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5.0 CONSTRUCTION PROGRAMME AND MANAGEMENT

5.1 Introduction

5.1.1 This Chapter describes the approach to construction of the Proposed Development. Some details cannot be finalised until a contractor has been appointed, so estimates have been made based on experience of similar developments.

5.2 Construction Programme and Methods

5.2.1 Eggborough Power Limited (EPL) (the Applicant) will appoint a contractor for the main works phase. That contractor is then likely to appoint subcontractors to undertake all of the associated civil works. EPL is committed to ensure the safe working environment for all employees and contractors. A Construction Environmental Management Plan (CEMP) will be prepared prior to construction, and the submission, approval and implementation of this is secured by a Requirement in Schedule 2 to the draft DCO (Application Reference No. 2.1). A framework CEMP has been prepared as part of this ES to support the DCO application (Appendix 5A – ES Volume III), which sets out the key measures to be employed during the main works phase to control and minimise the impacts on the environment.

5.2.2 It is anticipated that the site preparation, construction and commissioning of the Proposed Development will take approximately 40 months. The following diagram (Table 5.1) gives an indicative construction programme.

Table 5.1: Indicative construction programme

	2019				2020				2021				2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Demolition of ancillary structures	■	■														
Earthworks	■	■														
Main civil works			■	■	■	■	■	■	■	■						
Process works					■	■	■	■	■	■	■	■	■			
Gas connection/ AGI construction									■	■	■	■				
Commissioning													■	■		

Demolition and Earthworks

5.2.3 A small number of structures and buildings associated with the existing coal-fired power station are located within the footprint of the Proposed Power Plant Site and Proposed Construction Laydown area. Where possible, buildings within the Proposed Construction Laydown area will be re-used for the construction period, but all other buildings and structures, including the majority of the existing railway loop around the coal stockyard, will need to be demolished/ removed prior to the main civil and process works.

- 5.2.4 Earthworks may also be required to reprofile the Site, remove the coal layer, fill in the lagoon on the laydown area, excavate foundations and/or remove or remediate contaminated soils.

Construction Laydown Area

- 5.2.5 The contractor will provide temporary site facilities within the designated part of the Site (the Proposed Construction Laydown area) as shown on Figure 3.2. It is envisaged that the laydown area will be cleared, levelled and covered with hardstanding; it is likely that a permeable surfacing will be used that can accommodate storage of materials and placement of contractor cabins, but allows uncontaminated rain water to percolate to ground. Any hazardous or polluting materials or chemicals will be stored in separate bunded and controlled areas.

Spoil Storage

- 5.2.6 Spoil material generated during construction will be stored temporarily within the Site. If necessary suitable measures will be put in place to prevent sediment being washed off site, and the stockpiles will be monitored/ measured for wash away.
- 5.2.7 Soils will be managed in accordance with the Defra *Construction Code of Practice for the Sustainable Use of Soil on Development Sites* (Defra, 2009) to minimise impacts on soil structure and quality, and appropriate measures to minimise short term and long term impacts on land drainage will be discussed and agreed with each landowner (where relevant, principally the Proposed Gas Connection). These measures will be included in the CEMP, a framework for which is provided in Appendix 5A (ES Volume III).
- 5.2.8 The CEMP will incorporate measures to prevent an increase in flood risk during the construction works. For example, topsoil and other construction materials will be stored outside of the 1 in 100 year floodplain extent and only moved to the temporary works area immediately prior to use.

Main Civil and Process Works

- 5.2.9 The contractor will prepare and level the Proposed Power Plant Site, followed by piling and excavation for main foundations, e.g. stack, HRSG and turbine hall. The lighter buildings may be piled or have raft foundations.
- 5.2.10 Once the buildings are erected the contractor will commence the erection of plant, e.g. turbine hall crane(s), gas turbine, generator, steam turbine, HRSG, stack etc, with a stagger in between the CCGT units of approximately two months.

Construction of Gas Connection and Above Ground Installation

- 5.2.11 The gas connection and Above Ground Installation (AGI) will be constructed by EPL's contractor, coordinated with National Grid. The construction of the Minimum Offtake Connection (MOC) from Feeder 29 and the National Grid AGI will be undertaken by a National Grid approved contractor.
- 5.2.12 The construction of the MOC will require stripping and storing topsoil and excavation to approximately 1 m below the depth of the existing gas main (Feeder 29) along a length of approximately 12 m (6 m either side of the connection point). 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.

