertaken in relation to the Keadby CCS Power Station DCO), it is anticipated that some import/ export of materials will also be necessary to enable the Site to be raised prior to construction for flood protection and to provide a suitable foundation platform for the Proposed Development.

- 5.4.8. An estimate of soil movements has been undertaken in order to ensure that the assessments made in technical chapters of this ES (e.g. **ES Volume I Chapter 10: Traffic and Transport (Application Document Ref. 6.2)**) consider a reasonable worst-case. It is anticipated that around 83,300m³ of soils may need to be removed and around 224,400m³ of inert granular material imported to provide a suitable platform for foundations and buildings/ equipment across the Main Site. These materials would be removed from/ delivered to the Site via Heavy Goods Vehicle (HGV) using the access from the A18. It is envisaged, as a worst-case in terms of traffic flow, that the material movement would take place over a three month period – see **ES Volume I Chapter 10: Traffic and Transport (Application Document Ref. 6.2)**.
- 5.4.9. Any excess spoil generated during construction will be managed through the Site Waste Management Plan (SWMP) that will be included within the final CEMP. The SWMP will be based on the Outline SWMP which is included within the **Outline CEMP (Application Document Ref. 7.4)**. Spoil that cannot be re-used as part of the Proposed Development will be removed for re-use off-site, treatment or disposal at a permitted facility. The re-use of excavated materials during construction will be governed by either a Materials Management Plan developed in accordance with relevant guidance including 'The Definition of Waste: Development Industry Code of Practice' (CL:AIRE, 2011), an environmental permit or a relevant exemption.
- 5.4.10. Where necessary, suitable measures will be put in place to prevent sediment being washed off-site, and the stockpiles will be visually monitored for wash away during and after periods of prolonged rainfall. Further details of the measures which would be implemented to control earthworks are included in the **Outline CEMP (Application Document Ref. 7.4)**.
- 5.4.11. During construction, temporary drainage measures will be established to manage surface water on Site, prevent its run-off to surrounding land drains and direct water away from the proposed working areas. The exact drainage measures that will be employed are the responsibility of the appointed Contractor(s) to design and manage. Typical construction drainage measures may include establishment of temporary drainage ditches or dikes, attenuation ponds to enable any sediment to drop out of suspension and temporary connections to existing drainage networks (should discharge of accumulated water be required).

The Keadby Next Generation Power Station Project

Environmental Statement

Volume I: Chapter 5 Construction Programme and Management

- 5.4.12. Appropriate measures to minimise short-term and long-term impacts on land drainage will be agreed with the relevant landowner for those works affecting drains within the temporary construction and laydown areas. Where land drains are under the control of the IDB, relevant byelaws will be adhered to or consent obtained for works affecting/ crossing drains within the Water Discharge Corridor described in paragraph 5.4.39 and emergency vehicle access route. These measures will be secured in the final CEMP.
- 5.4.13. Additionally, the final CEMP will incorporate measures to prevent an increase in flood risk or pollution risk during the construction works. An indication of measures is provided in the **Outline CEMP** that accompanies the Application (**Application Document Ref. 7.4**).

Construction Laydown Areas and Welfare Facilities

- 5.4.14. Proposed laydown areas required during construction, including equipment and material storage, site offices, batch concrete facilities, welfare facilities and car parking, environmental/ waste handling area and vehicle wheel wash area will be located at identified locations within the Site boundary dependent on the appointed EPC contractor's working methods. Laydown areas will be required for the duration of construction.
- 5.4.15. Laydown requirements have been estimated using conservative assumptions to ensure that the areas assessed in this ES represent a worst-case. Based on this approach, up to 26.7ha of construction laydown is required. This will cover laydown requirements for materials and plant storage, laydown areas, field based fabrication and erection of components on-site, siting of concrete batching facilities, vehicle and cycle parking facilities and for works associated with the Mabey Bridge replacement. This total also includes areas for construction offices, contractor parking and construction staff welfare facilities. The proposed location of laydown areas is identified on **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**.
- 5.4.16. Where required, laydown areas will be levelled to provide an even surface and underlain by semi-permeable surfacing, to allow surface water and rainwater to percolate through. No hazardous materials will be stored unbunded within the construction laydown areas. Where required construction laydown areas will be secured by security fencing and gates..
- 5.4.17. Impacts relating to the handling, movement and temporary storage of soils, including those agricultural soils classified as 'best and most versatile – Agricultural Land Classification (ALC) Grade 1' that will be disturbed for temporary laydown, will be controlled through the final CEMP. Measures within the final CEMP would include:

