Table of Contents

Contents

Tables

4. Construction Programme and Management

4.1 Introduction

4.1.1 This chapter of the Environmental Statement (ES) describes the construction phase of the Proposed Developments. This includes information on the anticipated construction programmes, timings, and methods of working, where available.

4.1.2 At this stage, detailed construction programmes are not available, as these are normally determined by the Engineering, Procurement and Construction (EPC) contractors 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.

4.1.3 All enabling and construction works will be undertaken in accordance with the Construction Design and Management Regulations (2015) (CDM Regulations).

4.2 Construction Timing and Programme

4.2.1 As described in Chapter 3: Proposed Developments Description, Need and Alternatives Considered, construction of the Proposed Developments could (subject to the necessary consents being granted and government policy/ funding support being in place to enable final investment decisions to be made) potentially start in Quarter 2 of 2024 for the Proposed Phillips 66 Development and Quarter 3 of 2024 for the Proposed VPI Development.

4.2.2 The Applicants would each appoint suitable execution contractors for the construction of the two Proposed Developments. Table 4.1 shows the high level construction and commissioning programme for the Proposed Phillips 66 Development and Table 4.2 provides the high level construction and commissioning programme for the Proposed VPI Development.

4.2.3 It is common for much of the groundwork, for example piling and pouring of concrete slabs, to be completed prior to the erection of any above ground permanent structures. The completion of buildings and structural components, such as cladding and external civil works, usually continues whilst mechanical erection is ongoing. 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.

Table 4.1: Indicative construction and commissioning programme for the Proposed Phillips 66 Development

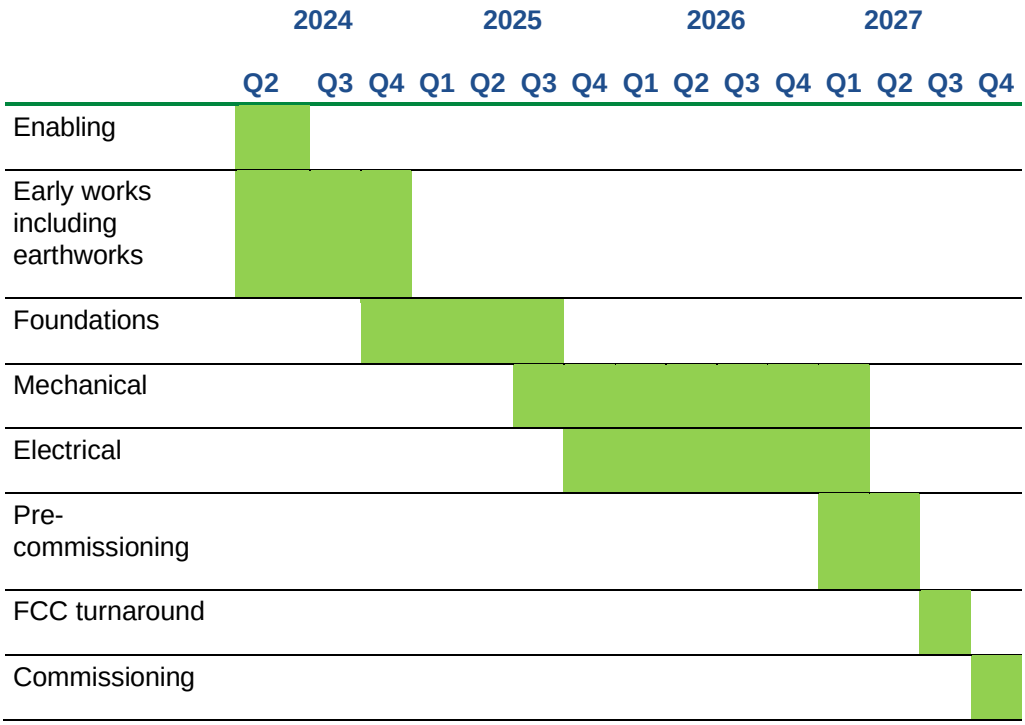
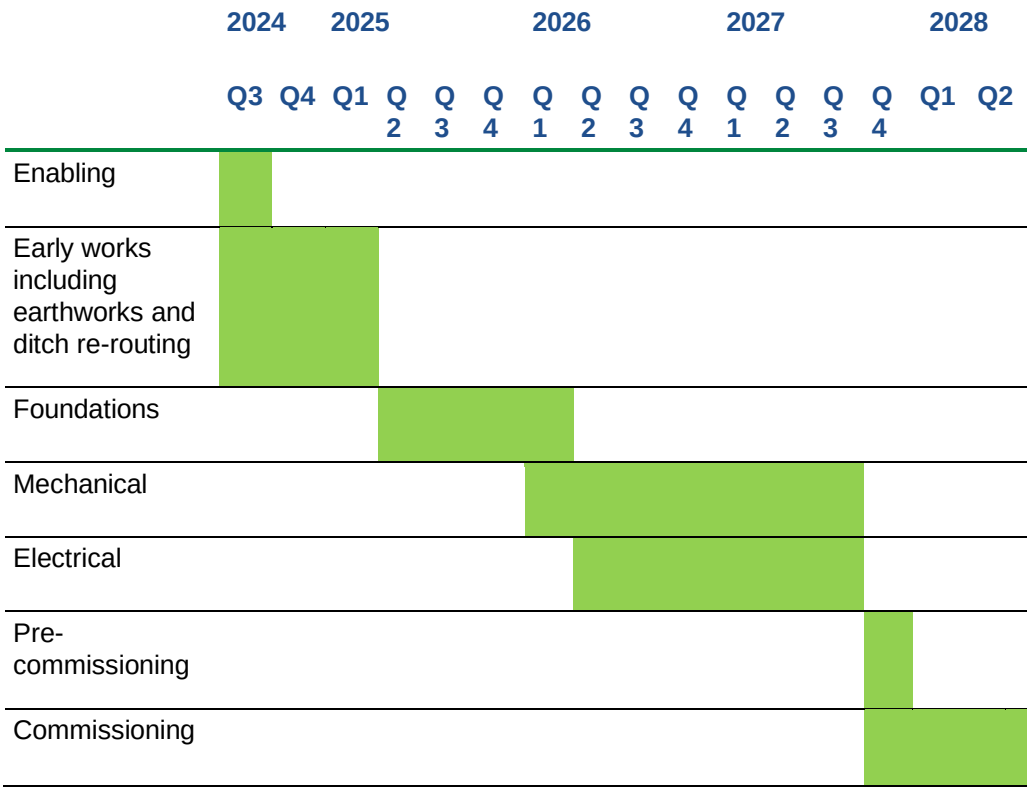