- 5.2.13 The construction of the National Grid AGI will involve excavating (and shuttering where necessary) areas for installation of valve trains and connections between valve trains and the MOC and EPL compounds, installing valves and pipework, electrical and telemetry equipment. Following installation of below ground infrastructure, the area will be backfilled and excess soils will be used in the landscaping of the compound perimeter.
- 5.2.14 The construction of EPL's compound adjacent to the National Grid AGI will require excavation of a trench up to the interface with the National Grid AGI compound to allow installation of a swan neck to bring the pipework above ground for the Applicant's compound, and installation of valves and pipework, the Pipeline Inline Gauging (PIG) trap, and electrical and telemetry equipment. Following installation of below ground infrastructure, the area will be backfilled and excess soils will be used in the landscaping of the compound perimeter.
- 5.2.15 The construction of the National Grid and EPL compounds is expected to take up to nine months, but with the majority of the work being completed in the first three months.
- 5.2.16 The majority of the gas pipeline connecting the AGI/ EPL's compound to the Proposed Power Plant Site will be constructed using an open cut method. A trench will be excavated and the pipe laid approximately 1.2 m below ground level. This will involve fencing off the works area, stripping and storing topsoil, excavating a trench and storing subsoil, laying and welding pipe sections together at grade level (pipe stringing), laying pipe in the trench, re-instating land drainage, and then backfilling subsoil, reinstating topsoil and re-planting to the original state as required (see Figure 5.1).
- 5.2.17 The corridor width required for open cut pipeline construction is 36 m. This is the minimum working width that is required to facilitate ease of construction. This width allows topsoil and spoil to be excavated and stored adjacent to point of generation, stringing and welding of sections of pipe, access along the route, and laying of the pipe within the trench prior to backfilling.
- 5.2.18 Overall construction of the pipeline is likely to take circa nine months although each section of the pipeline will only take around three months to install.
- 5.2.19 For special crossings, such as the crossing under the River Aire and the A19, 'no dig' construction techniques will be employed. Details of the method to be employed will be determined by the contractor, but it is considered most likely that horizontal directional drilling will be used to cross beneath the River Aire and auger boring will be used to cross beneath the A19. Additional land will temporarily be required either side of these and other minor (open cut) crossing points to allow for movement of additional plant; this land has been allowed for within the Site, as shown on the Works and Land Plans (Application Document Ref. Nos. 4.4 and 4.2 respectively), which is reflected in the pipeline corridor shown in Figure 4.3.
- 5.2.20 The River Aire crossing is likely to take approximately 8 to 12 weeks to construct. A temporary works compound of approximately 100 x 70 m will be required at the drilling launch site and a temporary works compound of approximately 100 x 40 m will be required at the drilling exit site.

- 5.2.21 The A19 crossing is likely to take approximately two weeks to construct. A temporary works compound of approximately 75 x 50 m will be required at the boring launch site and a temporary works compound of approximately 75 x 25 m will be required at the exit site.

Construction of Water Connections

- 5.2.22 The Proposed Cooling Water Connections abstraction and discharge points are at the existing coal-fired power station cooling water abstraction and discharge points on the River Aire. The existing pipework and associated infrastructure in the River is likely to need to be upgraded or replaced as part of the Proposed Development, due to its age and condition. The pipelines will be constructed using open cut methods and construction will take approximately four months.
- 5.2.23 Additional works will also be required at the abstraction point (and potentially discharge point) to fulfil the obligations of the Eels (England and Wales) Regulations 2009, which may require the installation of an eel screen.
- 5.2.24 Temporary cofferdams will need to be installed at both the abstraction and discharge points, to enable construction works to take place safely in the River Aire.
- 5.2.25 At the cooling water abstraction point, the cofferdam would extend approximately 11 m from the riverbank into the River. This is required in order to allow works to the existing abstraction structure which includes a concrete apron extending approximately 8 m from the riverbank (see Figure 5.3). It is anticipated that the cofferdam will be required for two separate three month periods, with an intervening gap of approximately six months. The first three month period will comprise inspections, measurements and cleaning of the existing structure to inform the detailed design of works required to upgrade/ reconstruct the existing infrastructure.
- 5.2.26 At the cooling water discharge point, the cofferdam will extend approximately 22 m from the top of the riverside embankment in order to allow works to the existing discharge structure and associated apron which extends approximately 18 m from the top of the embankment. It is anticipated that this cofferdam would be required for approximately three to six months.
- 5.2.27 The EIA has assessed the potential environmental impacts of the cofferdam including noise, marine ecology, flood risk, water quality, erosion and scour impacts (see Chapters 9: Noise and Vibration, 10: Ecology and Nature Conservation and 11: Flood Risk, Hydrology and Water Resources). Measures to minimise environmental effects include the two-stage cofferdam installation at the abstraction point as described above (to reduce the duration of the cofferdam being present in the water for ecological, flood risk and hydrodynamic/ erosion/ scour purposes), avoidance of cofferdam installation or removal between October and December (to avoid the main salmonid migratory period), installation of the cofferdams during the summer/ lower flow periods (for flood risk and hydrodynamic/ erosion/ scour purposes), and pre-construction sediment contamination testing and use of silt curtains (to minimise impacts on water quality).