- a pre-construction condition survey of the construction laydown areas south of North Pilfrey Bridge that are in agricultural use (shown in **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**) (ALC Grade 1) including soil depths and textures of soil horizons;
- a method statement for the works to include soil handling and storage proposals;
- a restoration specification; and
- a post-works survey to confirm condition.

- 5.4.18. All soils will be managed in accordance with the Department for the Environment Food and Rural Affairs (Defra) Construction Code of Practice for the Sustainable Use of Soil on Development Sites (Defra, 2009) to minimise impacts on soil structure and quality. A Outline Soil Resources Plan is provided in the **Outline CEMP (Application Document Ref. 7.4)**.
- 5.4.19. Following site establishment, ground clearance and installation of underground utilities, foundation formation, rebar, and concrete placement activities would commence. Pre-cast concrete items will be used as far as reasonably practicable. Where cast in-situ concrete is required, ready-mix concrete from trucks as direct pours or concrete pumps may be utilised. A temporary concrete batching plant may also be required.
- 5.4.20. If water is encountered during below ground construction, suitable dewatering methods will be used. Any significant groundwater dewatering required will be undertaken in line with the requirements of the Environment Agency under the Water Resources Act 1991 as amended (HMSO, 1991) and Environmental Permitting (England and Wales) Regulations 2016 (HMSO, 2016).
- 5.4.21. All works will comply with the safety clearances and requirements set out by the utility providers who have assets within the Site.

Main Civil and Process Works

- 5.4.22. Following the completion of the initial groundworks phase, the contractor(s) will undertake the piling and excavation works for the main foundations for some of the larger elements of the Proposed Development e.g. turbine halls and Heat Recovery Steam Generator (HRSG), as well as other large buildings.
- 5.4.23. It is anticipated that bored piles to a depth of approximately 20m into rockhead may be required for heavily loaded/ movement sensitive structures such as the stack, the HRSG building, and turbine halls. Lightly loaded

structures/ less critical plant are likely to be founded on shallow raft foundations, although this is subject to the result of the ground investigation.

- 5.4.24. A piling and penetrative foundation design method statement, informed by a risk assessment would be undertaken in accordance with Environment Agency guidance, Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination (2001). This would be secured by a DCO Requirement and submitted to the local planning authority for approval, in consultation with the Environment Agency. All piling and penetrative foundation works would be carried out in accordance with the approved method statement to prevent contamination of the underlying soils and groundwater.
- 5.4.25. A Piling Methodology will be prepared. As set out in **ES Volume I Chapter 9: Noise and Vibration (Application Document Ref. 6.2)** and **Chapter 11: Biodiversity and Nature Conservation (Application Document Ref. 6.2)**, the piling method will be designed to minimise the risk of disturbance to fish or other noise sensitive human and ecological receptors as far as reasonably practicable. The piling methodology is proposed to be secured by a Requirement in the **Draft DCO (Application Document Ref. 3.1)**.
- 5.4.26. The principal items of plant will be modular and delivered by ship to the Waterborne Transport Offloading Facility (Railway Wharf). The exact number and size/ weight is not known at this stage and is based on specific construction methodologies that will be confirmed during detailed design. However, around 35 - 40 such deliveries are expected over a 12-month period. The components will then be lifted using a mobile crane onto a hauled trailer and transported to the Main Site along the existing temporary haulage route for assembly. Building erection and plant installation will be carried out as concurrent activities, noting that not all buildings will be erected prior to the commencement of plant installation. Large plant may be first placed on foundations with steelwork erected around it.
- 5.4.27. Plant and equipment will be pre-fabricated where practicable, however, it is anticipated that larger equipment may need to be assembled and erected on-site due to its anticipated size. The main items that could require special consideration due to their size or weight comprise:
 - storage tanks; and
 - major transformers and associated electrical equipment.
- 5.4.28. It is unlikely that buildings will be prefabricated and so will require construction on-site.

