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5.0 CONSTRUCTION PROGRAMME AND MANAGEMENT

5.1 Introduction

- 5.1.1 This chapter provides a summary of the approach to the construction phase of the Proposed Development.
- 5.1.2 This includes information on construction programme and timings, and methods of working where available.
- 5.1.3 Some details relating to the construction phase cannot be accurately defined at this stage as a construction contractor has not yet been appointed. Where this is the case estimates have been made based on experience of similar developments and professional judgment.

5.2 Construction Programme

- 5.2.1 Once all of the required consents and permissions have been obtained, a contractor will be appointed for the construction.
- 5.2.2 An outline construction programme is presented below in Table 5.1. Currently it is anticipated that the site preparation, construction and commissioning of the Proposed Development will take approximately three years. The programme is expected to be the same for either a one or two-stream development (see Chapter 4: The Proposed Development), and if the Proposed Development is built in two phases then it is expected that there would be two three year construction phases (which may overlap).
- 5.2.3 It is common for the majority of ground work, for example piling and pouring of concrete slabs, to be completed prior to the erection of any above ground structures. The erection of civil and structural systems such as cladding and external civil works usually continue whilst mechanical erection is ongoing. However, the detailed phasing of construction is the responsibility of the appointed construction contractor and can vary considerably dependent on plant layout and procurement of key equipment.
- 5.2.4 It is anticipated that construction activities will commence in quarter 3 (Q3) (July-September) of 2019, with the Proposed Development becoming operational in 2022. If two phases of construction are required, the second phase would be expected to start within five years of the completion of the first phase.

Table 5.1: Indicative construction programme (single construction phase development scenario)

	2019				2020								2021								2022																			
	Q3		Q4		Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4		Q1		Q2		Q3															
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
Site mobilisation	◆																																							
Enabling works																																								
Earthworks and civils																																								
Mechanical erection																																								
Cold commissioning																																								
Hot commissioning																																								
Connection date																																								
First fire with primary fuel																																								
Take over																																								

5.3 Construction Methods

Construction Equipment

- 5.3.1 For the purposes of the environmental assessments presented in this Environmental Statement (ES) (in particular for the noise assessment presented in Chapter 8: Noise and Vibration), estimates have been made of the types and numbers of plant and machinery likely to be used on the Site during the construction period. This has been estimated based on experience of similar developments. Appendix 8C presents a list of the typical plant and equipment requirements during construction that have been assumed for the construction noise assessment. If construction is phased then it is assumed that the same plant and equipment would be required for both phases.

Demolition

- 5.3.2 No demolition is required prior to construction commencing.

Earthworks

- 5.3.3 Earthworks will be required to reprofile the Site. This will be necessary to fill in the two existing man-made ponds, excavate foundations and remove or remediate unsuitable soils if required.
- 5.3.4 The appointed contractor may also express a preference to cut and fill the top layer (c. 2 m) of ground to improve the geotechnical condition of the ground. Should this be required it is estimated that a volume of approximately 160,000 m³ of spoil could be generated. Some of this could be reused on Site but as any significant land raising could have undesirable flood risk impacts (see Chapter 14: Flood Risk, Hydrology and Water Resources and Appendix 14A: Flood Risk Assessment) the majority of the material will need to be removed off Site to a suitable waste facility. This has been considered when estimating peak construction traffic movements (see Chapter 9: Traffic and Transport) and construction waste (see Chapter 16: Waste).
- 5.3.5 Some spoil may need to be temporarily stored within the Site. If necessary suitable measures will be put in place to prevent sediment runoff being washed off Site and will be stored appropriately to avoid any flooding impacts.
- 5.3.6 Soils will be managed in accordance with best practice and a Materials Management Plan (MMP) will be prepared to detail the procedures and measures to be taken to manage excavated materials. Measures for the management of any contaminated soils will also be set out in the Construction Environmental Management Plan (CEMP). A framework CEMP is presented within Appendix 5A in ES Volume III.

Construction Laydown Areas and Welfare Facilities

- 5.3.7 The proposed construction laydown areas including storage, site offices, welfare facilities and car parking, will be located within the Site, but are expected to be mainly outside the Main Development Area to the south and east.
- 5.3.8 Vegetation clearance, levelling and ground preparation works for these laydown areas will be required to provide a suitable surface material. This will be permeable as to allow uncontaminated rain water to percolate to ground, with suitably bunded locations identified as storage areas for any hazardous or polluting materials or chemicals to prevent pollution.

Erection of Buildings and Structures

- 5.3.9 Based on the expected ground conditions and the proximity of the Site to the Humber Estuary it is expected that piles will be required as a foundation for the main buildings. A Piling Risk Assessment will be undertaken in accordance with Environment Agency

guidance to consider and mitigate the risks of causing new pollutant linkages and/or worsening existing linkages with respect to risks to controlled waters during construction.