- 5.2.28 Other potential impacts associated with the construction works in the River that have been considered include river navigation, recreational fishing and potential impacts on the operation of the Chapel Haddlesey hydro-electricity generation scheme to the east of the cooling water abstraction point. It is concluded that:
- navigation will not be impeded and appropriate warning signs will be installed for navigational safety;
 - impacts on recreational fishing will be negligible as the only accessible area for fishing is around the cooling water discharge point, where approximately 30 m of the riverbank will be closed for a period of up to 6 months; and
 - impacts on the hydro-electricity generation scheme are not anticipated to be significant due to the short duration of cofferdam installations, and because the cofferdams will be installed in the summer/ low flow periods when hydro-electricity generation would be limited by low river flows.
- 5.2.29 The Proposed Borehole Connections utilise the existing groundwater abstraction borehole locations for the existing coal-fired power station, but due to the age and condition of the existing pipework and associated infrastructure it is likely to need to be upgraded or replaced as part of the Proposed Development. Borehole connection pipelines will be constructed using open cut methods over a period of approximately three months.
- 5.2.30 The towns water supply will be provided by two new connections to tapping points in the the A19 and Wand Lane. New towns water pipelines will be constructed using open cut methods over a period of approximately three months.

Construction Staff

- 5.2.31 On average, it is estimated that there will be around 500 construction personnel on the Site in any one day. It is estimated that there will be up to 1,200 personnel contracted to work on the Site at the peak of construction. The peak of construction activity and traffic is anticipated to be in around month 18.
- 5.2.32 Construction staff are anticipated to travel to the Site via the existing trunk road and local networks. EPL will seek to maximise sustainable transport options such as public transport, cycling and car share in accordance with its current practice and policy as outlined in the Framework Construction Workers Travel Plan (see Annex Y of the Transport Assessment in Appendix 14A, ES Volume III) and secured through a Requirement in the DCO.

Construction Hours of Work

- 5.2.33 Construction working hours will generally be Monday to Friday 07:00 to 19:00 and Saturday 07:00 to 13:00, however it is likely that some construction activities will be required to be 24 hours at certain times. This is principally certain construction activities that cannot be stopped, such as concrete slip forming. Where on-site works are to be conducted outside the core hours they will comply with any restrictions agreed with the planning authorities, in particular regarding control of noise and traffic. 24 hour working for certain activities has therefore been assessed in Chapter 9: Noise and Vibration. It is also proposed that work may be carried out through the night so long as it does not cause existing ambient noise levels at sensitive receptors to be exceeded. Chapter 9: Noise and Vibration sets out specific mitigation and control measures required to prevent disturbance from night time construction activities.

Requirements in Schedule 2 of the draft DCO (Application Document Ref. No. 2.1) secure the working hours and the approach to exceptions to the usual working hours.

- 5.2.34 Given the above, activities that could generate a noise nuisance will not be carried out at night, including but not limited to sheet piling, piling, use of impact wrenches, concrete scabbling, use of reversing sirens, and concrete jack hammering. A noise monitor will be installed at the boundary of the Site, with a night time noise limit to be used at this monitor during construction (limit to be agreed with Selby District Council). Lighting for night time working 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.