Construction of Natural Gas Connection, Hydrogen Connection and Above Ground Installations

- 5.4.29. A new natural gas connection, would link into Keadby Power Station's existing natural gas supply infrastructure. The construction of the Minimum Offtake Connection (MOC) from the National Gas Transmission (NGT) natural gas above ground installation (AGI) will be undertaken by a NGT approved contractor. The construction of the MOC will require stripping and storing soil/ made ground and excavation to approximately 1m below the depth of the existing gas main along a length of approximately 12m (6m either side of the connection point).
- 5.4.30. A concrete pad and supports for the existing gas main either side of the connection point will then be installed together with a new 'tee' piece and construction valve. The existing gas main will then be drilled using specialist pressure drilling equipment (whilst the gas main is in operation) and the construction valve will be closed until the new connection pipeline is completed.
- 5.4.31. A new hydrogen connection will also be provided to the Site by a hydrogen supplier. The construction of the hydrogen supplier's AGI within the Site will be undertaken by the hydrogen supplier or their approved contractor and will most likely require stripping and storing of soil/ made ground, excavation to an estimated 3m below ground and for a length of approximately 12m to connect to the pipeline. A concrete pad and supports for the hydrogen gas main either side of the connection point will then be installed.
- 5.4.32. The construction of the contractor's compounds adjacent to the Natural Gas and Hydrogen AGIs will require excavation of a trench up to the interface with each AGI compound to allow installation of a swan neck to bring the pipework above ground for each Applicant's compound, and installation of valves and pipework, the Pipeline Inspection Gauge (PIG) traps, and electrical and telemetry equipment. Following installation of below ground infrastructure, the areas will be backfilled, and excess soils will be used in the landscaping of the compounds' perimeters. The AGIs are shown on **ES Volume III Figure 4.1: Main Site Layout (Application Document Ref. 6.4)**.
- 5.4.33. The gas pipelines connecting the Natural Gas and Hydrogen AGIs to the Power Station may run above ground on sleepers or alternatively, will be constructed using an open-cut method. If below ground construction is proposed, these works will generally be as follows:
- fencing off works area and fit safety signage;
 - stripping and storing of topsoil;
 - facilitating a working area of around 36m wide to allow for temporary trackway, welding and soils storage;

- excavation of a trench;
- pipe laid (welding pipe sections together at grade level (pipe stringing)), within approximately 1.2m below ground level; and
- testing the pipe integrity, re-instating land drainage, and then backfilling subsoil, reinstating topsoil and re-planting to the original state as required.

Construction of Water Supply Connections

- 5.4.34. The raw water supply connection for the Proposed Development cooling tower and boiler make-up as well as the proposed raw water storage and fire tanks will be via a new intake to be constructed within the Stainforth and Keadby Canal. Cooling water abstraction from the Canal was agreed with the Environment Agency and an abstraction licence was granted to Canal and River Trust for Keadby CCS Power Station. As the Proposed Development is an alternative to the Keadby CCS Power Station and will require the same (or less) cooling water as Keadby CCS, the Applicant is engaging with the Canal and River Trust to confirm the existing licence will enable the approved abstraction to be used by either Keadby CCS Power Station or the Proposed Development.
- 5.4.35. At the cooling water abstraction point, a temporary cofferdam will be installed within the canal in order to allow installation of a new abstraction structure to safely take place adjacent to the existing Keadby 2 Power Station abstraction structure. The construction methods and programme are anticipated to be comparable to the recently constructed intake for Keadby 2 Power Station and will include:
- pre-works survey(s) along the Stainforth and Keadby Canal wall;
 - the installation of a temporary cofferdam (up to circa 20m into the canal) to provide a safe, dry and stable working area;
 - the construction of appropriate hazard warning, screening, lighting and signage, as required;
 - the installation of screening to mitigate impacts on aquatic ecology, including reducing the risk of fish entrapment and to comply with the Eels Regulations;
 - removal of the cofferdam;
 - completion of post-construction surveys, as required; and
 - the presence of vessels such as work boat(s) and/or barge(s) to support the works.
- 5.4.36. The installation and subsequent removal of the temporary cofferdam will be completed in accordance with the requirements of the Canal and River Trust.

- 5.4.37. Additional measures to minimise environmental impacts at the intake would include:
- adoption of the Joint Nature Conservation Commission (JNCC) best-practice measures for piling including the implementation of a soft-start process; and
 - avoidance of night-time piling.
- 5.4.38. No seasonal restrictions are proposed in relation to installation or removal of the cofferdam within the Stainforth and Keadby Canal given that the only migratory fish species likely to use the canal is European eel. **ES Volume I Chapter 11: Biodiversity and Nature Conservation (Application Document Ref. 6.2)** concludes that seasonal restrictions are not required for this species.
- 5.4.39. A pipeline will be constructed using open cut methods from the intake into the Main Site. The majority of this pipeline will be below ground. The corridors within which the water supply connections will run are shown on **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**.
- 5.4.40. In addition to cooling water connections, a new public water connection will also be made for the Main Site to the Yorkshire Water main located along Chapel Lane.
- [Water Connections](#)
- 5.4.41. The Applicant is proposing to utilise existing assets including outfall and pipework for Keadby 1 Power Station for the discharge of cooling tower blowdown and treated effluent to the River Trent. A Water Discharge Corridor is included in the Site, the extent of which reflects the land subject to the easement of the existing cooling water outfall corridor north-east from Keadby 1 Power Station, connecting with the River Trent. The corridor is shown on **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**. Interconnecting pipework would extend from the Main Site to connect to this infrastructure.
- 5.4.42. Should any maintenance activities be required to the existing discharge pipework and outfall infrastructure, this would be undertaken as part of the wider Keadby Power Stations' operation and maintenance activities. Such activities would likely be either shore-led or supported by small specialist workboats, comparable to those currently used.
- 5.4.43. The existing connection to foul sewer for Keadby 2 Power Station may also be used for the Proposed Development if it is in a suitable condition. The route of the foul sewer pipeline crosses land owned by the Applicant within

the Keadby Power Station site, and via an existing easement towards the Severn Trent Water pumping station on Chapel Lane. If the pipeline condition is not suitable for continued use, foul sewerage would instead be treated on site in a package treatment plant with the treated effluent directed to the River Trent via the water discharge connection.

Electrical Connection

- 5.4.44. The proposed electrical connection consists of an Electrical Connection between the Power Station and National Grid Electricity Transmission (NGET) Keadby 400kV Substation. This is likely to comprise a 400kV single circuit cable route and control system cables which will be installed primarily below ground. The two route options for the Electrical Connection are shown on **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**.
- 5.4.45. Underground construction will require the use of an 'open-cut' method, whereby a trench will be excavated, and the cables laid below ground. This method will be applied where there is sufficient space and the work area is relatively flat. These works are anticipated to include :
- fence off works area and fit safety signage;
 - strip and store topsoil (if required);
 - a working area approximately 10m – 15m wide to allow for temporary trackway and soils storage;
 - excavation of a reinforced trench; and
 - cables laid at a depth of at least 1.1m on a bed of cement bound sand overlain by protective tiles and backfilling, including warning tape).
- 5.4.46. Where service crossings over existing IDB drains are required, these would require consent of the IDB and take into account relevant byelaws (Water Management Consortium, 2018).

Hydrogen Supply Pipeline

- 5.4.47. At this stage, the details of the hydrogen supply pipeline route are uncertain, but it is assumed that the hydrogen supply connection will be constructed adjacent to, and within, the west of the Main Site by the hydrogen supplier.
- 5.4.48. The construction of the hydrogen supply pipeline will be dictated by the hydrogen supplier in collaboration with SSE. At this stage, it is assumed that within the Main Site a trench will be excavated and the pipe laid approximately 1.2 – 3.0m below ground level. This will involve fencing off the works area, stripping and storing overburden, excavating a trench and storing subsoil, laying and welding pipe sections together at grade level (pipe stringing), laying pipe in the trench, re-instating drainage, and then backfilling subsoil, followed by strength testing of the buried pipe using pressurised

The Keadby Next Generation Power Station Project

Environmental Statement

Volume I: Chapter 5 Construction Programme and Management

water, reinstating overburden and (where necessary) re-planting to the original state as required.

- 5.4.49. There will be an interface for construction activities between the Applicant's EPC Contractor(s) and the hydrogen supplier which would potentially overlap for a short period. The cumulative effects of construction activities during this period have been considered in **ES Volume I Chapter 21: Cumulative and Combined Effects (Application Document Ref. 6.2)** taking into account available information.

Construction Staff

- 5.4.50. It is estimated that there will be circa 1,050 personnel contracted to work on the Proposed Development at the peak of construction. This figure is based on experience of other comparable developments and informs the transport assessment presented in **ES Volume I Chapter 10: Traffic and Transport (Application Document Ref. 6.2)** and **ES Volume II Appendix 10A: Transport Assessment (Application Document Ref. 6.3)**. The peak of construction activity is anticipated between months 26 to 28 of the construction programme.

- 5.4.51. Further detail is presented in the **Outline Construction Worker Travel Plan (CWTP) (Application Document Ref. 7.6)**.

Construction Working Hours

- 5.4.52. Core construction working hours will be between 07:00 and 19:00 Monday to Friday (except bank holidays) and 08:00 and 13:00 on Saturdays. However, it is likely that some construction activities may need to be undertaken outside of these core working hours. This is principally because certain construction activities cannot be stopped, such as concrete pouring, but also potentially to manage the construction programme and ensure the completion of the works in line with the agreed timescales for commissioning. Where on-site works are to be conducted outside the core hours, they would comply with any restrictions agreed with the local planning authority, in particular regarding control of noise and traffic. Twenty-four hour working for certain activities has therefore been assessed in **ES Volume I Chapter 9: Noise and Vibration (Application Document Ref. 6.2)** which sets out specific mitigation and control measures required to prevent disturbance from any activities outside of core working hours. Requirements in the **Draft DCO (Application Document Ref. 3.1)** will secure the working hours and the approach to exceptions to the core working hours. Any such works will be minimised and will be carefully managed to reduce effects on the local community.

Construction Traffic and Site Access

- 5.4.53. Access to the Site during construction for both construction workers and HGV traffic will be via the existing access road from the A18 via Mabey Bridge. This access road is a purpose-built road that serves the existing Keadby Windfarm and Keadby 2 Power Station. It is wide enough to allow access by construction traffic, without the need for alteration. Prior to the main works commencing, this route would be resurfaced to ensure it remains fit for purpose throughout the construction of the Proposed Development.
- 5.4.54. Construction staff are anticipated to travel to the Site via the existing trunk road and local networks. Construction staff arriving by car will use on-site parking, either:
- within the construction laydown area immediately to the south of the Main Site; or
 - within the construction laydown area located south of the Stainforth and Keadby Canal and adjacent to the construction and operational access off the A18 illustrated on **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)** and then use a park and ride system to transport the workers between the construction laydown area and the Main Site (and other works areas) over North Pilfrey Bridge, via the existing internal access roads within Keadby Power Station.
- 5.4.55. HGVs delivering construction materials would also access the Site from the site entrance off the A18, with all HGVs arriving and departing to/ from the west via the A18, A161 and onwards to the M180 Junction 2. The volume of HGVs associated with construction of the Proposed Development on the network is predicted to be at its maximum of 828 daily two-way vehicle movements (414 in and 414 out) for three months during the initial six month Site Enabling and Preparation phase of construction after Mabey Bridge has been replaced. This traffic is associated with the anticipated cut and fill of the top layer of ground within the Main Site to improve the geotechnical condition of the ground and land raising of parts of the Main Site and Ancillary Facilities areas to 3.0m AOD provide flood risk mitigation. During the remainder of the construction period, HGV movements will vary with 120 daily two-way HGV movements (60 in and 60 out) anticipated from month 24 to month 35 of construction, 60 daily two-way HGV movements (30 in and 30 out) anticipated from months 9 to 23 and months 36 to 42 of construction and 10 daily two-way HGV movements (5 in and 5 out) anticipated from months 1 to 6 of construction.
- 5.4.56. Combining construction workforce vehicle movements with construction HGV movements over the entire construction programme shows the overall peak to occur in Months 26 to 27 when 1,020 two-way vehicle movements are

anticipated (900 two-way car / van movements and 120 two-way HGV movements per day). Further information on traffic volumes and routing is provided in **ES Volume II Appendix 10A: Transport Assessment (Application Document Ref. 6.3)**.

- 5.4.57. It may be necessary to construct new temporary access points into the laydown areas (**ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**) from the existing site access road. Existing farm crossings will be utilised and upgraded where this is reasonably practicable.
- 5.4.58. It is proposed that the largest abnormal loads will be received at the Port of Immingham and transported by boat to the Waterborne Transport Off-Loading Area where they would be offloaded using mobile cranes. The load bearing capacity of the wharf and crane pads was upgraded to facilitate the delivery of Abnormal Indivisible Loads (AIL) for the Keadby 2 Power Station construction therefore only maintenance and temporary placement of mobile crane(s) is proposed. Following any minor clearance works, the temporary crane(s) will be delivered to and erected on-site (using separate vehicle mounted crane(s)) on a suitable foundation which may involve simple grading/ levelling, and compaction as well as the use of a temporary plate to spread loads. The components will then be transported to the Site crossing the B1392 onto the temporary haul road that runs to the east of PD Port Services yard. Temporary traffic management in the form of Stop/ Go signs will be required to halt traffic along the B1392 in order to allow the abnormal loads to cross the B1392. AIL would enter the Site via the haul route, which was also used in the construction of Keadby 2 Power Station.
- 5.4.59. Smaller abnormal loads are expected to be transported by road from Immingham Dock via the M180 to Junction 2 and then from the A161 to the A18, entering the Site via Mabey Bridge off the A18 and then over North Pilfrey Bridge.
- 5.4.60. An alternative access route is included for certain abnormal loads arriving by road that cannot pass over North Pilfrey Bridge (e.g. mobile cranes which exceed the maximum loading of the bridge). This route was used during construction of Keadby 2 Power Station and routes via Ealand village from the A161, New Trent Road and Bonnyhale Road. During Keadby 2 Power Station construction, consent was provided for up to 10 AIL to use this route. As this is already an established route and no works are required for the purposes of the Proposed Development, this route is not included within the Site boundary.

Storage of Construction Plant and Materials

- 5.4.61. There will be temporary laydown areas positioned close to some access roads on the Main Site where any materials will be unloaded and then

transported to the area of works. Some of these may need to be used for storage of materials during the construction and commissioning phases. At the end of a construction working shift, unsecured small mobile plant will be returned to a secure overnight plant storage area, where drip trays will be utilised under the various types of plant, if required. Laydown areas/ construction compounds for construction materials are illustrated on **ES Volume III Figure 3.3: Indicative Parts of the Site Plan (Application Document Ref. 6.4)**.

- 5.4.62. Storage areas for flammable/ toxic or corrosive materials would be located in a separate, locked, bunded and fenced area. Material data sheets would be available for all these materials and the Control of Substances Hazardous to Health (COSHH) assessments kept within the relevant risk assessment for the task, all subject to the Applicant's approval.

Lighting

- 5.4.63. Construction temporary site lighting is proposed to enable safe working on the construction site in the hours of darkness.
- 5.4.64. Construction temporary lighting will be arranged so that glare is minimised outside the construction site. The appointed contractors will be responsible for establishing the required approach to and levels of lighting and a Lighting Strategy will be prepared for approval pursuant to a DCO Requirement as required. An **Outline Lighting Strategy** has been prepared to accompany the Application (**Application Document Ref. 5.11**).
- 5.4.65. Lighting will be designed so as not to cause a nuisance outside of the Site in relation to views from residential receptors or light disturbance to ecological receptors.

Security

- 5.4.66. Security will be managed to ensure that risks are maintained as low as reasonably practicable. The approach to security will include consideration of:
- compliance with the Applicant's existing security policies, procedures and arrangements;
 - controlled vehicular access to the Site from the A18, including new gatehouses;
 - perimeter fencing around the Main Site and other work areas, with controlled pedestrian and vehicular access; and
 - closed circuit television surveillance and intruder alerts.

Wheel Wash Facilities

- 5.4.67. A self-contained wheel wash will be installed and will be used during ground works by vehicles prior to exiting the construction site and prior to joining the public highway.
- 5.4.68. For loads unable to use the fixed wheel wash, a localised wheel washing facility will be made available, to minimise effects to the highway.

Construction Environmental Management Plan (CEMP) and Site Waste Management Plan (SWMP)

- 5.4.69. The Applicant will require that the contractor produces and maintains a CEMP to control construction activities to minimise, as far as reasonably practicable, impacts on the environment. This is proposed to be secured by a Requirement in the **Draft DCO (Application Document Ref. 3.1)**, and approval will be secured by the Applicant in advance of construction. The final CEMP will include industry best practice measures as well as specific measures set out in this ES. The contractor's final CEMP must be in accordance with the principles set out in the **Outline CEMP**, which accompanies this ES (**Application Document Ref. 7.4**).
- 5.4.70. The purpose of the CEMP is:
- to ensure nuisance levels as a result of construction activities are kept to a minimum;
 - to comply with regulatory requirements and environmental commitments; and
 - to ensure procedures are put into place to minimise environmental effects including a scheme for environmental monitoring and reporting, corrective actions and a notification scheme for handling any complaints received relating to construction impacts.
- 5.4.71. In order to manage and monitor waste, including any spoil generated on-site, during construction, an Outline SWMP is included as part of the **Outline CEMP (Application Document Ref. 7.4)** which allows for waste streams to be estimated and monitored and goals set with regards to waste produced.
- 5.4.72. The SWMP will require that the contractor segregates the waste streams on-site, prior to them being taken to a waste facility for recycling or disposal. All waste removal from Site would be undertaken by licensed waste carriers and taken to permitted waste facilities.
- 5.4.73. Construction best practice measures that will be adopted during the construction phase have been taken into account in the EIA and are set out

in the **Outline CEMP (Application Document Ref. 7.4)**. Construction works will be undertaken in accordance with the environmental commitments identified in **ES Volume I Chapters 8 to 20 (Application Document Ref. 6.2)** and have regard to relevant legislation.

Commissioning and Testing

- 5.4.74. Commissioning of the Proposed Development would include testing and commissioning of the process equipment in order to ensure that that all systems and components installed are in accordance with the requirements of the Applicant. This is anticipated to take approximately six to nine months. A commissioning plan will likely be required to be agreed with the Environment Agency under the Environmental Permit, which will specify monitoring and control procedures to be used and set out a schedule of commissioning and testing activities.
- 5.4.75. Commissioning and testing activities include both cold and hot testing as a structured process to include static, dynamic, energised, functional and performance testing. These activities will generally commence using inert materials such as air, water and nitrogen and lubricants before progressing to pressurised operation using process fluids such a natural gas/ hydrogen and steam. Diesel supplies may be required on-site for use in mobile generators to supply temporary power.