Construction of Utilities Connections

- 5.3.10 The Proposed Development will require a number of utilities connections including electricity and gas connections, foul and surface water drainage connections, mains water and telecommunications. These connections will be provided by the relevant statutory undertaker and are considered where relevant in the assessment of cumulative effects (see Chapter 17: Cumulative and Combined Effects).
- 5.3.11 Within the Site, pipes and cables will be laid both above and below ground. Those laid below ground will require the excavation and backfilling of trenches.

Construction Staff

- 5.3.12 On average and based on the construction of similar developments, it is estimated that the construction workforce will peak at around 750 workers if the two stream Proposed Development is built in a single construction phase. If a single stream development is built, or if construction is in two phases, the peak construction workforce is expected to be around 450 workers.
- 5.3.13 The peak of construction activity and construction related traffic movements is anticipated to be in the second year of the construction phase (around Q3 2020). If a second construction phase is required the peak of construction of Phase 2 would also be around the start of the second year of the second construction phase.
- 5.3.14 It is anticipated that construction staff will use the existing trunk road and local networks to travel to the Site. Further detail is presented in the Construction Traffic Management Plan, and Construction Worker Travel Plan of the Transport Assessment presented within Appendix 9A in ES Volume III.

Construction Traffic and Site Access

- 5.3.15 Based on the anticipated peak construction workforce there will be an estimated peak of around 375 passenger vehicle one-way movements per day to Site.
- 5.3.16 Based on typical requirements for bulk deliveries during construction the estimated peak of deliveries will generate around 58 HGV one-way movements per day to Site.
- 5.3.17 In addition, if the top layer of soil is replaced for geotechnical ground improvement (see above), it is estimated that around 160,000 m³ of material would need to be removed from Site. This activity would generate approximately 180 one-way additional HGV movements per day over a period of approximately three months in the first year of construction.
- 5.3.18 There are two potential access points to the construction site:
- access using the existing gate in the perimeter fence on South Marsh Road in the north-west of the Main Development Area; and
 - access using the proposed new access point from South Marsh Road in the north-east of the Main Development Area.
- 5.3.19 Access via the existing South Humber Bank Power Station (SHBPS) entrance has also been considered but is not preferred due to potential for disruption to the operation and security of SHBPS.
- 5.3.20 All HGV construction traffic will access/ depart the Site via the A180, the A1173, Kiln Lane, Hobson Way and South Marsh Road.

Construction Working Hours

5.3.21 Construction working hours are generally expected to be undertaken between 07:00 and 19:00 Monday to Saturday. Any concrete slip-forming activities e.g. for the fuel bunker, will need to be carried out continuously over a 24 hour period. Where on Site works are to be conducted outside the core hours they will comply with any restrictions agreed with the planning authorities, and in particular regarding control of noise and traffic. Work may be carried out through the night so long as it does not cause existing ambient noise levels to be exceeded.

Construction Lighting

5.3.22 Temporary construction lighting would be required at the Site to enable safe working in the hours of darkness. Any temporary construction lighting used at the Site will be arranged so that light spill is minimised outside of the Site to avoid disturbance to sensitive receptors, including ecological receptors.

5.3.23 At the detailed design stage, the detailed operational lighting scheme will be designed to control obtrusive light to suitable limits and could include the following mitigation measures as part of good lighting design practice:

- use of shields/ baffles/ shrouds to minimise source intensity and contribution to sky glow from upward lighting;
- use of reflectors to redirect light back downward to desired work areas;
- confining lighting to task areas; and
- limiting the mounting height of lighting.

Construction Environmental Management Plan (CEMP)

5.3.24 Standard best practice mitigation measures that will be adopted during the construction phase have been taken into account in the detailed assessments presented within the ES. Construction works will be undertaken in accordance with the environmental commitments identified in the ES and having regard to relevant legislation.

5.3.25 A framework for the CEMP is included as Appendix 5A presented within ES Volume III which the contractor's detailed CEMP for the Proposed Development will be based on. Should planning permission for the Proposed Development be granted, the framework CEMP will be updated and agreed with North East Lincolnshire Council (NELC) in advance of commencement of construction activities.

5.3.26 The purpose of the CEMP is:

- to ensure nuisance levels as a result of construction and operation activities are kept to a minimum;
- to comply with regulatory requirements and environmental commitments;
- to ensure procedures are put into place to minimise environmental effects during construction; and
- to maximise potential environmental enhancements.

Materials Management Plan (MMP)

5.3.27 Following the completion of a pre-construction ground investigation (see Chapter 15: Geology, Hydrogeology and Land Contamination) a MMP will be prepared alongside any earthworks/ excavation/ reclamation strategy. The MMP will detail the procedures and measures that will be taken to classify, track, store, dispose of and possibly re-use excavated materials that are expected to be encountered during the construction works.

- 5.3.28 The disposal of soil waste, contaminated or otherwise, to landfill sites will be best mitigated by minimisation of the overall quantities of waste generated during construction and by ensuring that excavated material can, as an alternative to landfill, be put to use either on Site or on other sites (see Chapter 16: Waste Management).