Table 4.2: Indicative construction and commissioning programme for the Proposed VPI Development



4.3 Construction Approach

4.3.1 During the detailed design stage, the approach to construction will be defined. For the purposes of this ES, it is assumed that certain parts of the capture plants will be modularised and pre-fabricated/ assembled. Modularised units, along with large specialist equipment are likely to require special transport and lifting 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.

4.3.2 Small components and modules will be transported using the existing road network with more significant modules potentially being transported to the Port of Immingham.

4.3.3 Construction traffic and road haulage will be achieved along designated transport routes as outlined within the Framework Construction Traffic Management Plan (CTMP) (Appendix 8B in ES Volume II). The Final CTMP will be prepared by the EPC Contractors in accordance with the Framework CTMP.

4.3.4 A Framework Construction Worker Travel Plan (CWTP) is also provided to accompany the planning applications (See Appendix 8C in ES Volume II) as requested by North Lincolnshire Council Highways.

4.3.5 Construction Environmental Management Plans (CEMPs) will be prepared by the EPC Contractors prior to construction. An Outline CEMP is provided in Appendix 4A (ES Volume II) setting out the key measures to be employed to control and minimise impacts on the environment.

4.4 Construction Methods

Construction Equipment

4.4.1 For the purposes of this ES (and in particular for the noise and vibration assessment presented in Chapter 7: Noise and Vibration), reasonable worst-case estimates have been made of the types and numbers of plant and machinery likely to be used at the Sites during construction of the Proposed Developments, as well as the use of piling for foundations of the main structures (and where required to provide crane pads for use during construction).

Site Enabling and Preparation Including Earthworks

4.4.2 Enabling and early works at the Phillips 66 Site are anticipated to commence in Quarter 2 of 2024 and are anticipated to be completed by the end of Quarter 4 2024. These are likely to include initial site clearance/ demolition, bulk earthworks and installation of temporary construction facilities. Protective fencing will be installed for trees where required (e.g. between the trees along the north-east side of the railway line and the VPI Site and Phillips 66 CO_2 pipeline construction works).

4.4.3 Enabling and early works at the VPI Site are anticipated to commence in Quarter 3 of 2024 and are anticipated to be completed by Quarter 1 2025. Early works include provision of easements, the establishment of a new site entrance on Rosper Road, followed by clearing the site, ditch relocation, and remediation works as well as the construction of temporary facilities.

4.4.4 Earthworks will include the clearing of unsuitable soil and reprofiling with clean infill (where required). As far as reasonably practicable, a material cut and fill balance will be sought to minimise waste arisings, but for the VPI Site it is anticipated that some import/ export of materials will also be necessary to provide a suitable foundation platform for the Proposed VPI Development (and this is accounted for in the assessment of construction traffic in Chapter 8: Traffic and Transport). It is anticipated that approximately 130,000 m^3 excavated material may need to be disposed off site and approximately 130,000 m^3 of fill material may need to be imported over a c. five month period to provide a suitable platform for foundations and buildings/ equipment across the VPI Site.

4.4.5 For the Proposed Phillips 66 Development, three existing buildings and some smaller structures within the Humber Refinery will be demolished.

4.4.6 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.

4.4.7 Any excess spoil generated during construction of the Proposed Developments will be managed through Site Waste Management Plans (SWMPs) that would form part of the Contractors' CEMPs. Demolition waste will also be managed through the SWMPs. Demolition and construction waste is assessed in Chapter 15: Materials and Waste.

4.4.8 Spoil which cannot be re-used will be removed from site for re-use, 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.

4.4.9 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.

4.4.10 Existing services within the Sites may require relocation within the Sites and South Killingholme Drain will be re-located within the VPI Site.

Construction Laydown Areas and Welfare Facilities

4.4.11 Proposed laydown areas required during construction, including equipment and material storage, site offices, batch concrete facilities, welfare facilities and car parking, environmental/ waste handling areas and vehicle wheel wash areas will be located within the Sites. Laydown areas will be required for the duration of construction.

4.4.12 The main laydown areas for the Proposed Phillips 66 Development will be in the north-west part of the Phillips 66 Site (see Figure 2.1). A dedicated construction and welfare village will be created and this is planned to be retained as a permanent facility for maintenance use following commissioning of the project.

4.4.13 The main laydown area for the Proposed VPI Development will be in the southern part of the VPI Site (see Figure 2.1). Existing areas of hardstanding within the VPI Immingham CHP Plant will also be used for construction laydown.

4.4.14 Where storage space is limited, materials will be delivered in a phased manner to suit construction requirements month to month.

4.4.15 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 would be stored unbunded within the construction laydown areas. All construction laydown areas would be secured by security fencing and gates as appropriate.

Main Civil and Process Works

4.4.16 Following site preparation and ditch re-routing the Contractor will undertake piling and excavation for main foundations for some of the larger elements of the Proposed Developments. Below groundworks may require dewatering by well pointing for larger foundations. If water is encountered during below ground construction, suitable de-watering 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 and Environmental Permitting (England and Wales) Regulations 2016.

4.4.17 Piling and penetrative foundation design method statements, informed by a risk assessments, will be undertaken for each Proposed Development in accordance with Environment Agency guidance (2001). All piling and penetrative foundation works will be carried out in accordance

with the approved method statements to prevent contamination of the underlying soils and groundwater. Easements will also be established prior to piling activities.

4.4.18 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 structures erected around it.

4.4.19 Plant and equipment will be pre-fabricated where practicable, however, it is anticipated that larger equipment may need to be fabricated and erected on site due to its anticipated size.

Construction Staff

4.4.20 It is estimated that there will be circa 790 personnel contracted to work on the Proposed Phillips 66 Development at the peak of its construction and circa 840 personnel contracted to work on the Proposed VPI Development at the peak of its construction. This figure is based on experience of other comparable developments and informs the transport assessment presented in Chapter 8: Traffic and Transport and Appendix 8A: Transport Assessment (ES Volume II).

4.4.21 Information on proposed measures to manage the impacts of construction staff traffic is provided in the Framework Construction Workers' Travel Plan (CWTP) in Appendix 8C (ES Volume II).

Construction Working Hours

4.4.22 Normal construction working hours for the Proposed Phillips 66 Development could be 24/7 where required as per the existing Humber Refinery operating and maintenance working hours.

4.4.23 Normal construction working hours for the Proposed VPI Development will be 07:00 and 19:00 Monday to Friday (except Bank Holidays) and 07:00 to 13:00 on Saturdays (the hours defined by British Standard 5228: Code of practice for noise and vibration control on construction and open sites (British Standards Institute, 2009) as 'daytime' hours), with no working on Sundays and Bank Holidays. However, it is likely that some construction activities may need to be undertaken outside of these normal working hours and could be 24/7, limited to manage critical periods where required, principally because certain construction activities cannot be stopped, such as concrete pouring, pipework testing and commissioning but also potentially to manage the construction programme. Where on-site works are to be conducted outside the normal construction working hours, they will comply with any restrictions agreed with the local planning authority, in particular regarding control of noise.

4.4.24 The noise assessment assesses the potential for 24/7 working for both of the Proposed Developments.

Construction Traffic and Site Access

4.4.25 Access to the Phillips 66 Site during construction for both construction workers and HGV traffic will be via the existing access road and the new access road from Eastfield Road, with signage provided for routing of construction traffic.

4.4.26 Access to the VPI Site during construction for both construction workers and HGV traffic will be via the existing accesses from Rosper Road, with signage provided for routing of construction traffic.

4.4.27 Framework Construction Traffic Management and Construction Worker Travel Plans are provided in Appendices 8B and 8C (ES Volume II).

4.4.28 Combining construction workforce vehicle movements with construction HGV movements over the entire construction programme for both Proposed Developments, assuming concurrent construction as shown in Tables 4.1 and 4.2, shows the overall peak HGV movements will be approximately 480 per day (240 in and 240 out). Further information on

traffic volumes and routing for the respective Sites are provided in Appendix 8A: Transport Assessment (ES Volume II**).**

Construction Lighting

4.4.29 Construction temporary site lighting, including external lighting is proposed to enable safe working on the Sites in the hours of darkness.

4.4.30 The external lighting schemes will be designed to provide safe working conditions whilst reducing light pollution and the visual impact on the local environment. The temporary construction lighting will be arranged so that glare is minimised outside the Sites. The lighting scheme will be designed in accordance with relevant standards, including the Guidance Notes for Reduction of Obtrusive Light (2021) published by the Institution of Lighting Professionals.

Security

4.4.31 Security will be managed to ensure that risks are maintained to as low as reasonably practicable. The approach to security will include:

- compliance with the existing security policies, procedures and arrangements for the Humber Refinery and VPI Immingham CHP Plant;
- controlled pedestrian and vehicular access to the Sites;
- perimeter fencing around the Sites; and
- closed circuit television surveillance and intruder alerts.

Wheel Wash Facilities

4.4.32 In the interests of highway safety, wheel cleaning facilities will be installed at the Sites exits from the start of the construction phase where there is a risk of dirt and debris being deposited on the public highway. The need for this measure will be periodically reviewed throughout the construction phase.

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

4.4.33 CEMPs will be developed to control construction activities at each of the Sites to minimise potential impacts on the environment and include best practice mitigation during the construction of the Proposed Developments. An Outline CEMP is provided in Appendix 4A (ES Volume II).

4.4.34 The purpose of the CEMPs is:

- to ensure disturbance 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.

4.4.35 SWMPs will be developed as part of the CEMPS to control and manage all wastes arising from the construction activities to minimise, as far as reasonably practicable, impacts on the environment. The SWMPs will specify the waste streams to be estimated and monitored and will set goals with regards to the waste produced.

4.4.36 Construction best practice measures that will be adopted during the construction phase are set out in each technical chapter of the ES (Chapters 6 to 17) and have been taken into account in the EIA.

Commissioning and Testing

4.4.37 Pre-commissioning and commissioning of the Proposed Developments will 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. This is anticipated to take approximately six to nine months for each Proposed Development. A commissioning plan will 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.

4.4.38 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 and steam.

4.5 References

British Standards Institute (2009) British Standard 5228: Code of practice for noise and vibration control on construction and open sites

CL:AIRE (2011) The Definition of Waste: Development Industry Code of Practice

Department for the Environment, Food and Rural Affairs (2009). 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites'. London: Department for Environment, Food and Rural Affairs. [Available at] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf

Environment Agency (2001). 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. NC/99/73'

Institute of Lighting Professionals (2020). 'Guidance Notes for the Reduction of Obtrusive Light' [Available at] https://www.e-lindsey.gov.uk/media/7382/ILP-Light-NuisanceGuidance/pdf/ilp-guidance-note-1-for-the-reduction-of-obtrusive-light-2020.pdf?m=637165179566500000