5.5. References

- British Standards Institute (2015) Document PD 8010: Code of practice for Pipelines – Part 1: Steel pipelines on land.
- Commission Implementing Decision (EU) 2017/1442 of 31st July 2017, establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants' (2017). Official Journal L212 p. 1. Available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1503383091262&uri=CELEX:32017D1442> [Accessed 03 March 2025].
- Defra (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. London: Department for Environment, Food and Rural Affairs. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf [Accessed: 10 March 2025].
- Environment Agency (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. NC/99/73
- European Commission (2017) Best available techniques Reference document for Large Combustion Plants. Available online: https://eippcb.jrc.ec.europa.eu/sites/default/files/2019-11/JRC_107769_LCPBref_2017.pdf [Accessed 03 March 2025].
- HM Treasury (2014) National Infrastructure Plan. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/381884/2902895_NationalInfrastructurePlan2014_acc.pdf [Accessed 03 March 2025].
- Institute of Lighting Professionals (2020). Guidance Notes for the Reduction of Obtrusive Light. Available online: <https://www.e-lindsey.gov.uk/media/7382/ILP-Light-Nuisance-Guidance/pdf/ilp-guidance-note-1-for-the-reduction-of-obtrusive-light-2020.pdf?m=637165179566500000> [Accessed: 12 March 2025].
- Isle of Axholme and North Nottinghamshire Water Level Management Board (2018) Byelaws. Available online: [Water Management Consortium - Planning and Consenting \(wmc-idbs.org.uk\)](http://WaterManagementConsortium-PlanningandConsenting(wmc-idbs.org.uk)) [Accessed: 12 March 2025].
- Lindsey Marsh Drainage Board Water Level Management Board (2018) Advice Note AN02 Culverts and Bridges. Available online https://lmdb.wmc-idbs.org.uk/download/DocumentType/notices/AN02_Culverts-and-Bridges-Rev-3.pdf [Accessed: 12 March 2025].
- National Infrastructure Commission (2020). Net Zero - Opportunities for the Power Sector. Available online:

- <https://nic.org.uk/app/uploads/Net-Zero-6-March-2020.pdf>. [Accessed: 12 March 2025].
- Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope, Version 3, July 2018. Available online:
<https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>. [Accessed: 10 March 2025].
 - Secretary of State for Business, Energy and Industrial Strategy (2020). The Energy White Paper - Powering our Net Zero Future. Available online:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf
[Accessed: 10 March 2025]
 - The Definition of Waste: Development Industry Code of Practice, Version 2, March 2011. Available online:
<https://www.claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document> [Accessed: 05 March 2025].
 - The Construction (Design and Management) Regulations 2015 (SI 2015 No.51). London: The Stationery Office. Available online:
<https://www.legislation.gov.uk/uksi/2015/51/contents/made> [Accessed: 05 March 2025].
 - The Control of Major Accident Hazards Regulations 2015 (SI 2015 No.483). London: The Stationery Office. Available online:
<https://www.legislation.gov.uk/uksi/2015/483/contents/made> [Accessed: 05 March 2025].
 - The Eels (England and Wales) Regulations 2009. (SI 2009 No. 3344). London: The Stationery Office. Available online:
<https://www.legislation.gov.uk/uksi/2009/3344/made> [Accessed: 10 March 2025].
 - The Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No. 1154). London: The Stationery Office. Available online:
<https://www.legislation.gov.uk/uksi/2016/1154/contents/made> [Accessed: 12 March 2025].
 - The Marine and Coastal Access Act 2009 (c. 23). London: The Stationery Office. Available online:
<https://www.legislation.gov.uk/ukpga/2009/23/contents> [Accessed: 12 March 2025].
 - The Marine Licensing (Exempted Activities) Order 2011 (SI 2011 No.409). London: The Stationery Office. Available online:
<https://www.legislation.gov.uk/uksi/2011/409/contents/made> [Accessed: 04 March 2025].
 - The Pipeline Safety Regulations 1996 (SI 1996 No.825). London: The Stationery Office. Available online:

- <https://www.legislation.gov.uk/ukxi/1996/825/contents/made> [Accessed: 05 March 2025].
- The Planning (Hazardous Substances) Regulations 2015. (SI 2015 No. 627). London: The Stationery Office. Available online: <https://www.legislation.gov.uk/ukxi/2015/627/contents/made> [Accessed: 12 March 2025].
 - The Water Resources Act 1991 (c. 57). London: The Stationery Office. Available online: <https://www.legislation.gov.uk/ukpga/1991/57/contents> [Accessed: 12 March 2025].
 - Water Management Consortium (2018). Advice Note AN05. Service Crossings. Available online: <https://www.wmc-idbs.org.uk/planning-consenting> [Accessed: 08 May 2025].