Construction Traffic/ Site Access

- 5.2.35 It is anticipated at this stage that there will be up to three access points to the Proposed Power Plant Site and Proposed Construction Laydown area (and other parts of the Site within the existing coal-fired power station) for vehicles during construction: the existing access from Wand Lane (Hensall Gate); the existing main Power Station entrance from the A19; and the existing access from the A19 via Tranmore Lane (south of the main entrance). All three are capable of accommodating normal Heavy Goods Vehicle (HGV) traffic. The Hensall Gate entrance is currently used by power station contractors and maintenance staff especially during shutdowns of the existing coal-fired power station.
- 5.2.36 As the details of access arrangements are not yet fixed, it has been assumed for the purposes of assessment that HGV traffic during construction would use the Tranmore Lane entrance, while workers during construction would use the Hensall Gate entrance. This would leave the existing main entrance to the existing coal-fired power station available for traffic associated with other activities in the wider power station site (including decommissioning and demolition of the existing coal-fired power station).
- 5.2.37 Access for construction of the Proposed Gas Connection and AGI will be via Wand Lane (the existing access track and a temporary new access near Hensall Gate), Millfield Road (east of Chapel Haddlesey, entering the construction corridor to the north and south), Fox Lane (near Lodge Farm), the A19 (in the vicinity of Burn Lodge Farm, both east (via a new temporary access track south of Burn Lodge Farm) and west (via an existing track known as Whitings Lane) of the A19) and West Lane (for AGI construction only).
- 5.2.38 Access for construction of the Proposed Cooling Water Connections will be via the A19 (existing access at the cooling water abstraction point) and Wand Lane (using the existing access track to the west of Hensall Gate and a potential additional access point into the pipelines corridor in the vicinity of Hensall Gate).
- 5.2.39 Access for the construction of the Proposed Surface Water Connection to Hensall Dyke will be via the existing track off Hazel Old Lane.
- 5.2.40 The locations of all access points are shown on Figure 3.2 (ES Volume II).

Storage of Construction Plant and Materials

- 5.2.41 There will be gravelled laydown areas positioned close to access roads on the Site where any materials will be unloaded and then transported to the area of works. It is not envisaged that these will be for long term storage of materials (storage will be for six months or less).

- 5.2.42 At the end of the shift, mobile plant will be returned to a secure overnight plant storage area where drip trays can be utilised under the various types of plant if needed.
- 5.2.43 Storage areas for flammable/ toxic/ corrosive materials will be located in a separate, locked, bunded and fenced off area. Material data sheets will be available for all these materials and the COSHH (Control of Substances Hazardous to Health) assessments kept within the relevant Risk Assessment for the task, all subject to EPL's approval.

Lighting

- 5.2.44 Construction temporary site lighting is proposed to enable safe working on the construction site in hours of darkness. Construction temporary lighting will be arranged so that glare is minimised outside the construction site. A Lighting Strategy has been prepared to support the DCO application (Application Document Ref No. 5.11), and will be secured through a Requirement in Schedule 2 of the draft DCO (Application Document Ref. No. 2.1).

Wheel Wash Facilities

- 5.2.45 A self-contained wheel wash will be installed to be used by vehicles prior to exiting the Site onto the public highway.
- 5.2.46 For loads unable to use the fixed wheel wash, a localised wheel washing will be set up to cater for these individually and as required to ensure no detrimental effect to the highway.

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

- 5.2.47 EPL will require that the contractor produces and maintains a CEMP to control site activities to minimise any impact on the environment. This will include industry best practice measures, and specific measures set out in this ES. A framework for the CEMP is included in Appendix 5A (ES Volume III).
- 5.2.48 In order to manage and monitor waste generated on Site, a framework Site Waste Management Plan (SWMP) has also been developed as part of the framework CEMP, which allows for waste streams to be estimated and monitored and goals set with regards to the waste produced (see Appendix 5A – ES Volume III). The CEMP and SWMP are secured through Requirement in Schedule 2 of the draft DCO (Application Document Ref. No. 2.1).
- 5.2.49 EPL will require that the contractor separates the waste streams on Site, prior to them being taken to a waste facility for recycling. All waste removal from Site will be undertaken by fully licensed waste carriers and taken to licensed waste facilities.

Commissioning

- 5.2.50 Commissioning of the Proposed Development will include testing and commissioning of the process equipment. This will involve both cold and hot commissioning.

5.3 Demolition

- 5.3.1 The existing coal-fired power station is anticipated to cease generation between 2018 and 2019, and demolition is anticipated to take approximately three years (starting 2018 at the

earliest), so it is likely that the decommissioning and demolition of the existing coal-fired power station will take place at the same time as construction of the Proposed Development and/ or the start of the Proposed Development's operational phase.

5.3.2 There is potential for cumulative effects associated with decommissioning and demolition to interact with the predicted effects of construction of the Proposed Development and these are assessed within this ES.

5.3.3 Separate construction working zones in accordance with the Construction (Design and Management) Regulations 2015 will be defined for the Proposed Development construction and existing coal-fired power station demolition in order to manage health and safety appropriately, and where one contractor needs to enter the other zone for set pieces of work, this will only be done with agreement between both contractors for the agreed tasks at an agreed time.

5.4 References

Department for Environment, Food and Rural Affairs (2009) *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites*